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Student Connectedness and Academic Achievement: A Quantitative Study of Career and Technical Education Students

Kern McGinley
Concordia University - Portland, mcginley_kern@asdk12.org

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Concordia University–Portland
College of Education
Doctorate of Education Program

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CERTIFY THAT WE HAVE READ AND APPROVE THE DISSERTATION OF

Kern Patrick McGinley

CANDIDATE FOR THE DEGREE OF DOCTOR OF EDUCATION

James A. Therrell, Ph.D., Faculty Chair Dissertation Committee

Greg Aldred, Ed.D., Content Specialist

Sisay Teketele, D.M., Content Reader

Student Connectedness and Academic Achievement: A Quantitative Study of Career and
Technical Education Students

Kern Patrick McGinley
Concordia University–Portland
College of Education

Dissertation submitted to the Faculty of the College of Education
in partial fulfillment of the requirements for the degree of
Doctor of Education in
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James Therrell, Ph.D., Faculty Chair Dissertation Committee

Greg Aldred, Ed.D., Content Specialist

Sisay Teketele, D.M., Content Reader

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Abstract

The focus of this correlational study in an Alaskan career and technical (CTE) school environment was to explore the research question that guided this study: In a large urban school district of Alaska, with a diverse student population, what is the relationship between the CTE student connectedness level and academic achievement levels? Participants included 132 high school students, Grades 10 through 12. Additional research questions were developed to examine the strength of the relationship between student connectedness and academic achievement by gender, race, and ethnicity. Data were collected using an online survey with a combination of demographic questions and Goodenow's (1993b) Psychological Sense of School Membership Scale (PSSM). Students self-reported their GPA. The findings of the Pearson correlations indicated a significant linear correlation between student connectedness and GPA for the overall sample, for males, and for females. The findings of the Pearson correlation between student connectedness and GPA were statistically significant for the Caucasian, African American, and multiracial samples. The findings of the Pearson correlation were not statistically significant for the Mexican/Hispanic, Asian, Pacific Islander, and Native Alaskan samples, suggesting that a correlation did not exist between student connectedness and GPA among these ethnicities. Implications for practice include increasing students' opportunities to actively engage in setting goals, making decisions, and participating in the governance of the school's disciplinary structure. Implications for policy include developing policies for connecting disconnected students to school by facilitating professional development and better access to CTE schools and programs.

Keywords: student connectedness, academic achievement, career and technical education (CTE), gender, race, ethnicity.

Dedication

This dissertation is dedicated to the following connectedness agents who inspired me to reach my potential:

My wife Anne. Your love of learning allowed for me to embark on this wonderful educational journey and your support helped me through the challenges this process presented. You are an amazing wife and mother, I can't imagine spending my life with anyone else. My two sons, Drake and Cade, you are my superstars. You were patient with me when I needed time and space to conduct research and spend weekends writing. I know it was challenging for you to process my commitment to this project. And, now here we are on the other side with the mission complete. You are proud of me and I am honored to be your father. Fun times ahead boys!

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Chapter 1: Introduction

Introduction to the Problem

Because schools are the nexus of adolescent development and healthy futures, it is vital that students are connected to this nexus. According to Desilver (2014), middle school students spend 943 hours in the classroom a year or approximately 10,000 hours in school by the time an adolescent enters the ninth grade. However, every 26 seconds a student disconnects and drops out of school (DoSomething.org). This is an alarming rate of disconnect, which translates into a future of significant problems for the individual and society. The data shows that a dropout will earn significantly less over a lifetime than a person with a high school diploma. The American Psychological Association (2012) posits a student's dropout rate is associated with poor health. In the last decade, almost 80% of the U.S. prison population was comprised of high school dropouts (Stark & Noel, 2015). When students experience feelings of student connectedness, they are more likely to experience positive academic outcomes, a sense of wellbeing, and a hope for a successful future with a diploma in hand (Lewis, Huebner, Malone, & Valois, 2011). Student connectedness refers to students' feeling they are cared about and supported in educational environments (Chung-Do, Goebert, Chang, & Hamagani, 2015; Pate, Maras, Whitney, & Bradshaw, 2017; Wallace, Ye, & Chhuon, 2012).

One of the most important outcomes for students is academic achievement. A commonly held definition of a successful student is based on an above average grade point average (3.0 or better), a plan to graduate from high school, and a goal to pursue post-secondary education (Tekin, 2014). An important indicator of strong self-concept that carries over into the future as a student ages are consistency and increases in academic achievement (Angus & Hughes, 2017). Likewise, poor academic performance decreases self-concept and has been linked to dropping

out of school (Loera, Nakamoto, Oh, & Rueda, 2013). In addition, students that have their basic needs met, parental encouragement, safe surroundings, and who prioritize learning have higher academic success rates than peers who survive in an environment of scarce resources (Angus & Hughes, 2017). Thus, the student who must focus on immediate needs is at a greater risk of not being adequately prepared for the demands of the 21st-century labor market.

Adolescence is characterized by significant psychosocial (psychological and social) developmental changes, contextual transitions, and the emergence of a self-concept (Pate et al., 2017). These factors challenge and compete with a student's sense of connectedness. School-centric psychosocial variables, such as student connectedness, act as risk, protective, and promotional factors for high school students (Centers for Disease Control and Prevention, 2009; Pate et al., 2017). A supple sense of connectedness develops during late adolescence. Social acceptance, emotional wellness, and student connectedness are all psychosocial variables predictive of academic achievement. Adolescent students' that felt connected to their schools earned higher grades and completed more years of school than their less connected peers (Pate et al., 2017; Resnick et al., 1997).

One population particularly at-risk for poor academic achievement are career technical education (CTE) students (Jacob, 2017). Participation in CTE is not particularly associated with educational accomplishment and this common perception has cultivated a negative CTE image problem. Students typically self-select into CTE programs with an idea that is often based on actual or perceived choices regarding future educational attainment and career aspirations. Parents and counselors often encourage students to select a CTE program as a "last ditch" effort to help a nonacademic student find a career pathway. Students participating in CTE are different in many ways than other youth who do not participate in CTE, in terms of personal abilities and

interests, family background, etc. and CTE is often describe by some as a “dumping ground” for lower-achieving or unmotivated students (Jacob, 2017).

Connectedness is a phenomenon that extends into the fields of psychology, sociology, criminology, healthcare, business, and education. Student connectedness provides protections against unhealthy and risky behavior, and promotes academic achievement for non-CTE students (Angus & Hughes, 2017; Pate et al., 2017). The term connectedness is used to describe the way in which we link to and experience a network. Connectedness is universally accepted across these fields as a phenomenon that provides a developmental experience rooted in our relationships with others and to things, we deem important.

Student connectedness refers to students’ beliefs that they are cared about and supported in educational environments (Pate et al., 2017; Wallace et al., 2012). Student connectedness is a multidimensional construct and involves three components: social relationships, relationship with the school, and attitudes toward the importance of school (Chung-Do et al., 2015; Pate et al., 2017). Socially, student connectedness involves positive relationships at school, including interaction and support from teachers, administration, and staff. Relationship with the school involves a sense of belonging or being part of the school community, including feeling safe and happy at school. Student connectedness also involves students holding positive attitudes toward the importance school, including students caring about school and wanting to do their best (Chung-Do et al., 2015; Pate et al., 2017). Students who struggle to form social connections are more prone to physical and psychological health issues (Seppala, 2012; Wallace et al., 2012).

The purpose of this quantitative correlational study was to explore the relationship between level of CTE student connectedness and degree of academic achievement in high school students in Alaska. Student connectedness and academic achievement is of critical importance

for students, parents, and educators. Due to the number of factors that go into school success, increasing academic achievement is a perplexing challenge for educators. From preventing students from dropping out of school to increasing alternative program opportunities for struggling learners, school systems are determined to identify contextual elements, such as student connectedness, race, ethnicity and gender and the correlation these elements have on academic achievement. Thus, to give students who are unmotivated and academically disengaged a fighting chance to develop a positive relationship with school, learning, and increasing academic achievement, an educational context that integrates student connectedness intervention strategies strongly addresses underperformance issues (Angus & Hughes, 2017; Loera et al., 2013).

Background, Context, History, and Conceptual Framework for the Problem

Background: researcher as instrument. The background for this study is rooted in my heart and love of education. I spent my early years of elementary school struggling with health issues stemming from asthma, learning difficulties associated to health, and a difficulty fitting in with my peers. These experiences fostered a dislike for school that led to a sense of isolation and a loss of confidence. These feelings persisted and intensified through junior high. My self-confidence found growth in high school with participation on a rowing team. The discipline, rigor, commitment, and comradery that goes along with this sport restored my self-concept, improved my health, and strengthened my belief in school as a place where dreams are made. Connecting to high school was critical to my success in college and my belief in the transformative power of education.

I was most connected to school when teachers expressed empathy, the content was interesting and spoke to me, and successful participation in sports or group activities was present.

The times I felt most disconnected was associated with peer bullying, teacher apathy, personal skillset challenges, and the feeling of alienation when participating in sports or group activities due to lack of support from peers and coaches. The feeling of disconnectedness was painful; however, parents, teachers, and coaches invested in my learning helped me transcend the difficult times.

As an educational leader, my experience of educational alienation and disconnectedness informs the way I forge my relationships with students and teachers. I want students to thrive because an educational environment with a positive atmosphere more easily affords for student connectedness and the benefits that go along with it translates into academic achievement and health. All students deserve an educational setting where the forces of alienation are controlled giving all students the space to learn without the negative forces that have a propensity of creating an educational disconnect. Therefore, having the ability to measure the educational atmosphere for connectedness in the same way a meteorologist predicts weather patterns is important for the welfare of all students. An educational leader with student connectedness concerns will explore disconnection issues like a NASA engineer explores dimensions of the universe, by deploying survey instruments (satellite) with a specific purpose (data collection) and mission (exploring possibilities). The data collected is used to understand the nature of the elements and forces at work within a particular domain.

Context of the Study. The context is unique because it represents a full demographic spectrum of economics, races, and ethnic cultures. School district administrators' struggle to understand student connectedness in relation to academic achievement in CTE schools. The current body of research available on student connectedness and the impact on academic achievement does not adequately address CTE school cultures comprised of students who

equally represent the following seven demographic categories recognized by the government: Alaska Native/American Indian, Native Hawaiian/Pacific Islander, Hispanic/Latino, White, Black, mixed race, Asian (Tunseth, 2015).

Demographic Data. In an Urbanized area of Alaska, the most recent data collected in the 2014–2015 school year indicated that this Alaskan student population was 48,154, with a 10-year shift in ethnic membership of Caucasian going from 54.9% to 43.4%, and an increase in membership reported by students identifying as two or more races from 6.7% to 14.7% (Anonymous, 2016). The ethnic group with the greatest ten-year decline in membership was the Alaska Native and American Indian population that went from 13.2% to 8.8% (Tunseth, 2015).

The Alaskan District’s English Language Learner (ELL) program serves approximately 6,000 students, with as of 2015, 4,000 that no longer qualify for services, which combined is over 20% of the District’s student population that comes from a household where English is not a primary language (Tunseth, 2015). The District reported that students speak 99 different languages. Spanish is the most popular first language with 23% reporting, followed by Hmong at 18%, Samoan at 17%, Filipino at 13%, and Yup’ik at 5%. The groups that represent 4% or less are Lao, Inupiaq, Nuer, Korean, and Russian. The typical English skills growth rate of a “newcomer” is two-years with a minimum of five years for a basic “academic understanding” proficiency (Tunseth, 2015).

Achievement Gap. As of 2018, Alaska does not have reliable assessment data in schools for academic achievement. This is due in part to the failure of the state of Alaska’s implementation of a statewide assessment. In 2012, the state of Alaska removed the Student Based Assessment when the Graduation Qualifying Exam was deemed impractical. In 2013, the state of Alaska adopted and implemented the Alaska Measures of Progress (AMP) assessment.

In 2014, the AMP assessment failed when a fiber optic cable was cut at the test administration center at the University of Oklahoma. Despite the lack of reliable assessment data, the urbanized area in Alaska's 2016 data on academic achievement identified the largest achievement gap in math is between Native Hawaiian/other Pacific Islanders and Caucasian students at 32.5%; and in English language arts the gap was 40.2% between Native Hawaiian/Other Pacific Islanders. Another significant gap in the English language arts was with the Limited English Proficient (LEP) population that scored a level 1 (lowest achievement) at 64.9% compared to the district average of 24%. The smallest achievement gap in English language arts (22.4%) and Math (12.5%) is between Asian and Caucasian students (Anonymous, 2018).

Graduation. The 4-year District's (Anonymous, 2016) graduation rate trend was the highest in five years at 80.2%. The greatest gains were reported for the Native Hawaiian/Other Pacific Islanders, Students with Disabilities, and Limited English Proficient. For the 2016–2017 school year, the dropout rate reflected the improvement in the graduation rate with the lowest in a five-year trend, reported at 3.1. The Economically Disadvantaged Students, Students with Disabilities, and two or more races showed a decrease by an average of 1.0%. The African American, Hispanic and Migrant students showed increases of 0.4% and was considered a positive five-year trend because the increase was considered small. The dropout rate for Alaska Native/American Indian students showed a decrease; however, the District reported a renewed focus on this population because they are 2.6 times more likely to drop out than non-Alaska Native/American Indian students.

Attendance. The District's 2016 report showed a 4-year data trend across the district with a student attendance increase of 6.2%. Although there is an increase of students, there was a 1.9% decrease in attendance from 2013 to 2015. A district-wide decline in attendance was

experienced with grade 12 having the most significant decrease in attendance of 5.3%. It is interesting to note, that with the decline in 12th grade attendance the district reported a five-year increase in the student graduation rate of 80.2% (Anonymous, 2016).

Satisfaction. The District's 2016 report showed that parents and students continue to believe in their schools by a large percent, with 88.0% of parents and 76.9% of students in Grades 3–4 and 73.0% of students in Grades 5–12 recommending their schools (Anonymous, 2016). The district reported that 71.7% of students and 86.1% of staff feel safe in their school environment. This Alaskan urban center is thriving in the area of racial and ethnic integration. The 2010 U.S. Census reported that a community within the city as the most diverse neighborhood in the nation. The factors that make this Alaskan urban center's diversity unique are a large military population and an immigrant population that is 11% of the total population. The U.S. Census data in 2010 places this urban center as fifth in the medium-sized city category. The U.S. Census Bureau report in 2010 revealed that 67% of the city is White, with the other 33% representing various races and ethnic groups (Tunseth, 2015).

The schools in this urban center are integrated with large numbers of Caucasian students mixed in without the common problems associated with racial barriers. Schools in the District have greater diversity and less segregation based on race than middle-high schools in the nation (Farrell, 2015). Although the schools are benefitting from integration, the economic trend is a different story. Farrell (2015) reported that the economic segregation trend continues to grow upward, while the ethnic segregation trend is declining. Thus, the District is a unique environment for exploring the relationship between student connectedness and academic achievement in an ethnically diverse CTE school setting.

Historical Perspective. The CTE’s lineage originates in 17th century Europe with a defined purpose to prepare lower class people for manual labor. The industrial revolution in the United States of America brought the same educational need to the American education system along with a vocational philosophy of education (ACTE, 2017). Jane Adams (1860–1935) advocated for an education that was focused on vocational experience as a way of linking school and work (Gutek, 2001). John Dewey (1859–1952) believed that academic study alone was inadequate for preparing youth for real-world experiences (Gordon, 2014).

The term “vocational” was first put into place with a 1917 law known as the Smith-Hughes Act. The Act offered federal support for an education that is a grade below college (Stern, 2010). The subpar educational language was removed in favor of “Career and Technical” in 2006 with the reauthorization of the federal Carl D. Perkins IV Act, which aims to advance the quality of CTE with the goal of boosting the U.S. Economy with a skilled labor force.

Despite the name change, a CTE secondary school image problem of a nonacademic education that leads to a low paying labor intensive job persists. Educational policy experts claim that for decades’ educators have pushed high school students into thinking that a college degree would produce high paying jobs and status, which has been reinforced by political elites (ACTE.org, 2017; Krupnick, 2017). To distance itself from this negative perception, CTE has moved away from hobby type classes and transformed into standalone 2- and 4-year secondary schools offering programs with certifications and a diploma that gives graduates access to 21st century jobs in skilled-technical trades (Weingarten, 2015).

Career and Technical Education nationally serves 94% of all high students in one form or another through classes offered in comprehensive secondary schools to stand alone 2- and 4-year schools. According to the National Center for Educational Statistics (2009), data collected in

2008 showed that CTE was serving the Non-Hispanic White population at 63.4%, students with an IEP at 18.5%, and students Limited English proficient at 4.5%. The last 20 years has shown that CTE is primarily serving White male students, students who have disabilities, and students from smaller, lower income or rural schools, and students with lower academic achievement (ACTE, 2017). This data shows that females and minority students are not accessing CTE programs like their White male counterparts. This indicates that there might possibly be a CTE access and equity issue for female and minority students.

The CTE model when done correctly, engages in research and community relations with business partnerships, industry advisories, parental involvement, legislator engagement, high quality professional development and articulation agreements with colleges for dual credits (Fraze, personal communication, February 23, 2018). Thus, students who have the opportunity to engage in a free and appropriate education (FAPE) that provides a diploma and industry certification, the benefits are far greater than that which is offered in traditional high schools. For example, on a recent trip in May of 2017 to explore blue ribbon CTE schools in New England and the Midwest, I asked a cosmetology student the following question: “Do you enjoy working as a hair stylist? Is this something you want to do for the rest of your life?” She replied:

I don't know, when my father left my mother years ago, she often reminded me that there would be no money for college. She encouraged me to pursue cosmetology because she knew I liked working on my friends' hair and makeup. She planted the seed and told me that I could take these skills to any college campus and pay my way through college.

This student has a career pathway that allows for her to pursue dreams while earning a living without the risk or duress of accumulating higher education debt.

On the visit to these schools, educational leaders all expressed the problem with the CTE stigma and how they are changing it. The leadership articulated a trend in which parents of students with advanced academic skills encourage them to learn a trade as a means to developing a deeper understanding and appreciation for fixing and repairing items we encounter daily. For example, diesel power technology, is a popular choice as a way to diversify a skill set for college admissions in an engineering program. Students can demonstrate they have a conceptual understanding of diesel power technology and the hands-on shop experience that goes along with it, thus increasing the popularity and benefits of accessing career and technical education.

Conceptual framework for the problem. Finn's (1989) participation-identification model of school engagement served as the conceptual framework for this study. The model was designed to understand students' involvement in schooling through both emotional and behavioral components leading to identification or connection with the school (Finn, 1989). Finn's participation-identification model of school engagement has influenced student connectedness theories by emphasizing the importance of student engagement to school completion. This model includes four components: response to requirements, class-related initiatives, extracurricular activities, and decision making. Finn's (1989) participation-identification model holds that students who are involved in school by participating in classroom and extracurricular activities are more likely to develop a sense of school identification than those who do not. Increased identification can lead to enhanced academic outcomes. To fully conceptualize student connectedness in a CTE school, and because CTE courses are considered extracurricular, it was necessary to focus on relational and engagement factors of learning in Finn's model associated with extracurricular activities.

Finn (1989) contends that classroom enthusiasm transforms interests into participation in subject-related activities, such as clubs, electives, and community events. *Extracurricular* refers to any activity that is not directly required to graduate from high school, such as involvement clubs, sports, and CTE courses. Therefore, Finn (1989) believed that struggling learners develop a sense of belonging because they can participate in something they enjoy doing and feel good about participating in that does not resemble a traditional academic classroom environment, like extracurricular participation in a CTE program or school. Thus, to fully conceptualize student connectedness in a CTE school, it was necessary to use a theory that is aligned with a relational and engagement model of learning associated with extracurricular activities (Finn, 1989; Griffin, 2002; Rumberger, 2004; Whiteside-Mansell, et al., 2015). The conceptual framework will be elaborated upon more fully in Chapter 2.

Statement of the Problem

Student academic performance has been a perennial problem in the United States. State assessment data collected from the last two years, in a large urban Alaskan school district, shows student learner groups accessing CTE programs are academically underperforming at a rate of 55% or greater below proficient among all groups in high school reading, writing, and math (Alaska Department of Education and Early Development, 2019). The state assessment data also shows that males and females are academically underperforming. The academic underperformance levels across all groups ranges from 73% to 53% below proficient, and similar for gender with 55% of females and 68% of males below proficient. As a result of academic underperformance, this population of learners is more likely to disconnect and dropout of school, and less likely than any other race/ethnicity to pursue postsecondary opportunities (Gottfried & Plasman, 2018; Plank, DeLuca, & Estacion, 2008). Prior researchers confirmed that non-

Caucasian students, including Native Alaskan, Black/African American, Hispanic/Latino, and Native Hawaiian/Pacific Islanders, and female students had higher attrition rates in CTE postsecondary fields of study than their male Caucasian peers (Hamilton, Malin, & Hackmann, 2015; Long, Conger, & Iatarola, 2012). This population of students may experience fewer advantages in life, including better health or access to healthcare, educational opportunities, employment status, and life satisfaction (Hyslop & Imperatore, 2013; Neild, Boccanfuso, & Byrnes, 2015; Tyler & Lofstrom, 2009).

Student connectedness has been shown to improve academic performance and encourage planning and preparation for career and post-secondary opportunities upon graduating high school (Hernandez-Gantes, Keighobadi, & Fletcher, 2018; Stone, 2017). However, the problem is that CTE research on gender, ethnicity, student connectedness, and academic achievement is noticeably absent (Rojewski & Xing, 2013). Gender and race/ethnicity characteristics are demographic factors that influence a students' CTE course selection; it also impacts student perceptual awareness regarding connections with peers, teachers, and career pathway options (Rojewski & Xing, 2013). Therefore, it is important to study CTE students' perceptions about their connectedness and the contribution that connectedness has on academic achievement. Without further research in this domain, underperforming diverse learners will continue to miss out on the benefits that come with obtaining a high school diploma, including higher income, post-secondary opportunities, and career advancement (Aliaga, Kotamraju, & Stone, 2014; McDermott, Donlan, & Zaff, 2019). Finally, no previous research could be found on the relationship between gender, ethnicity, CTE student connectedness, and academic achievement.

Purpose of the Study

The purpose of this quantitative correlational study was to explore the relationship between CTE students' student connectedness (independent variable) and academic achievement (dependent variable), and whether gender, race, and ethnicity affects that relationship. The study was conducted at the Career Tech High School (CTHS) with a sample of currently enrolled students in Grades 9 through 12. The students attending CTHS come from one of eight large comprehensive high schools, representing a wide array of student diversity (Farrell, 2015). Large urban school districts face student connectedness challenges that impact academic achievement in CTE schools with cultures comprised diverse student populations. Therefore, the purpose of the study explored the relationship between student connectedness and academic achievement, and whether race, ethnicity, and gender in CTE high schools in an Alaskan urban school district, impact that relationship.

Exploring student connectedness as it relates to academic achievement in the context of an ethnically and racially diverse CTE school in Alaska is the purpose of this study. Due to the number of factors that go into school success, increasing academic achievement is a perplexing challenge for educators. From preventing students from dropping out of school to increasing alternative program opportunities for struggling learners, school systems are determined to identify contextual elements that will increase academic achievement (Angus & Hughes, 2017; Loera et al., 2013). Survey tools that comprehensively analyze the factors that impact student connectedness were explored and utilized for the purpose of exploring the relationship between connectedness, GPA, gender, race, and ethnicity.

Research Questions

The following question guided this study: In a large urban school district of Alaska, with a diverse student population, what is the relationship between the CTE student connectedness level and academic achievement levels?

Research Question 1: Is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀1: There is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A1: There is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 2: Among males, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀2: Among males, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A2: Among males, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 3: Among females, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀₃: Among females, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_{A3}: Among females, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 4: Among Caucasian students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀₄: Among Caucasian students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_{A4}: Among Caucasian students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 5: Among Black/African American students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀5: Among Black/African American students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A5: Among Black/African American students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 6: Among Mexican/Hispanic/Latino students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀6: Among Mexican/Hispanic/Latino students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A6: Among Mexican/Hispanic/Latino students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 7: Among Asian students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀7: Among Asian students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A7: Among Asian students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 8: Among Pacific Islander students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀8: Among Pacific Islander students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A8: Among Pacific Islander students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 9: Among Multiracial students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀9: Among Multiracial students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A9: Among Multiracial students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 10: Among Alaska Native/American Indian students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀10: Among Alaska Native/American Indian students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A10: Among Alaska Native/American Indian students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Rationale, Relevance, and Significance of Study

The call to move the school improvement needle from average school to exceptional school is a message that school leaders must face with informed readiness. Moving the school improvement needle requires more than a focus on one specific area of the organizational structure. Student connectedness is the binding agent that keeps youth safe and engaged in the learning process. School violence, on the other hand, is a factor that inhibits connectedness. Other factors are less obvious and often overlooked by educational leaders. For example, a school lunch program that serves low quality food and limited options might impact a student's attitude toward school. Therefore, it is imperative that educational leaders understand the factors that may lead to student connectedness and how to use student connectedness data in order to develop exceptional schools and enhance academic achievement through CTE school-based connectedness interventions.

This study is significant because it builds on previous studies of student connectedness while moving in a new direction by exploring the context of CTE student connectedness, race, ethnic groups to include gender, and academic achievement. The literature on student connectedness has not examined CTE student connectedness and the relationship with ethnically diverse and underachieving student populations. This study addressed the research literature deficiency by empirically exploring these relationships using correlational survey research methods. This study sought to explain these relationships by analyzing the data and applying it to the conceptual framework and research associated with the student connectedness phenomenon.

Information from this study will benefit CTE educational leaders and teachers, district administrators, professional development specialists, students and parents, and contribute to the body of educational research on student connectedness. The findings of this study can enable CTE educational leaders to make policy changes to improve student connectedness in diverse school districts. Educational policies must focus on ways to improve student connectedness as a viable means for increasing academic achievement and reducing the dropout rate. Thus, educational policy makers should consider the following: generating greater access and equity to CTE schools and programs, design and implement professional development based on connectedness survey data, and policy focused on postsecondary and career planning through the introduction of CTE courses and the concept of workforce preparedness as early as middle school (Fluhr, Choi, Herd, Woo, & Alagaraja, 2017). This study will be of great value because the findings will help increase awareness of student connectedness and effective ways to enhance all students' educational experiences and academic outcomes. Information from this study can assist school districts, CTE practitioners, educational leaders, and stakeholders to develop a

course of action that will help diverse student learner groups connect with their schools, potentially leading to enhanced academic achievement and increased post-secondary options for students.

Definition of Terms

Career and Technical Education (CTE): A program of study that provides students with academic, technical skills, real-world application, and training to succeed in a future career path (ACTE, 2017).

Student Connectedness: Student connectedness refers to students' beliefs that they are cared about and supported in educational environments (Pate et al., 2017; Wallace et al., 2012). Student connectedness is a multidimensional construct and involves three components: social relationships, relationship with the school, and attitudes toward the importance of school (Chung-Do et al., 2015; Pate et al., 2017). Socially, student connectedness involves positive relationships at school, including interaction and support from teachers, administration, and staff. Relationship with the school involves a sense of belonging or being part of the school community, including feeling safe and happy at school. Student connectedness also involves students holding positive attitudes toward the importance school, including students caring about school and wanting to do their best (Chung-Do et al., 2015; Pate et al., 2017). The terms associated with student connectedness are *bonding, attachment, membership*.

Ethnically diverse student population: A population of students that is equally represented by all demographic ethnic groups as defined by the U.S. Government (Tunseth, 2015).

Academic Achievement: An above average GPA (3.0) and on track to graduate on time (Tekin, 2014).

Assumption, Limitations, and Delimitations

Assumptions. Assumptions were identified by the questions raised regarding representativeness of the population, truthfulness of the respondents, and the accuracy of data (Leedy & Ormrod, 2012). One assumption is that the participants randomly selected to participate in the study are representative of the population. If many of the students who were randomly selected to participate in the study complete the survey, then the goal of a representative population will have been met. Another assumption is that students will accurately answered the survey questions. If the students accurately answered the survey questions, then the belief that they have been honest about reporting their grade point average holds true. It is assumed that the data collected were accurately organized.

Limitations. This study has several limitations that were identified. First, the limitations of quantitative correlational research are the manipulation of the sample and control factors that do not allow for the establishment of cause and effect relationships. The selection of a quantitative design limits the research in terms of analyzing the underlying perceptions of the participants. A quantitative approach was selected to analyze for strength of relationships between the variables of interest. A random sample has limitations that must be considered when using this method. The results run the risk being biased when the selection process does not represent the target population which creates the possibility of over and under representation. The possibility of biased results creates the possibility of sampling error, which limits generalizing the results into conclusions that represent a population (Mills, Durepos, & Wiebe, 2010).

The limitation of self-reporting on questionnaires is a well-known weakness with issues involving the design of the instrument, honesty, response bias, and the mental ability to report accurately. Another limitation is the use of closed-ended survey questions which limits the respondent's ability to provide unique idiosyncratic information. Geographic location is a limitation because the study was restricted to Grades 9–12 students in a large urban Alaskan school district. The study was limited to the voluntary responses of students who opted to take the survey (Fan et al., 2006).

Delimitations. This study has several delimitations. First, data were only collected from a CTE high school in a large urban Alaskan school system that has not explored student connectedness. Secondly, the study delimited the survey to Grades 9–12 students who elected to attend the CTE school on a part-time (half of a school day basis) and not CTE student experiences in a comprehensive high school where CTE courses are offered. To maximize validity of the survey, a well-known student connectedness instrument was selected as the survey tool for this study. In addition, exceptional care was taken ensure the content of the surveys aligned with the research questions; and that safeguards were in place to properly protect and store data.

Summary

Student connectedness is associated with reducing the dropout rate, increasing academic achievement, and contributes to better health. Career and Technical Education participation is not associated with academic achievement and this common perception continues to perpetuate the notion that CTE is an education for low achieving students. Students who are disconnected from school and do not do well academically risk involvement in self-destructive behavior that will impact future success in life. There is a lack of knowledge concerning racially and

ethnically diverse populations, to include gender, regarding CTE student connectedness and academic achievement. CTE's status as suitable education for low achieving students was assessed through measuring the relationship CTE student connectedness has with academic achievement among the various ethnic groups and genders that constitute the school. The purpose of this study is to explore student connectedness as it relates to academic achievement in the context of an ethnically diverse CTE school. To decrease the dropout rate and increase the unemployment rate with skilled workers, CTE school educational leaders need to know if there is a correlation between connectedness, grade point average, gender, race, and ethnicity.

Chapter 2: Literature Review

Introduction to the Literature Review

Schools are designed with the goal of educating all students for a successful future. Secondary education has the responsibility of setting the course of student success by emphasizing the importance of post-secondary education. The post-secondary future may entail entering the workforce with high school level skills, joining the armed forces, attending a technical college, or going to a university. The drop-out rate is alarming with 7,000 students a day in the U.S. dropping out of school (DoSomething.org). The public high school national graduation rate has steadily grown over the past five years (2010–2015) from 79% to 83%, with 65.9% of high school graduates in 2013 attending a 2- or 4-year college (National Center for Education Statistics, 2017). That means 17.1% are entering the workforce, or joining the armed forces, or have dropped out of school. The six-year graduation rate reported in 2009 was 59%, the number of 18–24 year olds in 2008 reported in the armed forces was 1.8%. By using the national graduation rate of 79% from 2010 and the armed forces rate of 1.8%, we can infer the number of individuals that have entered the world without career and technical skills is close to 30% of the population under 24 years of age (National Center for Statistics, 2017). School systems attempt to reduce this number by examining ways to connect students to school in the present to increase the possibilities for success in future. Career and Technical Education (CTE) is at the forefront of connecting students to a future by offering students 21st century academic and technical skills.

Student connectedness refers to students' beliefs that they are cared about and supported in educational environments (Wallace et al., 2012). Student connectedness is a multidimensional construct and involves three components: social relationships, relationship with the school, and

attitudes toward the importance of school (Chung-Do et al., 2015). Socially, student connectedness involves positive relationships at school, including interaction and support from teachers, administration, and staff. Relationship with the school involves a sense of belonging or being part of the school community, including feeling safe and happy at school. Student connectedness also involves students holding positive attitudes toward the importance school, including students caring about school and wanting to do their best (Chung-Do et al., 2015).

People who struggle to form social connections are more prone to physical and psychological health issues (Seppala, 2012). For a student to get the most out of learning, a school must ensure that physiological (access to food, warmth, rest) and safety factors are intact. In addition, a school must emphasize social unity to help students build social capital, which helps students develop psychologically and academically. The body of research suggests that there are significant cognitive, behavioral, and emotional differences between a student who is connected to school and one who is not. The disconnected student has greater risk of physical and psychological health issues. Therefore, it is important for schools to assess student connectedness levels to promote better access to learning.

Student connectedness offers a protective and preventative force that helps reduce the health-risk behaviors of substance abuse, violence, and sexual activity (McNeely, Nonnemaker, & Blum, 2002). The power of connectivity decreases health-risk behavior and increases academic achievement, peer relations, and emotional well-being (Lohmeier & Lee, 2011). Likewise, disconnectedness is linked to boredom, sensation-seeking behavior, an antisocial disposition, decreased imagination, substance abuse, delinquency, and has been shown to decline when students transition in and out of middle school (Hunter & Csikszentmihalyi, 2003; Oelsner, Lippold, & Greenberg, 2011). The positive benefits for students connected to school are

increased attendance, a reduction and/or absence of behavioral problems; and an increase in the following domains: learning outcomes, social capital, academic achievement, and healthy lifestyle choices. The positive benefits for teachers of students connected to school are a reduction in behavioral problems, increased learning outcomes, constructive peer interaction, and increased job satisfaction.

When we feel connected and part of a community, we experience a moving sensation—something greater than ourselves—a perception that transcends the everyday world of mundane experiences—we come alive and excited with a sense of joy and wholeness that words struggle to describe (Hunter & Csikszentmihalyi, 2003; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003; Smith & Christakis, 2008). Connectedness is the bedrock of motivation, achievement, and the formation of meaningful human relationships. Therefore, it is imperative that school leaders construct an educational environment that focuses on connectedness in order to help students achieve academic goals that extend beyond the confines of the school and into the future with a strong sense of a career path.

Chapter 2 includes analysis and synthesis of literature on student connectedness. The chapter also includes the theoretical foundation that will guide this study by providing a contextual understanding and a structure for explaining observations (Creswell, 2014). A review of the literature and methodological issues will be presented in a manner that summarizes the key issues found in the body of student connectedness research literature. Next, an analytical review of the methodological issues will be presented to help with understanding the methodological choices made by researchers in the field. Then, the synthesis of research findings will present what has been discovered through the review of literature and the launching point for this study. This section will be followed by the critique of previous literature where I will make my case

regarding the rationale for the direction of this study based on the discoveries made while conducting the review of literature. The chapter will conclude with a summary of Chapter 2.

Conceptual Framework

The following section defines the epistemological position selected to approach the student connectedness phenomenon. The review of the literature has influenced my choice of theories and concepts and when combined frame the way in which I view the student connectedness phenomena. Theoretical conceptualizations regarding student engagement, learning, and academic achievement have illuminated social capital, school bonding, student participation, and investment in the process of learning. Finn's (1989, 1993) participation-identification model of school engagement theory has influenced student connectedness theories by emphasizing the importance of student engagement and school completion. I used Finn's conceptual framework to theoretically explain the factors and variables at work regarding the connectedness phenomena. In addition to the presentation of the theory and concepts, the section concludes with the graphic presentation of Finn's (1989, 1993) participation-identification model of school engagement and the withdraw cycle graphic representation that supports the student connectedness construct of this study.

This study was conducted using a conceptual framework situated in the behavioral and psychological motivation model comprised of Finn's (1989) participation-identification model of school engagement and the cycle of withdraw. This theory operates within the social and emotional learning space of staff and students; and extends beyond the confines of the institution into the home of the student. To fully conceptualize student connectedness, it is necessary to examine a theory that is aligned with a relational and engagement model of learning.

The full meaning and to what extent connectedness can be measured, as research findings show, is debatable. For example, in the field of positive psychology, connectedness is discussed as social networks and social capital variables that influence a person's happiness, whereas sociology operates from the perspective of Hirschi's (1969) social bonding theory. In addition to clarifying the concepts and theories, a review of the connectedness literature would not be complete without discussing environmental factors, the problems of measurement, gender, race, ethnicity, socioeconomic status, interventions, outlook on life, and the health and wellness perspective.

Although disconnected students might use the word "suck" to describe their experience in school, learning does not take place in a vacuum. Learning is embedded within a multiplicity of social contexts that are synchronous (Bronfenbrenner, 1979). Finn's (1989) participation-identification model posits that students who engage in school by participating in classroom and extracurricular activity are more likely to develop a sense of school identification. Finn's (1989) participation-identification model suggests that dropping out of school is a result of a participatory disconnect that stems from the following components: Responsiveness to school requirements, participation in the classroom, participation in extracurricular activities, and involvement in the decision-making process at school.

Finn's (1989) withdraw-cycle model describes dropping out as the final stage of a long series of cumulative events that foster school disengagement. In the withdraw cycle model, the process begins with a physical withdraw that creates an achievement problem at school which leads to frustration and emotional withdraw. The student rejects school through nonparticipation which could be exhibited through low attendance, passive learning, and disruptive behavior. Thus, the unsuccessful school outcomes produce emotional withdraw, a nonidentification stance

toward school, and impacts academic achievement. This is a negative cycle in which failure, frustration, and disruptive behavior impact successful performance outcomes, thus academic achievement indicators, such as grade point average is lower than peers who have a strong identification with school. Schools are social institutions that encourage participation through the process of socialization (Finn, 1989; Griffin, 2002; Rumberger, 2004; Whiteside-Mansell et al., 2015). As students socialize and increase participation in meaningful ways their identification with the school increases as does the likelihood of academic success. Thus, the likelihood of students dropping out is reduced and the overall climate of the school becomes a place where students take an active role in their education.

The first component of Finn's (1989) model of student engagement is responsiveness to school. According to the theory, students arrive at school predisposed with beliefs, behaviors, attitudes, and a skillset that contributes to being successful in an educational environment. Thus, the ability to respond well to school requirements fosters a positive attitude about school. The school requirements may include attendance, assignment completion, tests, classroom participation, and behavior expectations. The second component is class-related initiative, which is evident in the way in which students engage in learning. Class-related initiative includes dialoguing with the teacher, asking questions, enthusiasm, spending more time than is required in the classroom, looking for additional opportunities to learn. Finn (1989) contends that classroom enthusiasm transforms interests into participation in subject-related activities, such as clubs, electives, and community events. The third component is involvement in extracurricular activities. Extracurricular is any activity that is not required to graduate from high school. Extracurricular is used to refer to electives, clubs, and sports. Finn (1989) asserts, "many students participate in the social, extracurricular, and athletic aspects of school life in addition to,

or at times in place of, extensive participation in academic work” (p. 128). Finn (1989) believes that struggling learners develop a sense of belonging because they have the opportunity to participate in something they enjoy doing and feel good about participating in that does not resemble a traditional academic classroom environment. The final component is decision making was described by Finn (1989) as “participation in governance of the school” (p. 128). Student voice involves increasing opportunities for students to actively engage in setting goals, making decisions, and participating in the governance of the school’s disciplinary structure. Finn’s (1989) participation and identification model theory holds that when these components are maximized student identification and involvement increases and their sense of belonging to the school is fortified.

The variables within the Finn (1989) model that influence participation and successful outcomes are the quality of instruction and the abilities of the student. Student disconnect evolves into an erosion over time with mounting difficulties that go unresolved. Some students begin school without the expected behaviors and skills needed for successful participation and academic achievement. The student with a deficient skillset paired with a teacher who exhibits low quality instruction is set-up to enter the cycle of withdraw. Thus, the cycle of withdraw begins and participation and identification become a difficulty to achieve. Over time, this student is more likely to experience feelings of alienation and disconnect. This cycle of disconnection if not rectified may lead to deviant behavior and dropping out of school (Finn, 1989).

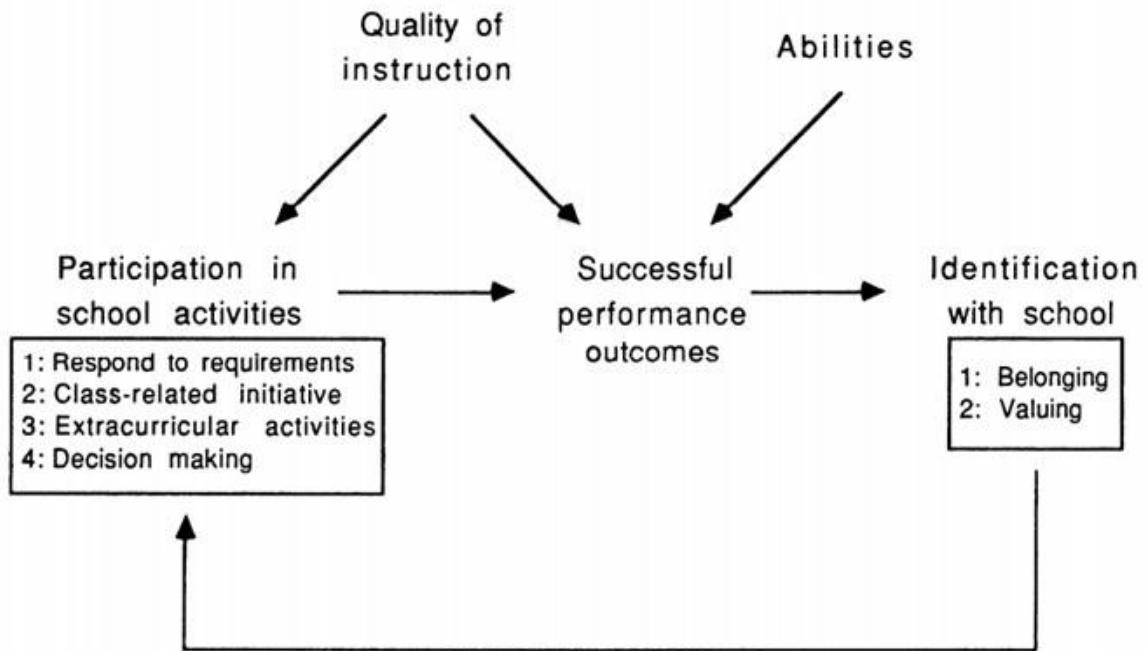


Figure 1. Participation-identification model (Finn, 1989).

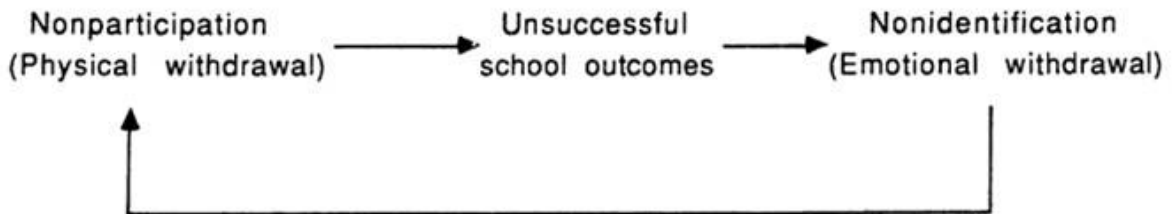


Figure 2. Participation-identification model: withdraw cycle (Finn, 1989).

Review of Research Literature and Methodological Literature

The review of research literature and methodological literature section is comprised of sections that systematically address the student connectedness issues, problems, and themes. The sections present evidence-based research that was reviewed to provide an in depth understanding and critical analysis of the student connectedness phenomenon as reported in studies (Szuchman & Thomlison, 2011). The review lays the foundation for my argument of discovery and opens up the pathway for the argument of advocacy where my research problem and methodological choices fully emerge.

Historical perspective. The evolution of student connectedness dates to Perry's (1908) book, *The Management of a City School*. This book is considered groundbreaking because it discusses, from an educational leader's standpoint, the impact of school climate on student learning (Thapa, 2013). Thus, the last century has been the age of scientific study focused on the psychosocial effects of school climates on students, teachers, and educational leaders.

The world of big business and corporations became keenly aware of the organizational context and its impact on human capital and operating efficiencies. In the 1950's, business and organizational environments engaged in climate studies centered on with the works of March and Simon (1958) and Argyris (1958). Much like Dewey's (1927) focus on the social goods of school life, the business and organizational perspectives were based on observations of social dynamics that informed theory (Cohen, McCabe, Michelli, & Pickeral, 2009; Zullig, Koopman, Patton, & Ubbes, 2010b). The inductive style of interpreting organizational culture was useful; however, it was lacking empirical validity.

The social sciences moved inductive reasoning into the sphere of empirical validity with the development of scales used to collect and quantify data. The empirical studies of school

climate came into being when Halpin and Croft's (1963) groundbreaking quantitative analysis tool *Organizational Climate Description Questionnaire* (OCDQ) was introduced (Hall, 1972). Then, in 1968, Likert and Likert released the *Profile of a School* instrument (Hall, 1972). With these school climate instruments in place, the connectedness phenomenon and its link to academic achievement began to emerge against the backdrop of psychosocial theories of relatedness, the examination of socioeconomic status, race and gender differences, and urban decline.

Hirschi's (1969) criminological book, *The Causes of Delinquency* and Bandura's (1971) development of *Social Learning Theory* heavily influenced the conceptualization of the student connectedness phenomenon. Hirschi's book (1969) introduced social control theory, which is based on the types and strengths of bonds an individual has developed within his or her social sphere. Social control theory is important because it is based on the construct of causality where bonding determines the potential for delinquency—two factors that elevate the importance of a student-connected educational environment. Hirschi's (1969) social control theory, also known as social bonding theory, describes the manifold conceptualizations of school bonding and its connection with delinquency. Social control theory posits that delinquency is a result of a failure to form societal bonds. Social institutions, namely schools, encourage conformity through the process of socialization (Whiteside-Mansell, et al., 2015). The variables that make Hirschi's (1969) social control theory are attachment, belief, and commitment. All of these variables are the key components that form the construct used to conceptualize the school bonding phenomena (Krohn & Massey, 1980).

The first component of Hirschi's social bonding is attachment to others. Attachment is described as the relationship the youth forms with family and significant others. The family

environment is the domain where parental role modeling teaches children what socially acceptable behavior looks like (Wiatrowski, Griswold, & Roberts, 1981). In terms of school bonding, the significant other attachment is the teacher and peer role modeling of social norms in the context of the classroom environment (Krohn & Massey, 1980; Wiatrowski et al., 1981). The second component is commitment, which is connected to having a sense of meaning and purpose that generates aspirations. The theory holds that the aspirant's goals are an investment in conventional behavior that sets a trajectory away from deviancy (Wiatrowski et al., 1981). The third component is involvement and refers to the amount of time invested in the response to achieving goals (Krohn & Massey, 1980; Wiatrowski et al., 1981). Involvement is the means to achieving the aspirants' goals, and thus with time concentrated on meaningful tasks, there is no time to for deviant acts (Krohn & Massey, 1980; Wiatrowski et al., 1981). The final component is belief in "conventional values and social norms" as the guiding force that pulls all the components together keeping the individual on track and safe from deviant behaviors (Wiatrowski, et al., 1981, p. 531). Hirschi's social bonding theory holds that when one or more components are compromised the chances of delinquent behavior increases.

The widely accepted motivational theory that explains why people have the energy to achieve is Maslow's (1954) Hierarchy of Needs. Maslow (1954) stated that when a person's basic needs are met they have the foundation in place to thrive. The basic needs are physiological (food, water, warmth, rest) and safety (security, safety). When these basic needs are fulfilled the next levels of psychological and self-fulfillment needs become accessible. The energy to move forward is cultivated by the psychological needs of belonging, love, and esteem. This stage of the hierarchy is where connecting to the emotional, cognitive, and social sphere becomes a primary means of feeling supported, whole, and confident within the context of

relationships (family, friends, education, career, status). The stronger the connections and sense of continuity, the greater the potential for what Maslow (1954) described as self-actualization. A person who experiences self-actualization has put goals, visions, and dreams into action (McLeod, 2016). Thus, from a human needs theoretical perspective, connectedness is the primary means for surviving and thriving in a world interconnected to a complex network of known and unknown variables spanning the universe.

Maslow's (1954) motivational theory is meant to describe the way an individual moves forth in the world of complex interconnected relationships. The sphere of social connection is of primary importance because studies show relationships improve physical health and psychological well-being. Just like the way in which cells link to form an organism, people have an inherent human need to connect for survival and growth. Studies have shown that people who struggle to form social connections are more prone to physical and psychological health issues (Seppala, 2012). For a student to get the most out of learning, a school must ensure that physiological (access to food, warmth, rest) and safety factors are intact. In addition, a school must emphasize social unity to help students build social capital, which helps students move through Maslow's hierarchy of psychological development and enhances the potential for self-fulfillment.

The social environment of a school as a significant factor of academic achievement and wellbeing was further established with the social and emotional learning (SEL) movement. The SEL movement was ushered in with Stone-McCown and Dillehunt's (1978) *Self-Science: The Subject is Me* curriculum. The curriculum encouraged students to explore their learning styles, study habits, and social skills. Next, Waters and Sroufe's (1983) published the study *Social Competence as a Developmental Construct*. The study suggested that a good developmental

outcome is based on a competency of enlisting others and “coordinating personal resources” rather than on the superficial notions of “high intelligence, social extraversion, or physical stamina” (p. 3). Building on this social and emotional developmental construct, and the work of others, in 1994, the Collaborative for Academic, Social, and Emotional Learning (CASEL) (2013) and Goleman’s (1995) groundbreaking work *Emotional Intelligence* further impacted the need for schools to be more than information-exchanging institutions, and a deeper focus on intrapersonal and interpersonal domains developed. Throughout the 1990s, the SEL movement popularized the development of peer mentoring programs, student-centered learning, training beyond teacher and educational leader certification programs, and the creation of a unit of professionals within school district central offices throughout the nation devoted to SEL support for schools.

A school as the environment where students find happiness and discover the means to live a life of satisfaction has become an increasing concern (Lewis et al., 2011). This is a curious position because education as a transcendental means to overcome suffering and achieving happiness is nothing new. For Socrates, Jesus, Buddha, and sages throughout the ages, the human condition has provoked humanity into seeking happiness while contending with the existential reality of suffering and death. Positive psychology emerged in the late 1990’s as the culmination of humanistic psychology’s perspective of the healing process as more important than illness treatment (Hunter & Csikszentmihalyi, 2003). Positive psychology shares a kinship with the SEL movement, in that it seeks to help people discover and build relationships that contribute to a healthy outlook on life. Positive psychology empirically incorporates within its framework social networks, creativity, self-discovery, and utilization of potential. The positive

psychology perspective has made significant contributions to the study of student connectedness, namely in the areas of social networking, student engagement, happiness and life satisfaction.

As a result of the evolution of student connectedness theories and quantitative tests for validity, schools have become social issue and health treatment centers. When youth commit crimes or engage in unhealthy behaviors, the public looks to schools for treatment and silver bullet cures. There is agreement among researchers and educational leaders that student connectedness decreases at-risk behaviors, while increasing academic achievement, thus enhancing wellbeing. However, the debate continues within the body of literature regarding the following issues: the role of the family and its impact on connectedness; models that help understand the relationships between connectedness, gender, race, ethnicity, and socioeconomic status; connectedness scales and instruments and validity; connectedness interventions and tests for validity. The next sections explore the multiple meanings and definitions of connectedness.

Multiple definitions of connectedness. The connectedness construct has multiple meanings and as a result the variations have created a myriad of ways in which phenomenon is operationalized and measured. The connectedness construct takes on meaning based on the conceptual framework used to develop the study. For example, Hirschi's (1969) social control theory utilized the term school bonding to conceptualize the ways in which social institutions, such as schools, have the potential to reduce the risk of delinquency. Appleton, Christenson, and Furlong (2008) extensively examined the connectedness construct through the historical perspective of student engagement. School bonding is studied across a plethora of fields (i.e., educational psychology, sociology, human development, and health disciplines), which use a wide variety of terms, such as student connectedness, school attachment, school engagement, school involvement, school identification, school bonding, teacher support, and school climate

(Blum, 2005; Blum & Libbey, 2004; Libbey, 2004). Although there is little consensus among researchers, the connectedness construct is synonymous with many terms used to describe the phenomenon.

The body of research literature on connectedness is differentiated and operationalized with the use of either school connectedness or student connectedness. The terms are interchangeable and seemingly refer to the same phenomena—the student capacity for connecting to the learning environment. For the purposes of this study, the use of student connectedness is preferred because school connectedness emphasizes the organizational structure and environmental factors within the school context, rather than the student as an individual coming to the educational environment with a world of experiences. Appleton et al. (2008) discussed this distinction by pointing out that schools are institutional and influence connectedness through policies, procedures, strategies, and mandates. Family, peers, and personal experiences developmentally impact the student as an individual. Student connectedness considers the external factors that impact school experience; therefore, it is a more holistic way to operationalize the construct.

The literature review will proceed with summaries of studies on connectedness. The studies use various terms to describe the connectedness phenomenon. As noted, there are many synonymous terms for connectedness, which are interchangeable and work to operationalize the phenomenon. Within the body of literature, the following terms are connectedness referents: engagement, attachment, bonding, and belonging. The peer-reviewed journals collected for this study have been organized into categories that definitively describe elements of the connectedness construct.

Problems with survey instruments. Student connectedness is viewed as sustaining a protective barrier that is correlated with positive student outcomes. To date, researchers contend, the available instruments for measuring student connectedness have not comprehensively measured the phenomenon. Lohmeier and Lee (2011) developed a survey instrument that extended beyond the following three commonly held hypothesized elements: connectedness to adults in schools, connectedness to peers, and connectedness to the school (Karcher & Lee, 2002). The survey instrument proposed by Lohmeier and Lee (2011) included the following hypothesized student connectedness: general, specific, and engagement. In addition, these types were aligned with Karcher and Lee's (2002) domains of "belongingness, relatedness, and connectedness" (Lohmeier & Lee, 2011, p. 87). The elements and domains were combined to create levels and sources of connectedness. The end result was the development of a more multidimensional version of the Parker, Lee, and Lohmeier's (2008) School Connectedness Scale (SCS).

The 54-item SCS based on a 3x3 matrix of relationships (school, adults, peers) and connectedness (general support, specific support, engagement) was given to 930 9th through 12th grade students in urban and suburban school environment (Parker et al., 2008). The Cronbach's alpha results indicated high reliability for the SCS with $\alpha = .93$ in the suburban and $\alpha = .81$ in urban schools. Suburban schools indicated slightly higher levels of connectedness. A multivariate analysis of variance was conducted on gender, grade, and level. There were few significant differences reported. Of particular interest was the difference found between genders regarding feelings about having friends in school ($F(1,153) = 18.48, p < .001$). According to the data analysis, there were two areas worth noting, "Girls reported having higher positive feelings about having friends in school. There was a significant difference between class levels and

involvement in school activities” (Lohmeier & Lee, 2011, p. 87). The study revealed that the SCS is a multidimensional measure that is easy to use with students from a wide range of socioeconomic backgrounds, racial demographics, and geographical regions. The SCS has a high reliability and validity, with a factor structure measure capability (Lohmeier & Lee, 2011).

Bradshaw, Waasdorp, Debnam, and Lindstrom Johnson (2014) contended that school climate and interrelated connectedness facets are not defined and measured in an effective and efficient way. Bradshaw et al. (2014) analyzed the Maryland Safe and Supportive Schools Initiative (MDS3), which is comprised of the U.S. Department of Education’s (USDOE) multicomponent model of school climate. Johns Hopkins Center for Youth Violence Prevention developed the survey instrument that was “aimed to validate USDOE’s multicomponent model of school climate, which includes safety, engagement, and the environment is the most effective way to measure school climate” (p. 595). This direction showed that in order to generate comprehensive results, survey instrument development should consider the totality of the connectedness phenomenon.

The methods used in this study were comprehensive and the data collected was extensive. The MDS3 was composed of 56 questions and tested the following factors: perceived safety, engagement factor, and environment factor. Data from over 25,000 students was collected and 46% of the sample size was 46% minority. Bradshaw et al. (2014) performed several exploratory and confirmatory factors analyses to determine the fitness of the MDS3 with the USDOE model. The results showed the multiple scales and their extensive subdomains present an all-inclusive and efficient tool, consistent with the USDOE model, for measuring high school climates (Bradshaw et al., 2014). According to Bradshaw et al. (2014), this is the most in-depth

study of school climate because it is comprehensive and concise analysis of data related to climate and connectedness.

Chung-Do et al. (2015) were motivated to examine the psychometric properties of a student connectedness scale because there was a substantial inconsistency in the concepts and measurement tools of student connectedness that existed across the body of research literature. Like other researchers who concentrate on this issue, Chung-Do et al. (2015) conducted an extensive literature review of existing scales to gather items that would help build a comprehensive psychometric survey instrument. The goal was to determine whether the concept of student connectedness was a multidimensional construct.

The Chung-Do et al. (2015) survey was constructed from Jimerson, Campos, and Greif's (2003) three components of student connectedness, Jenkins's (1997) school delinquency and social bond measures, and McNeely et al.'s (2002) measure of student connectedness. The research by Chung-Do et al. (2015) yielded 17 psychometric survey items with the following subscales identified: school involvement (three items), academic motivation (three items), school attachment (three items), teacher support (five items), and peer relations (three items). To expand the comprehensiveness of the survey instrument, Chung-Do et al. (2015) included demographic questions concentrating on race-ethnicity identification, socioeconomic status, and academic achievement.

The Chung-Do et al. (2015) survey was tested on a sample size of 717 ethnically diverse students in a Personal Transition Plan/Leadership (PTP/L) course. Connectedness studies tend to use scales that examine one factor. A confirmatory factor analyses was used and showed that the 15 items and the 5 factors hypothesized were identified ($\chi^2 = 439.99$, $df = 83$, $p < .0001$, Comparative Fit Index = 0.991, Tucker-Lewis index = 0.988, root mean square error of

approximation = 0.077). This study shows the importance of examining student connectedness as a multidimensional construct and helps deepen the understanding of the complexity of youth's experiences in school and informs current and future interventions to promote positive youth development.

Whiteside-Mansell, et al. (2015) studied the psychometric properties of a reduced school bonding survey tool for middle school students. The result of the study was the creation of the Brief Survey of School Bonding (Whiteside-Mansell et al., 2015). Their study operated from the premise that assessment tools must evaluate school bonding and thoroughly identify target areas of intervention. Whiteside-Mansell et al. (2015) argued school bonding tools found in the body of research literature were mostly narrow in scope and ignored the four components of Hirschi's (1969) social control theory. Thus, they built their tool based on social control theory, three valid assessment tools, and multiple tests.

The Whiteside-Mansell et al. (2015) study incorporated the well documented perspective that school bonding acts as a protective factor increasing health, academic, and social benefits. According to Li and Lerner (2011), delinquent behaviors are linked to all school bonding dimensions. Correlational studies have shown that school bonding has been linked to classroom conduct problems, bullying, low emotional engagement, anxiety, and depression. The most important factor outside of school is family involvement, which has been shown to influence students' beliefs about school. The studies of school bonding support the hypothesis that at-risk students who report connecting to their school are protected from developing behavior problems (O'Donnell, Hawkins, & Abbott, 1995).

The methods used to conduct the Whiteside-Mansell et al. (2015) study were organized into four phases with middle school student participants. The first three phases were designed to

collect data. Phase one consisted of examining face validity of the survey tool by using a focus group of 53 students to weigh in on the 65 survey items. Phase two tested the survey in classrooms with a sample size of 1,911 students. The 65-item survey was tested for validity using internal consistency confirmatory factor analysis and the results yielded a change in the number of survey items for 65 to 59 items. Phase three presented the 53-item survey to a larger sample size of 2,050 students. The phase three internal consistency confirmatory factor analysis test narrowed down the survey items to 37. The phase four 37-item survey was administered to 2,050 participants, split into two random independent sets of 1,046 and 1,004 students. An internal consistency exploratory factor analysis of random half of sample from phase three was conducted in conjunction with a confirmatory factor analysis with the remaining sample. The results proved that the use of a sound psychometric process of testing in one sample, modifying items, and retesting in a second sample, the process provided strong validity. Researchers struggle to find a tool to measure 10–15 year olds, and the Brief Survey of School Bonding (BSSB) might be that tool.

Whiteside-Mansell et al.'s (2015) study proved that in order to fully understand the student connectedness of a school, a survey instrument efficiently designed to uncover the key areas for targeted intervention is necessary. Whiteside-Mansell et al. (2015) contend their tool is an important contribution to the field because it will bring to light the bonding deficits within a school and aide in the development of interventions.

Domains of connectedness. The study of the domains of connectedness is as expansive as developing the right survey tool to efficiently and comprehensively measure school bonding. The connectedness phenomenon is not a stand-alone concept. In order to enhance the connectedness of the educational environment, a school leader needs to understand the

interrelatedness of variables, often referred to as domains. The following domains are discussed in the body of the research literature: perception, cognitive engagement, academic support, positive student-teacher relationships, order and discipline, academic satisfaction, generalized, specific, identity, participation, and the perception of fitting in with peers (Walker & Greene, 2009; Wallace et al., 2012; Zullig, Huebner, & Patton, 2010a). This section will discuss these domains and the relevance they hold in the body of the research literature.

Walker and Greene (2009) examined the connectedness phenomenon from the perspective of belonging within the classroom and cognitive engagement. They hypothesized that when the perception of belonging is reinforced by environmental supports, the capacity for increasing engagement and achievement within a school community is a viable outcome. The conceptual framework for their study was built on a relational model; the researchers believe “learning is a complex process that must take into account the central role of personal interactions and the perceptions that stem from those interactions” (Walker & Greene, 2009, p. 464). The study examined the relationship of student perception of belonging and the domains of self-efficacy, perceived instrumentality, personal achievement goals, and perceptions of the classroom goal orientation that influence student engagement.

Walker and Greene (2009) used a quantitative approach with an ethnically mixed demographic of 249 students between the ages of 14–19. Three different surveys were given to measure the particulars of each domain; surveys included the Approaches to Learning Survey, the Patterns of Adaptive Learning Survey, and the Psychological Sense of School Membership. The following tests were performed: Cronbach’s alpha reliability coefficients, subscale inter-correlations, and hierarchical regression analysis. The results showed that high school students who reported a sense of belonging will focus on developing a sense understanding, which then

motivates the student to engage in cognitive effort to open up the understanding of possibilities and limitations (Walker & Greene, 2009). The findings also suggested that when students believe that they are valued, feel supported, and believe effort is conducive to their future, they are more likely to work on the development of understanding and engage in the use of cognitive approaches to achieving goals. Walker and Greene's (2009) study supported the notion that when a student is motivated to learn and ready to commit to school, they have a better chance of achieving goals.

Zullig et al. (2010a) were interested in establishing the critical domains of connectedness by examining school climate domains and school satisfaction. School satisfaction has been studied within the conceptual framework of the perceived quality of life (PQOL) perspective (Zullig et al., 2010a). The PQOL scales measure domain-free items versus domain-specific. For example, I like my friends (domain-free) rather than, I like my friends at school (domain-specific). The Andrews and Withey's (1976) test is sometimes used because it contains items that are above and below neutral response. The PQOL provides a more comprehensive report because it seeks to understand variance by allowing for a range of nuances to be reported (Zullig et al., 2010a). The goal of the PQOL is to comprehensively measure the life satisfaction of the youth within the context of the school.

Researchers believe that there is a correlation between school satisfaction and school climate. Zullig et al. (2010a) presented the long-held belief that the external factors of the school environment are measurable and important factors that influence student satisfaction. According to Zullig et al. (2010a), there are methodological differences between school satisfaction measures and school climate measures. A school satisfaction measure allows for the students to

bring their subjective experience forward, while school climate measures are based on items constructed by scale developers who have predetermined the domains.

The relationship between school satisfaction and school climate is one of subjective and objective tension that requires “empirical scrutiny” (Zullig et al., 2010a, p. 135). Therefore, it is important to be clear about the domains that build the school climate construct. The following are the five common climate domains: order, safety, and discipline; academic outcomes; social relationships; school facilities; and connectedness (Zullig et al., 2010a). The researchers hypothesized that there would be a close positive relationship between school satisfaction and the school climate domain scores. The expected exception would be found between school satisfaction and student perception of perceived exclusion and privilege. The goal of the study was to determine to what extent student demographics, academic achievements, and socioeconomic status are correlated with school climate and school satisfaction domains.

Zullig et al. (2010a) used a quantitative approach surveying 2,049 students through a convenience sampling method. The demographics represented in the study were evenly balanced between genders; however, ethnicity was unbalanced with 1,722 Caucasian students surveyed. The following survey tools were used: Multidimensional Students’ Life Satisfaction Scale (Huebner, 1994) and the School Climate Measure (Zullig et al., 2010a). Multiple regression analyses suggested that 5 school domains are significantly related to school satisfaction. This study supports the notion that domains should be carefully examined and expanded to capture the subjective and objective student experience of the educational environment. In addition, the study showed that multiple methods should be used to clarify the directionality of school climate-satisfaction relationships (Zullig et al., 2010a).

Wallace et al. (2012) explored the multidimensionality of the sense of belonging construct by examining the subdimensions of the phenomenon. The study was based on the premise that dropping out of school is related to social interacting deficiencies connected to interpersonal relationships at home and in school. Wallace et al. (2012) included the social interactional phenomena of microaggression and the process of affective misattunement, two theoretical constructs that are likely situated in the context of urban schools. In high-poverty urban schools, Lee (2010) hypothesized that these educational environments are impacted by a “heighted state of emotional arousal,” which accounts for microaggressional social interactions (as cited in Wallace et al., 2012). This phenomenon exacerbates the interpersonal relatedness problem of affective misattunement where students believe that relating to school staff is not a possibility. Thus, the school environment and the social context impacts to what extent believe they belong.

To explore student belonging, Wallace et al. (2012) utilized Eccles and Roeser’s (2011) ecological framework that suggested the school environment is an interrelated set of conditions that experientially impacts students. Another critical factor identified by Wallace et al. (2012) was Finn’s participation-identification model, wherein the act of participating increases the potential for identification, thus strengthening the sense of belonging. The role of the teacher is significant in the process of school belonging. Wallace et al. (2012) used Faircloth’s identity-instruction integration model of importance because the theory suggested that teachers play an important part in the connection process by introducing pedagogy that engages students to think and share in a supportive environment. The final theoretical construct in the study was Crosnoe’s not-fitting-in model of social marginalization. Crosnoe’s model concentrated on the variable of peer social relationships. Crosnoe contends the social reality of a high school

consumes more time than academic learning. The dichotomy of fitting in or not fitting is more important than identifying with a good group or a bad group (Wallace et al., 2012). For example, a deviant student might report feeling connected to school because the group that engages in at-risk behaviors, they identify with contributes to what they deem as a positive school experience.

Wallace et al. (2012) conducted their mixed-method study using a focus group for phase one and convenience survey for phase two. The results suggested adolescents' self-evaluations of school-based relationships are predictors of how robust, or developmentally potent, the interpersonal structures are to youth engagement within educational contexts. Wallace et al. (2012) found that a "connection to a teacher is a significant psychosocial perception likely to have a profound influence on achievement growth, a crucial aspect of youths' developmental trajectory" (p. 135). The authors believe that a sense of belonging is connected to deeper factors that are not easily available or manifested in the empirical study process.

Family impact. The body of literature on family involvement has determined that academic success is contingent upon the emphasis parents place on learning in the home environment (Perkins et al., 2016). Studies suggest parental involvement is associated with positive academic results and a decreased possibility of engaging in risk behaviors. However, some studies suggest the impact of the family on academic achievement has no measurable effect. Despite the variance in what the studies suggest, the influence the family unit has on children is evident in the way parents connect with the educational environment. This section will discuss the association of parental influence and student connectedness.

A quality school has the capacity to offer more developmental benefits than a dysfunctional home. Rovis, Bezinovic, and Basic (2015) conducted a study of disturbed family

relationships, risk behaviors, and school bonding. The purpose of Rovis et al.'s study was to examine the potentiality of school bonding as a motivational force that protects students by nullifying the educational deficits within the family unit.

Within the body of research literature, the researchers identified the following risk factors related to negative school bonding: poor attachment to school, weak commitment to education and educational goals, lack of commitment to school, lack of attachment to school, poor connectedness to school (Rovis et al., 2015, p. 672). The protective factors identified were the following: clear school bonding, connectedness with school, attachment to school, and commitment to learning (Rovis et al., 2015, p. 672). For example, poor school bonding has the potential to lead to risk behaviors, such as delinquency, substance abuse, dropping out, and teenage pregnancies. Likewise, positive school bonding contributes to better emotional, intellectual, and physical outcomes. Thus, a school with exceptional qualities has the power to supplant educational deficiencies within the family.

Rovis et al. (2015) used a self-reported questionnaire and randomly sampled 1519 respondents from 30 high schools in Grades 9–11. Covariance analysis tested the impact of sex, grade level, school bonding, and family relationships and the effects of school bonding. The results showed that fewer risk behaviors were manifested in students with a stronger attachment and/or commitment to school, and an unsupportive family unit had significantly fewer risk behaviors than students of similar family circumstances but a lower attachment and/or commitment to school (Rovis et al., 2015). The study revealed gender differences with regard to commitment to schooling in preventing risk behaviors. When the commitment to school is strong, boys experience the protective factor. For girls, the absence of commitment acts as a risk

factor. The authors suggested that schools with a health program and staff that prioritizes connecting students to school, is the best way to prevent at-risk behaviors.

In a similar study, Perkins et al. (2016) concluded that parental involvement was influential to the extent that it is a strong predictor of academic achievement. According to Perkins et al. (2016), parental school involvement can be measured using three common categories of socialization: home-based, school-based, and academic socialization. Hill and Tyson (2009) suggested, the categories are connected to motivational antecedents that include “personal aspirations, control, desire to be supportive, or addressing and academic deficit (as cited in Perkins et al., 2016). In addition to these characteristics, Perkins et al. (2016) emphasized the following relationships: the parent-adolescent, adolescent-school, and the relationships of those contexts to one another. The basis of the study concentrated on these factors and the transition from elementary school to middle school.

For children and their families, the transition to middle is a giant leap closer to the demands of high school. Middle school is less nurturing than elementary school and involves higher academic expectations and increased social pressures, which are exacerbated by communicative challenges presented by new peers and older students (Perkins et al., 2016). Another trend identified by Eccles and Harold (1993) is the reduction in parental support that occurs as the child moves through the grade levels (as cited in Perkins et al., 2016). Researchers speculate this has to do with school size, a different location, more educators involved and confusion regarding points of contact, parent job demands, maturity and the independence that goes with it, and fatigue related to raising a child (Perkins et al., 2016). The transitional factors translate into a greater potential for risk behavior when some or all variables are in play and parental commitment to school fades.

Perkins et al. (2016) surveyed 607 adolescents from 28 communities, with a demographic breakdown of 47% female, 88% Caucasian. A multilevel regression analysis was used and the results showed school bonding and academic grades in 6th grade were related to parent involvement in school. Parental support in non-academic activities was unrelated to school bonding. The study revealed that school efforts to include parents had no predictable impact on student outcomes. Household income was associated with school bonding and school grades to the extent that academic achievement improved as socioeconomic status increased. Perkins et al. (2016) confirmed the belief that parental involvement in school and access to financial resources was integral to ensuring student success in school.

Gore et al. (2016) examined the family as a social factor that contributes to fear of success. Like the Perkins et al. (2016) study, Gore et al. (2016) presented the importance of parental support and parental involvement and how it contributes to student success. However, unlike the Perkins et al. (2016) study, Gore et al. (2016) made a distinction between parental involvement and parental support. When parents are involved they are invested in the academics and activities of their child's education. Ho (2003) found that involvement supersedes investing funds into the school (as cited in Gore et al., 2016). When a child needs emotional help and understanding, the parent who listens and focuses on positive attributes rather than drawing attention to weaknesses provides the supports. Parental support works to build a trusting relationship of approval and acceptance (Gore et al., 2016).

Gore et al. (2016) used unique tools to assess parental support, parental involvement, and fear of success. The following three different tools were used: the Social Provision Scale (to measure parental support), the Child and Adolescent Social Support Scale (to measure parental involvement), and the Fear of Success Scale (to measure fear of success; Gore et al., 2016). The

surveys were administered to 129 students in Grades 6–12 to a population of mostly Caucasian students. The results showed that parental support had more of an impact than involvement in school. School involvement is an indirect way of showing support. Consistent support is a direct way of helping a student emotionally to the extent that they overcome the fear of success. Parental support communicates that academic success will lead to a life of better connections and not social isolation.

Interventions. Connectedness is attributed to the prevention of risk behaviors. The focal point of connectedness intervention is the student-teacher relationship. Despite this obvious association, the body of research literature shows that teachers' familiarity with student connectedness is limited (Chapman, Buckley, Sheehan, & Shochet, 2013). In order to intensify connectedness in the educational environment, the teaching staff needs to understand what it looks like, how to cultivate the construct, and the short- and long-term benefits the phenomenon produces. This section will discuss connectedness interventions presented in the body of the research literature.

Connectedness in a school is not the result of some fantastic policies developed by the leadership team. Connectedness is the result of many factors combining to make a school an inviting place for students. Learning and the delivery of instruction is the primary focus of school. The focus on connecting students runs the risk of getting lost when the adults in the building ignore the pro-social dimensions of trust, encouragement, self-discipline, responsibility, and free choice making (Freiberg & Lamb, 2009). Teachers are instrumental in the promotion of connectedness and play an important part in the evolution of strategies that facilitate positive school-wide student connectedness (Chapman et al., 2013).

A connectedness intervention is a developmental process that occurs over time. Catalano, Haggerty, Oesterle, Fleming, and Hawkins (2004) suggested that the best way to view connectedness interventions is through the lens of the Vygotsky's social development model (SDM). The social development model determined that children emulate the behaviors of their social environment. The theory is built on the premise that children perceive an opportunity for involvement, then, they act on their perception, and the rewards associated with involvement increase attachment and commitment (Catalano et al., 2004). In the classroom, this means that the teacher is responsible for creating perceived opportunities and cultivating a sense of reward associated with learning. The reward is not based on a token economy where the student receives an object for competing tasks; rather, the teacher communicates the value related to mastering a new skill and what it means regarding quality of life. To help reinforce students' identification as learners, the classroom culture is one of ongoing support and encouragement.

The classroom culture fosters connectedness when teachers shift away from a behavioral model and adapt a person-centered approach. Freiberg and Lamb (2009) described the person-centered classroom as an environment where the "wants" of the teacher are harmonized with the "efforts and needs" of the student into a cooperative classroom of "we" where inclusion of all persons is the driver. The person-centered classroom is a pro-social developmental intervention. Freiberg and Lamb (2009) examined 119 person-centered studies spanning 56 years and the findings showed positive learning outcomes for students in the domains of cognitive and emotional development. Better learning outcomes are facilitated when teachers operate from a "we are in control" perspective, rather than a teacher-centered attitude of "I am in control" (Freiberg & Lamb, 2009, p. 105). The person-center classroom model has been shown to increase student achievement (Slavin & Lake, 2008), teacher and student attendance, reduce

office referrals, and improve classroom and school learning environments (Eiseman, 2005; Freiberg, Connell, & Lorentz, 2001; Freiberg & Lapointe, 2006). Thus, increasing connectedness capacity in a school is based on the pro-social emphasis placed on building relationships of mutual understanding and respect.

Connectedness capacity is cultivated by increasing professional development opportunities for teachers. Chapman et al. (2013) utilized teacher interviews, and their study suggested that the most effective connectedness intervention strategy is focused on increasing teacher professional development. Like Freiberg and Lamb (2009), Chapman et al. (2013) found that the social context is the area where strategies should be focused on increasing connectedness. A school with an effective pro-social relational model in place is sustaining an environment where students enjoy coming to school and teachers experience increased job satisfaction.

The final intervention piece attributed to increasing connectedness is participation in extracurricular activities. Howard and Ziomek-Daigle (2009) utilized a single-group time series design to examine the relationship that extracurricular activity has on school bonding and academic achievement. The Jenkins School Attachment Questionnaire (1997) was used in a pre-test and post-test manner. A voluntary support group intervention was used to determine if achievement and school bonding capacity was impacted. The results showed no increase in school bonding; however, there was a significant increase in academic achievement. Howard and Ziomek-Daigle (2009) concluded interventions designed to increase school bonding require an understanding of the multidimensionality of the school-bonding concept. These findings indicated school bonding is a complex concept that requires a quantitative instrument with a

continuous scale and a qualitative approach that accounts for specific mediating demographic factors.

Race, ethnic identity, gender, and the impact of discrimination. Identification of at-risk students is based on perception and the use of school-based records (attendance, behavior referrals, and academic performance). Although school staff and peers often conclude that their perceptions and use of data can identify at-risk students, there is no evidence that professional opinions are accurate (Bonny, Britto, Klostermann, Hornung, & Slap, 2000). Race and ethnic identity tends to fall within a perceptual awareness of achievement gaps, in other words, there is an implicit bias at work that eludes empirical analysis. For example, minority groups experience discrimination as a result of their consciousness, which is described as racial socialization, whereby; parents transmit messages about race or ethnicity to their children (Dotterer, McHale, & Crouter, 2009). The impact that race and ethnic identity has on connectedness and school achievement has been empirically studied to the extent that the body of research literature suggests that schools play an important role in the development of racial socialization. This section will discuss connectedness from the perspective of race and ethnic identity as presented in the body of the research literature.

Student connectedness is a manifold construct that depends on students' perceptions of the educational environment and their relationships with peers and family at home. Altschul, Oyserman, and Bybee (2006) found that race and ethnic identity (REI) has the power to bolster or sabotage academic achievement and is dependent upon REI connectedness to an in-group, an awareness of racism, and in-group focus on academic achievement. The effects of stereotyping impact REI. Stereotype threat theory refers to racial and ethnic stereotypes that exist in the context of the educational environment, which influence the sense of connection that students

from marginalized racial and ethnic groups experience in school (Murphy & Zirkel, 2015). Dotterer et al. (2009) link stereotype threat theory to academic outcomes and found that academic achievement is more at risk than academic motivation. For example, an African American youth experiencing perceived discrimination may harbor the belief that school is important and have confidence in their academic competence; however, their performance in school dictates otherwise. In ethnically diverse schools, educational practices must consider the student body and the stereotype that impacts group and ultimately the individual.

A school is comprised of a multitude of social units. Altschul et al. (2006) discovered that white students felt like they naturally fit into school and that concerns about belonging do not interfere with learning in the way that racial and ethnic minority students perceive the environment -- as an outsider. In their study of African American youth and school engagement, Dotterer et al. (2009) found that “discrimination was negatively related to school self-esteem and school bonding, but did not moderate the discrimination-school engagement association” (p. 61). In addition, this speaks of the researched phenomena known as the engagement-achievement paradox. The engagement-achievement paradox explains why Black students report experiencing higher levels of engagement, intrinsic motivation, and learning in classrooms, but lower grade point average (GPA) than white students. The same results were found with students identified as low socioeconomic status (Shernoff & Schmidt, 2008). This claim supports the notion that the perception of discrimination prohibits a student from fully unifying to an educational environment and benefiting from the protective factors of connectedness.

Transcending societal racial and ethnic barriers requires a focus on the way an institution embraces the wholeness of others. Walker and Greene (2009) recognized that when students believe they are valued members of the school community, experience support from teachers and

peers, and accept school work is conducive to their future, they are more likely to focus on the integration of cognitive approaches that support various goals. This means that a strong cultural awareness is crucial to developing a school culture that helps students connect to the educational environment. For example, the role of the family for Hispanic students is central and their responsibilities at home vary. First and second-generation Hispanic youth struggle to find the time to for friendships (Vaquera, 2009). Likewise, having a friend at school increases social capital and decreases engagement problems (Vaquera, 2009).

The body of research literature on race and ethnic identity utilized various research designs and methodology. This particular area is unique because the studies reviewed utilized inferential statistical analysis, interviews, survey design, and mixed method. All of the studies suggested that race and ethnic identity impact academic achievement to some extent. The studies emphasized that connectedness is likely even though a marginalized student might have a low-grade point average—the engagement-achievement paradox. The way in which marginalized students engage in learning is impacted by stereotype threat. Schools need to enhance programs aimed at increasing engagement in minority students by removing the barrier of the engagement-achievement paradox. These important factors add to the multidimensionality of the connectedness concept.

Health benefits and interventions. According to the body of research literature on student connectedness, when students experience care from people in their school and feel connected to their school they are less likely to engage in health risk behaviors (McNeely et al., 2002). The risk behaviors include the use substances, tobacco, violence, sexual activity, bullying, harassment, and depression. The risk behaviors impact the student’s health and impede academic achievement. The health risk behaviors related to schools that have a disconnection

problem are evidenced by drop out, absenteeism and truancy, disruptive classroom behavior, behavior referrals and delinquency rates (Hunt et al., 2002). The impact that student connectedness has on health and school achievement has been empirically studied to the extent that the body of research literature suggests that schools play an important role in the development of a healthy outlook on life. This section will discuss connectedness from the perspective of health benefits and interventions as presented in the body of the research literature.

Stage-environment fit theory suggests the stages of adolescent development and the characteristics of the social environment are two important factors that contribute to the way in which behavior, motivation, and mental health are shaped (McNeely et al., 2002). The root of a healthy school that prevents health risk behaviors is the social environment. Using data from the National Longitudinal Study of Adolescent Health from 1994–1995, McNeely et al. (2002) found that schools which prioritize classroom management, reasonable discipline approaches, smaller school populations, and segregated by race and in some case by gender have higher levels of connectedness. McNeely et al. (2002) found that school leadership should be most aware of stage environment fit between 6th and 7th grade where the transition (new peers, change of location, higher learning expectations) from elementary school occurs. In addition, Oelsner et al. (2011) using inferential statistical analysis found:

School bonding decreases in a nonlinear fashion from Grades 6 to 8. Boys have lower initial levels and greater decreases school bonding than girls. At grade 6 deviant behavior, low academic achievement antisocial was associated with lower levels of bonding. (p. 463)

Thus, schools that develop an atmosphere with these characteristics and a focus on the psychosocial developmental stage of the population will influence the social environment.

The social environment of the school presents many risk factors that stem from the pressures of rigorous learning, peer influences, and parent-child relationships. Brookmeyer, Fanti, and Henrich (2006) utilized Bronfenbrenner's ecological approach to understand student connectedness and youth violence. Using data from the National Longitudinal Study of Adolescent Health from 1994–1995, Fan et al. (2006) found that how students feel about their parents and school impacts the way in which they interpret their relationships and solve conflicts. Students who feel more connected to their schools demonstrate reduction in violence over time. The intervention recommended by Fan et al. (2006) is to change the students' perception of school climate by finding ways to make parents an important part of the educational environment. Hunt et al. (2002) used a mixed method approach drawing from 304 school employees and found that the most effective interventions for drop out and violence are mentoring programs, family involvement, instruction in conflict resolution and problem-solving skills, and increased focus on positive relationships in school. Thus, schools that focus on increasing parent involvement and assessing the needs of the student have the power to reduce risk behaviors.

Emotional problems that stem from negative peer interactions are susceptible to developing health risk behaviors in the form of conduct problems and depressive symptoms (Loukas, Suzuki, & Horton, 2006). Using social control theory and a quantitative analysis of middle school students, Loukas et al. examined (2006) student connectedness as the relational mediator from the climate perspective that included the for factors of cohesion, friction, competition among peers, and satisfaction with classes. The findings of this study suggested,

“student connectedness mediated the relations between perceived cohesion, perceived friction, and overall satisfaction with classes” (Loukas et al., 2006, p. 491). Therefore, a quality school is an organization where school leaders continually assess school climates and create environments where students have the space to develop quality relationships with peers and teachers.

The emotional climate of a school as it pertains to peer relationships is often impacted by harassment and bullying. Wormington, Anderson, Schneider, Tomlinson, and Brown (2016) conducted research on victimization. According to Wormington et al. (2016), a victimized student will manifest “adaptive school adjustment” behaviors and academic performance problems. The study used the findings of Oelsner et al. (2011), to reinforce the notion that school connected declines with each transition from elementary to high school, and thus their vulnerability for victimization increases (as cited in (Wormington et al., 2016). Using social control theory and a quantitative approach, Wormington et al. (2016) surveyed over 8,000 students in middle and high school and found “peer victimization displayed a negative association with academic performance and a positive association with truancy rates” (p. 12). In addition, the study showed that peer victimization is at its peak in middle school and extends into the future of a student’s school experience in the absence of student connectedness. Wormington et al. (2016) concluded that student connectedness as an intervention was mediating force that offers students protection from destructive influences.

Impulsivity and misconduct are associated with conduct problems and delinquency. Schools constituted by constrained social interaction among students, a deficiency of emphasizing achievement, and an impression of inequity tend to demonstrate elevated degrees of misconduct and victimization (Gottfredson, Gottfredson, Payne, & Gottfredson, 2005; Payne, 2009). Using data from the National Longitudinal Study of Adolescent Health from 1994–1995,

and social control theory, Vogel and Barton (2013) found the relationship between impulsivity and weapon carrying is stronger in schools characterized by low levels of student connectedness. Students perceive a greater chance of being personally victimized in less connected schools, those who are less capable of thinking through alternative means of conflict resolution might be more likely to view weapon carrying as a viable form of self-defense. Less connected schools have students who are less likely to intervene and/or alert adults. Vogel and Barton (2013) concluded that school misconduct is affected by the complex combination of educational environment and individual attributes. Schools that recognize this relationship will succeed as moderating influence that reduces impulsivity and conduct problems.

Positive psychology and connectivity. A positive educational environment has the potential to help students overcome social and emotional deficits that impact learning. The deficits come in the form of lack of parental support and involvement, race and ethnic identity influences, victimization, emotional problems, and stage developmental issues. The critical factor that works to help or hinder the process of emerging potentiality is the social context. Positive psychology is a school of thought that is relatively new in the field of psychology. Positive psychology holds the belief that connectivity is a powerful driver to achieving potential and most importantly well-being. Thus, positive psychology is interested in how schools work to motivate students.

The experience of interest is a powerful motivator. When a student finds interest in a topic they are likely to achieve high marks in the classroom and on standardized tests (Hunter & Csikszentmihalyi, 2003). A positive school context is comprised of an ongoing cultivation of interest and excitement that is designed and delivered by caring adults (Chhoun & Wallace, 2014). The experience of boredom creates the need to find excitement which tends to deliver the

student to peer groups that share a similar need. From which, we find the board student engaging in pleasure seeking behaviors that offer temporary excitement in the form of substances, misconduct, and sexual activity. Chhoun and Wallace (2014) posit, teacher relationships emphasizing care and the quality of student teacher interaction are protective factors for that promote the positive outcome of engaged learning. For students to experience a school as an exciting place of instruction and care, there needs to be a relationship that transcends a teach only style of relating, there must be contributory support, and there must be a “benefit of the doubt” disposition directed toward students (Chhoun & Wallace, 2014, p. 396). Thus, the goal is to increase social capital and an overall sense of well-being.

Shernoff et al. (2003) believed that the positive psychology approach has the potential to reduce dropping out of school. Shernoff et al. (2003) theorized that “student disengagement and alienation” in conjunction with habitual patterns tardiness, absenteeism, class failures, suspensions, transitioning out of schools is the root cause for dropping out. Student engagement is the primary area of concern, which involves the factors of phenomenological (unique experience), instructional and teacher, and demographic and history of learning (Shernoff et al., 2003). These factors impede or support what Shernoff et al. (2003) described as the flow state which creates a sense of intrinsic reward and a growth principle, whereby the participant continues to seek out more complex capacity development. Shernoff et al. (2003) longitudinal survey study of 526 high school students revealed that students were not fully engaged in learning from bell to bell. The study showed that one-third of class time is spent on passively processing information communicated to the whole class. In addition, full engagement (discussion, interactive activities, discussion, project-based learning) was reported as having occurred 14% of the time (Shernoff et al., 2003). A school that encourages and supports Flow

theory in the classroom will develop a growth mindset that readies students to be learners for life.

The positive psychology perspective for schooling involves the belief that well-being should be taught in schools (Seligman et al., 2009). According to Seligman et al. (2009) “well-being should be taught in school on three grounds: as an antidote to depression, as a vehicle for increasing life satisfaction, and as an aid to better learning and more creative thinking” (p. 295). Seligman et al. (2009) recommend that well-being programs in schools must be evidenced based. However, there is no evidence that positive psychology improved depression, anxiety, character development, and participation in extracurricular activities. There is evidence that suggests as a wellbeing intervention social capital increases a student’s sense of belonging, which is theorized as increasing a sense of well-being and reducing the impulse to give up on school and learning (Seligman et al., 2009). Much of what was reported by Seligman et al. (2009) was based on previous studies and argumentation.

Positive psychology shares a kinship with Hirschi’s (1969) social control theory—both schools of thought hold that social relationships influence the way in which a person grows and achieves a desired outcome. Positive psychology is described as the study of what makes life worth living (Seligman, 2013). The themes of positive psychology are creativity, wellbeing, social networks, engagement, flow, play, and boredom (Hunter & Csikszentmihalyi, 2003; Shernoff et al., 2003). These themes help researchers to understand the role of social institutions and the impact on student motivation.

Positive psychology seeks to help motivate people to remove the barriers that hinder personal growth. Seligman (2013) outlines the three characteristics of the good life as positive emotion, flow, and meaning. When these three characteristics triangulate, life satisfaction

increases. In addition, life satisfaction and health benefits increase when social capital is available and offers support (Smith & Christakis, 2008). The social network perspective of positive psychology holds that “people are interconnected, and so their health is interconnected” (Smith & Christakis, p. 406, 2008). Social networks are made up of the following five mechanisms: provision of social support, social influences, social engagement, person-to-person contacts, and access to resources. A school climate comprised of positive social networks has the power to motivate disconnected students (Smith & Christakis, 2008). Bandura’s (1971) social learning theory suggested that people learn through the process of observing and modeling the attributes of others. Social learning theory is important because the influences of others is relational and the driver of instruction. Likewise, social control theory holds that our social sphere influences the way we behave. Social control theory and social learning theory have heavily influenced the way in which researchers in the current context design scales for measuring student connectedness.

The positive psychological description of connectedness reminds me of a meaningful passage from Cather’s (1918) *My Ántonia*, where the main character Ántonia describes the feeling of a deep connection and the happiness that goes with the experience (p. 12):

The earth was warm under me, and warm as I crumbled it through my fingers. Queer little red bugs came out and moved in slow squadrons around me. Their backs were polished vermilion, with black spots. I kept as still as I could. Nothing happened. I did not expect anything to happen. I was something that lay under the sun and felt it, like the pumpkins, and I did not want to be anything more. I was entirely happy. Perhaps we feel like that when we die and become a part of something entire, whether it is sun and air, or

goodness and knowledge. At any rate, that is happiness; to be dissolved into something complete and great. When it comes to one, it comes as naturally as sleep.

I include this quote because António's feelings of connection describe a state happiness that motivates action in an involuntary and effortless way. In the field of positive psychology, this experience is described as flow where a person is absorbed to the extent that time stops, feeling is lost, and an intense concentration takes over the mind (Seligman, 2013). Sports psychology refers to the flow state as entering the zone where the athlete is immersed in the moment trusting skills, free from worry, confident, and no fear regarding results (Harrison, 2011).

Positive psychology is an important perspective to consider because it incorporates many empirical findings, themes, and constructs found in the body of literature on student connectedness. Positive psychology does not confine itself to a rigid view based on a theory, method, or political agenda. Positive psychology is rooted in the idea of building on strengths, increasing social capital, and experience a sense of well-being. Thus, positive psychology provides a unique framework for studying the student connectedness phenomenon.

Review of Methodological Issues

In order to develop a sophisticated study that makes a significant contribution to the field, a study needs to identify the emergent methodological issues unearthed during the literature review process. Hence, this section will analyze the types of methods used in previous studies. The types of methods used and the rationale for using the method(s) provide an understanding of the following areas of concern: strengths and weaknesses of research methods within the field, a sense of repetition and redundancy of methods previously used, evidence for justification of methodology selection, worldviews associated with methods, moderating

empirical rigor of method while resisting a fanatical focus on a particular method or theory, and researcher bias (Boote & Beile, 2005; Creswell, 2014; Ravitch & Riggan, 2017). Such issues indicate the choices researchers' make and the methodological patterns that have developed over time within a given body of literature.

The next two sections will review the methodological issues by asking two important questions. The first section will address the question regarding the methodological approaches selected to engage the research problem. The second section will address the question concerning the influences of methodology on the choice of methods in connectedness research. To conclude this section, I will discuss the limitations that studies undergo with the choice of a research method. My review of the relevant body of literature will show that student connectedness is a valid phenomenon.

Examining student connectedness. This section reviews a sample of some of the stronger methodological approaches used in student connectedness research. In addition, the methods used to gather data on student connectedness in the literature will be discussed, as well as the worldview in which these designs are situated. Student connectedness has been examined using quantitative, qualitative, and mixed methods approaches.

The studies selected for this literature review were comprised of peer reviewed journals with two or more researchers attached to the study. A total of 50 articles were selected based on searches utilizing the following search inquiries: student connectedness, student connectedness, school bonding, school attachment, student engagement, race and connectedness, ethnicity and connectedness, economically disadvantaged and connectedness, academic achievement and connectedness, positive psychology and connectedness. The literature predominately utilized quantitative methods to measure student connectedness. The mixed-methods approach was used

in four studies, followed by a qualitative method in five studies. The qualitative studies used the following methods: focus groups, literature review, teacher interviews, narrative inquiry, and theoretical critique. Researchers agree on the cognitive, behavioral, emotional, and health benefits of student connectedness. Researchers differ on the methods used to operationalize the connectedness concept.

The question of how studies are examining the student connectedness phenomenon requires a discussion on the differences between quantitative, qualitative, and mixed methods research approaches. Creswell (2014) explained:

Qualitative research is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem . . . those who engage in this form of inquiry support a way of looking at research that honors an inductive style, a focus on individual meaning, and the importance of rendering the complexity of a situation. (p. 4)

The number of studies on student connectedness using this method was low. Creswell (2014) described the mixed methods approach as “collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks” (p. 4). Through the review of research literature on student connectedness, the tendency among researchers is to test variables through the quantitative design for collecting information. Creswell (2014) further explained:

Quantitative research is an approach for testing objective theories by examining the relationship among variables. The nonexperimental form of research is the correlational design in which investigators use the correlational statistic to describe and measure the degree or association between two or more variables or sets of scores. (p. 12)

Based on the findings in the body of research, I have concluded that quantitative survey research on student connectedness “describes current conditions . . . and the relations between two or more variables” which helps to describe the factors that support or hinder student growth in an educational environment (Creswell, 2014, p. 9).

One study about the relationships between eight school climate domains and student satisfaction utilized the quantitative method of convenience sampling and correlational statistical analysis (Zullig et al., 2010a). The purpose of the study was to examine “the presumed determinates of students’ school satisfaction” using a “School Climate Measure” survey tool developed by the researchers, to assess the perceptions and domains of school climate (p. 135). The team concluded that a more in-depth perspective is ascertained when school climate and school satisfaction measures are combined to form a more comprehensive way of assessing the students’ experiences and perceptions of schooling. The design for the study consisted of Huebner’s (1994) eight item *Multidimensional Students’ Life Satisfaction Scale School (MSLSS) School Satisfaction Subscale* and the Zullig et al. (2010b) 39-item *School Climate Measure*. The data that was collected and used to analyze relationships included the self-reporting of the following variables: age, gender, grade, SES, and GPA. Race and gender was collected but not used as a factor of analysis.

Loukas et al. (2006) used a quantitative two wave survey path analysis to estimate the extent and gravity of hypothesized causal connections among variables. The two- wave survey consisted generating a baseline with Wave 1 and then one year later follow-up with Wave 2. The Wave 1 survey consisted of 161 items, while Wave 2 consisted of 160 items. The survey instrument was comprised of the following four measures as cited in Loukas et al. (2006): Fraser’s (1982) *My Class Inventory* (perceived school climate), Resnick et al. (1997) *National*

Longitudinal Study of Adolescent Health (student connectedness), Goodman, Meltzer, and Bailey's (1998) Strengths and Difficulties Questionnaire (conduct problems), and Kovacs (1985) Children's Depressive Inventory (depressive symptoms). The problem with this approach was the 1-year lag time between questionnaires, which led the researchers to believe that the shared method variance adjustments possibly increased relational results that were somewhat inflated. The other problem identified by the researchers is the problem of adolescent self-reporting. This is a common issue with using questionnaires because the design of the instrument, response bias, and an introspective ability to report accurately are the inherent flaws of self-reporting (Fan et al., 2006).

Lohmeier and Lee (2011) wanted to measure student connectedness and its relationship to academic achievement. To accomplish this task, they tested a survey instrument, the *School Connectedness Scale (SCS)*. The SCS (Lohmeier & Lee, 2011) examines three relationships (school, adults, and peers) and the three levels of connectedness (belongingness, relatedness, and connectedness). They used the factor analysis technique to identify the possible causes (factors), patterns, and relationships among variables. In this study, the researchers determined that the SCS provided a multidimensional test of student connectedness. Lohmeier and Lee (2011) acknowledged that the SCS would be more valid if data from classroom observations and teacher reports were collected and triangulated.

Whiteside-Mansell et al. (2015) examined the psychometric properties of three school bonding assessments. They used a 4-phase study approach to develop a survey that eliminated redundancy to produce a brief comprehensive survey. With each phase, the number of survey items decreased, while the population size grew from 53 in Phase I to 2050 for Phase IV. The researchers pointed out the following limitations: student self-reporting, information on

extracurricular participation, and interest and effort in academics (Whiteside-Mansell et al., 2015).

To conclude, the studies presented represent a strong sample of quantitative methods and study design. There were 16 studies that utilized this approach. Longitudinal quantitative studies utilizing shelved data were not included in this section. Many of these studies inferentially analyzed data from the 1995 National Longitudinal Study of Adolescent Health (ADD). Analyzing shelved data is acceptable; however, the issue of relevance as it pertains to a research question or a regional environment remains, hence when engaging in a study of student connectedness the issue of sample size and demographics are important factors.

The choice of methods for studying connectedness. As explained in the previous section, the methodological approach has different techniques applied to the data. The choice of methods for connectedness is predominately quantitative with a heavy emphasis on inferential analysis of shelved data from longitudinal studies. The other favorable method was using pre-packaged survey instruments that test for factors or dimensions of student connectedness. The development and construction of a survey tool was another popular method for investigating student connectedness. Researchers who went in the survey tool development direction operate from the belief that they have the ability to construct a tool that pulls forth data specific to a research problem.

Based on the findings within the body of research literature, the methods used to study student connectedness predominately operate from the worldviews of postpositivism and pragmatism. Postpositivism is a deterministic philosophy of cause and effect. The postpositivist employs the scientific method, and according to Creswell (2014), “research begins with a theory, collects data that either supports or refutes the theory, and then makes necessary revisions and

conducts additional tests” (p. 7). For example, the Loukas et al. (2006) study utilized multiple survey instruments and 2 waves of data collection to test their school connected hypothesis using the path analysis technique.

The pragmatic worldview is associated with the mixed methods approach and derived from observations and experiences born out of actions, circumstances, and outcomes instead of a priori assumptions. Creswell (2014) noted, “instead of focusing on methods, researchers emphasize the research problem and use all approaches available to understand the problem” (p. 10). For example, the Whiteside-Mansell et al. (2015) study used a focus group to help with the initial development of a survey tool. The use of the focus group helped the team sort through their assumptions. Then, the team proceeded through a series of phases and tests to determine what course of action was needed to achieve their goal of assessing the psychometric properties of a school bonding survey instrument.

Limitations of the studies. The results of the study are often negatively impacted by a facet within the study that the researcher believes is beyond their control (Gay, Mills, & Airasian, 2012). Because limitations can act as a blind spot, it is imperative that a researcher acknowledge aspects of the study that present weaknesses. For example, underrepresenting gender, race, and ethnicity are limitations because the study represented a particular demographic. This would not necessarily invalidate a study. However, the results may not generalize or pertain to the larger population from which the sample is drawn. Most studies that concentrate on the factors or multidimensionality of student connectedness require the subjects to be students and the environment to be a school. The use of students and school environment creates several limitations: administrative approval, parental consent, gender equality, race and ethnicity equality, student self-reporting, and sample size constraints. Thus, with these

limitations in mind, it is important to develop a study that addresses these issues prior to employing a method and when reporting on findings presenting the limitations discovered during or after the study.

Synthesis of Research Findings

The goal of synthesizing research findings is to discover relationships between sources, identify major themes and concepts, and identify critical gaps and disagreements within the body of research literature (Creswell, 2014). The process is a matter of developing what has been learned through the review of literature into a new understanding of relationships and concepts. It is important that the concepts are organized by relationships developed through reflection upon relevant studies. The synthesis is a process where the end result is drawing my own conclusion based on specific, grounded reasons, regarding how the research literature has addressed or situated my research question. In this section, I will cohesively present my arguments of discovery to build the foundation for the arguments of advocacy that pertain to my study.

The body of research literature on student connectedness survey instruments has substantiated the claim that the available instruments for measuring student connectedness are problematic. Appleton et al. (2008) argued, “The theoretical and research literature on engagement (connectedness) generally reflect little consensus about definitions and contain substantial variations in how engagement is operationalized and measured” (p. 370). The connectedness construct is a multidimensional concept and the available instruments are inconsistent because they measure singular or partial pieces of the phenomena (Bradshaw et al., 2014; Chung-Do et al., 2015; Lohmeier & Lee, 2011; Whiteside-Mansell et al., 2015). The climate and connectedness surveys used by states and regional school districts ignore important factors such as family educational level, socioeconomic status, race and ethnic identity, gender,

grade point average, mental health, and participation in extracurricular activities. In addition, the validity of these surveys are questionable because it is open to the public without an identifier system in place to limit people from taking multiple surveys and to contain the survey to the community itself. The development of a connected survey tool must consider the multidimensionality of the construct to include factors outside of the school environment that impact the students' sense of school engagement.

The factors of student connectedness are numerous and there is a lack of clarity regarding what constitutes the multidimensionality of the construct and its impact on health and academic outcomes. According to Singh, Chang, and Dika (2010), "Over and above background factors such as race, SES, gender, educational track, and family cultural capital, and behavioral engagement explain a modest but significant amount of variance in school achievement" (p. 165). Race and ethnic identity (REI) and gender are self-concepts that have the power to bolster or sabotage academic achievement and are dependent upon the role of racial socialization at home and the social unit identification at school (Altschul et al., 2006). Murphy and Zirkel (2015) claimed:

Unlike theories of internalization, stereotype threat theory examines how widely known racial and ethnic stereotypes that exist "in the air" within educational settings have a disproportionate influence on the sense of belonging that students from stigmatized racial and ethnic groups may achieve in school. (p. 4)

In my professional experience, racial socialization impacts the way in which students engage peers and teachers unlike them. Racial socialization and stereotype threat is evidenced in the way in which students respond to discipline and poor grades often citing racism as a reason for negative outcomes. The perception of discrimination prohibits a student from full unification

to the educational environment and benefitting from the protective factors of connectedness. The researched phenomena known as the engagement-achievement paradox explains why Black students report experiencing higher levels of engagement, intrinsic motivation, and learning in classrooms, but lower GPA than White students. The same results were found with students identified as low socioeconomic status (Shernoff & Schmidt, 2008). Research has demonstrated that the feeling of discrimination impacts student performance and sense of well-being, which has long-term consequences for life satisfaction (Altschul et al., 2006; Bradshaw et al., 2014; Chung-Do et al., 2015; Lohmeier & Lee, 2011; Murphy & Zirkel, 2015; Shernoff & Schmidt, 2008; Whiteside-Mansell et al., 2015).

The body of research literature on student connectedness has substantiated the claim that when students experience care from people in their school and feel connected to their school they are less likely to engage in health risk behaviors (McNeely et al., 2002). The risk behaviors include the use substances, tobacco, violence, sexual activity, bullying, harassment, and depression. The risk behaviors impact the student's health and impede academic achievement. The evidence for the impact of risk behaviors are evidenced by drop out, absenteeism and truancy, disruptive classroom behavior, behavior referrals and delinquency rates (Hunt et al., 2002). The school environment plays an important role in the development of a healthy perspective on life. The researchers concerned with the protective factors of student connectedness suggest the stages of adolescent development and the characteristics of the social environment are two important factors that contribute to the way in which behavior, motivation, and mental health are shaped (McNeely et al., 2002).

Higher levels of connectedness were found in schools that prioritize classroom management, reasonable discipline approaches, smaller school populations, and segregation by

race, and in some cases by gender have higher levels of connectedness. Fan et al. (2006) found that how students feel about their parents and school impacts the way in which they interpret their relationships and solve conflicts. Schools constituted by constrained social interaction among students, and deficiency of emphasizing achievement, and an impression of inequity tend to demonstrate elevated degrees of misconduct and victimization (Gottfredson et al., 2005; Payne, 2009). In my professional experience, students who lack parental support, engage in health risk behaviors, experience discrimination and bullying, and have a dysfunctional social network are the most disconnected population within the school. These students are often failing multiple classes, engage in violence and harassment, have attendance problems, and suffer from emotional distress. The research supports the need to use the data collected from survey instruments to identify disconnected students and develop school-wide intervention strategies that increase social capital throughout the school.

The impact of the family on student health and academic success has been well documented. The body of research literature suggested that parent engagement is associated with positive academic results and a decreased possibility of engaging in risk behaviors. According to Perkins et al. (2016), parental engagement is most beneficial when it includes both emotional support and school involvement (homework support, activities, parent groups). In addition to parental engagement, household income was associated with school bonding and school grades to the extent that academic achievement improved as socioeconomic status increased (Perkins et al., 2016). In the absence of parental involvement and income, a quality school has the capacity to offer more developmental benefits than a dysfunctional home. The research supports the need to develop a survey instrument that identifies the impact of the family on a child's education.

Research has substantiated the claim that transitioning from one grade level to the next influences a students' sense of student connectedness. Altschul et al. (2006) found students are vulnerable when, "The shift from a smaller homogeneous middle school to a larger heterogeneous high school impacts future images into emerging identity" (p. 1158). Oelsner et al. (2011) found "School bonding decreases in a nonlinear fashion from Grades 6 to 8. Boys have lower initial levels and greater decreases school bonding than girls. At grade 6 deviant behavior, low academic achievement antisocial was associated with lower levels of bonding" (p. 463). In my professional experience of public education, the transition from grade level to grade level is most impactful to a students' sense of connectedness when transitioning from elementary to middle school and middle school to high school. The location of the school, different teachers, larger classes, high expectations, and peer influences are the factors that impact student connectedness with each transition. The research supports the need to develop a survey instrument that identifies the impact of grade level transitions on student connectedness.

Positive psychology is a school of thought that has substantiated the need to create learning environments that excite and motivate students to engage in learning as means of achieving potential. To understand the connectivity of an educational environment, a positive psychological approach examines the following factors: phenomenological (unique experience), instructional and teacher, and demographic and history of learning (Shernoff et al., 2003). Although an influential educational perspective, there is no evidence that positive psychology has improved depression, anxiety, character development, and participation in extracurricular activities. There is evidence that suggests as a wellbeing intervention social capital increases a student's sense of belonging, which is theorized as increasing a sense of well-being and reducing the impulse to give up on school and learning (Seligman et al., 2009). The research supports the

need to develop a survey instrument that identifies the positive psychology capacity of a school environment.

Critique of Previous Research

The aim of the following critique is to analyze and evaluate the body of research collected for the study. This section differs from the review of methodical issues. The critique focuses on the entire body of relevant literature, whereas, the methodological issues are concerned with the rationale for the types of methods used. The critique and methodological issues sections might appear to overlap. For example, critiquing sample size and demographics is not the same thing as discussing the number of times a quantitative method was used in the relevant literature. The goal of the critique is to demonstrate that a novice researcher has the ability to critically analyze and argue the problem areas within the given body of research. The critique sets the stage for research question investigation. The critique is the pivot point from argument of discovery to the argument of advocacy where the novice researcher attempts to enter the field with something new (Machi & McEvoy, 2012). On the other hand, in metaphorical terms related to the specifics of a research design, the methodological issues are the steering system and the critique is the engine. In this section, I will critique the body of research in the areas that pertain to my research topic.

Student connectedness survey instrument development. For educational leaders, the role of student connectedness on youth health and academic outcomes is important and requires an accurate identification and measuring instrument. Many studies use scales that are limited and fail to comprehensively measure the multidimensionality of the construct (Chung-Do et al., 2015). The examination of student connectedness as a multidimensional construct elaborates on

the complexity of student experiences in school and improve intervention strategies that promote progressive youth health and academic outcomes (Chung-Do et al., 2015).

Researchers struggle to find a survey instrument that adequately measures 10–15 year olds. Some researchers agree, that the development of psychometric survey instrument that assess all four areas of Hirschi's (1969) social control theory, will uncover how “school bonding acts as a mediator in the level of expected health, academic, and social risk outcomes,” which may aid in the construction and utilization of appropriate interventions aimed at increasing student connectedness (Whiteside-Mansell et al., 2015, p. 3). I agree with this assessment and argue that the survey instrument must include the following factors: family educational level, socioeconomic status, race and ethnic identity, gender, grade point average, mental health, and participation in extracurricular activities. The research in this area of the literature is in agreement with flaws of survey instrument design.

The multidimensional domains of the connectedness concept. For researchers of student connectedness, and as was the case for survey development, the issue of the multidimensionality of the construct is complex. The following domains are discussed in the body of research literature: perception, cognitive engagement, academic support, positive student-teacher relationships, order and discipline, academic satisfaction, generalized, specific, identity, participation, and perception of fitting in with peers (Walker & Greene, 2009; Wallace et al., 2012; Zullig et al., 2010a). The researchers in this area of the literature used quantitative analysis to define and examine the connectedness domains. A broad spectrum of sample size was represented from 17 to 50,000 students from middle to high school. One area of concern was the demographic representation of race and ethnicity. All of the samples were strongly represented by Caucasian students by more than 50%, with one study where 84% of 2,049

students were White/non-Hispanic. To test for domains, the researchers used shelved survey instruments. This approach helps uncover the various connectedness factors and domains. This body of research literature is useful because by using other reliable survey instruments, the establishment of factors and domains helps with constructing a comprehensive survey instrument.

Student connectedness and family influences. The current body of research literature on family involvement shows that parental influence is a critical student connectedness factor. Researchers who have studied parental influence on school achievement claim that support and involvement reduce health risk behavior and increase the likelihood of academic achievement. Within the body of research literature, the researchers identified the following risk factors related to negative school bonding: poor attachment to school, weak commitment to education and educational goals, lack of commitment to school, lack of attachment to school, poor connectedness to school (Rovis et al., 2015, p. 672).

To substantiate their claims, the researchers utilized quantitative research methods. The sample sizes varied from less than 100 to 6,233. The demographic representation was strongly represented by Caucasian students with a percentage greater than 60%. The study by Perkins et al., (2016) was unique because of the claim that income level and school bonding have a direct correlation, with males from lower income households struggling the most. Within the current body of research literature, this study established the impact of income on academic achievement and health risk behaviors. The data used to generate the claim is weak because the sample size did not represent a diverse population. The claim regarding income levels and school support should be tested in environments with a dense population of students new to the country, as well as in CTE schools.

Student connectedness interventions. The current body of research literature on student connectedness interventions includes quantitative approaches and literature review. Howard and Ziomek-Daigle (2009) claimed that school bonding is a complex concept that requires a quantitative instrument with a continuous scale and a qualitative approach that accounts for very specific mediating demographic factors. As was the case for all the current research in this area, the qualitative approach was utilized. For example, their study consisted of interviewing 11 African American students. Howard and Ziomek-Daigle (2009) worked from the claim that participation in extracurricular activities has been shown to have an effect on academic achievement and student connectedness. This claim could be expanded upon by testing it quantitatively with a survey instrument that seeks to correlate what activities might have a stronger impact on student achievement.

Student connectedness health benefits. The current body of research literature in the area of health benefits attributed to student connectedness is populated by numerous studies that use shelved longitudinal data and inferential quantitative analysis. For example, using data from the National Longitudinal Study of Adolescent Health from 1994–1995, McNeely et al. (2002) found that schools which prioritize classroom management, reasonable discipline approaches, smaller school populations, and are segregated by race and in some case by gender have increased levels of connectedness. The ADD data is helpful to reinforce a claim; however, it is data that was collected from the 1980’s and reported on in the 1990’s, which means that we are looking at youth trends that were not impacted by more recent socioeconomic and environmental factors, such as personal electronic devices. Oelsner et al. (2011) used inferential statistical analysis on survey data and found “School bonding decreases in a nonlinear fashion from Grades 6 to 8. Boys have lower initial levels and greater decreases school bonding than girls. At Grade

6 deviant behavior, low academic achievement antisocial was associated with lower levels of bonding” (p. 463). However, the weakness in the data collected is reflected in the sample size of 2,902 students with 80% of the students being Caucasian. To study the health benefits of student connectedness, a survey tool that tests for correlations in a current context with a diverse population would give better insight into the reality of reducing at-risk health behaviors through education.

Race, ethnic identity, gender, and student connectedness. The current body of research literature in the area of race, ethnic identity, gender, and student connectedness is limited by the demographics. For example, Altschul et al. (2006) claimed “Youth high in both REI Connectedness and Embedded Achievement attained better GPA at each point in time: youth high in REI Connectedness and Awareness of Racism at the beginning of 8th grade attained better GPA through 9th grade” (p. 1155). Their study was comprised of a sample of 98 African American students and 41 Latino students from three low income urban schools. That data collected from the sample size only accounts for two racial ethnic groups. Likewise, in a similar study, Singh et al. (2010) found, “Ethnicity-based differences in school engagement are found in the behavior dimension of effort and the psychological dimension of enjoyment and value of learning” (p. 165). Their sample size was large with survey data drawn from 1,157 students; however, the ethnic breakdown of the participants was not clear. The study stated that more Caucasian students than African American students were surveyed. A quantitative study that examines race, ethnicity, and gender should seek a sample size that equally represents a diverse population of students, such as Native Americans, Asian, and Pacific Islander.

Chapter 2 Summary

This section summarizes what has been discovered after extensively reviewing the relevant literature on student connectedness. The findings will be synthesized to demonstrate the need to study the connections between connectedness and academic achievement in diverse schools. This section will conclude with a statement of support for pursuing a research project based on a gap within the body of research literature.

The current body of studies that have been conducted on student connectedness have predominately utilized quantitative methodology. Researchers in the area of health benefits attributed to student connectedness mostly opted for using the National Longitudinal Study of Adolescent Health from 1994–1995 and for using survey instruments to collect data that reflects the choice of research questions and the context of study. The debate among researchers regarding the impact of student connectedness centers on the survey instrument used and testing connectedness phenomenon as a multidimensional construct. During this review of the literature, no studies were found regarding student connectedness in highly diverse CTE schools. Studies utilized a broad range of quantitative methodological techniques, with different conceptual frameworks, and tested specific areas where the connectedness construct had impact.

Career and technical education schools in an urban environment where students represent a diverse population provides an opportunity to study the connectedness variables at work in an alternative educational environment. These variables include race, ethnicity, identity, gender, socioeconomic status, academic achievement, health risk behaviors, family participation, grade-level transitions, and extracurricular participation which can fully be studied. The current body of research does not examine the connectedness construct in CTE environments where the diversity levels represent more than two groups. With a quantitative correlational research

design, I was able to examine the relationship between student connectedness and academic achievement in an ethnically diverse CTE school in an Alaskan School District

The current research literature has shown that student connectedness is a manifold construct that depends on student perceptions of the educational environment and their relationships with peers and family at home. A school is comprised of a multitude of social units. On a day-to-day basis, a student's progress is impacted by choices made by peers and adults. The need for interventions to connect students to school so that learning outcomes and health benefits are maximized is important for growth and long-term development. In order to intensify connectedness in the educational environment, the teaching staff needs to understand what it looks like, how to cultivate the construct, and the short- and long-term benefits the phenomenon produces. Hence, demonstrating the need for interventions using reliable data that represents a diverse culture is important. Therefore, interventions must be developed based on student connectedness and academic achievement data that is relevant and that address the current needs of students who represent race, ethnic cultures, and gender in a CTE school. To identify the students that need connectedness interventions to help increase academic achievement, a connectedness survey was developed and given to high school students in an ethnically diverse CTE school in Alaska.

Chapter 3: Methodology

Introduction to Chapter 3

This study is rooted in concerns regarding the student characteristics that are related to student connectedness and my interest in understanding the challenges educational leaders face when attempting to assess student connectedness in relation to academic achievement, race, ethnicity, and gender. In the previous chapter, it is revealed how student connectedness is a manifold construct that depends on students' perceptions of the educational environment and their relationships with teachers, school staff, peers and family at home. Student connectedness research has consistently shown that connectedness has the power to act as a protective determinant suggesting beneficial associations with mental health, self-worth related to ethnicity and gender, and school performance outcomes including academic achievement (grades, test scores), learning motivation, goal setting, attendance, and decreased suspension and dropout rates (Altschul et al., 2006; Hunt et al., 2002; Hunter & Csikszentmihalyi, 2003; McNeely et al., 2002; Pate et al., 2017; Walker & Greene, 2009).

The literature review also revealed continuing debate among researchers regarding the survey instrument used to test the connectedness phenomenon. In addition, and more importantly, a gap in the literature essentially asks whether student connectedness in a highly diverse CTE school environment provides the same benefits in terms of academic achievement for CTE students. As a reminder, findings from the study may be used as a starting point for educators to create CTE-based interventions to improve student connectedness and associated academic achievement.

This quantitative correlational study involves the exploration of the relationship between the independent variable, level of CTE student connectedness, and the dependent variable,

student academic achievement as measured by grade point average (GPA), while also exploring for the effect of gender, race, and ethnicity. An explicit description of the study and a detailed explanation of how the study was conducted is the critical part of this chapter. The purpose for the research study, which lays the groundwork for the research questions, hypotheses, and an explanation of the research design are also included in Chapter 3.

Purpose of the Study

The purpose of this quantitative correlational study involves exploring the relationship between level of CTE student connectedness and degree of academic achievement, and whether gender and ethnicity affect that relationship. Schools characterized by constrained social interaction among students, a deficiency of emphasizing achievement, and an impression of inequity by ethnicity and gender, tend to demonstrate elevated degrees of misconduct, victimization, and disconnectedness (Gottfredson et al., 2005; Payne, 2009). The connectedness construct is a multidimensional concept and the available instruments are inconsistent because they measure singular or partial pieces of the phenomena or they attempt comprehensive approach that is often excessive or redundant with the scope of questions asked of students (Bradshaw et al., 2014; Chung-Do et al., 2015; Lohmeier & Lee, 2011; Whiteside-Mansell, et al., 2015).

Design of the Study

The research questions were addressed using a quantitative correlational research design. Correlational research involves exploring a specified population and determining the relationships among the variables identified for study (Howell, 2013; Leedy & Ormrod, 2012). The correlational research design cannot prove causation, it does however, provide insight into the relationships associated with an independent and a dependent variables. The

phenomenon of interest is already occurring, thus correlational research does not require random assignment of participants or the manipulation of variables (Lammers & Badia, 2004).

Correlational research employs inferential statistics to quantify the relationship between two or more variables (Leedy & Ormrod, 2012).

Data were collected using a survey instrument. In survey research, the researcher identifies a population, determines an effective sample size, and then pilots and creates a survey to collect data (Fowler, 2008). A properly constructed survey is a scientific instrument with the capacity for efficiently capturing data from many people (Leedy & Ormrod, 2012). Study variable data were analyzed using inferential statistics to test hypotheses (Creswell, 2014).

A correlational analysis was conducted between the survey data, GPA, and the specific race, ethnic, and gender groups. To test each null hypothesis, a Pearson's product-moment correlation coefficient was used to determine if there are any relationships and the strength of relationships between student connectedness in a CTE school environment and student academic achievement. In addition, a Pearson's product-moment coefficient was used to determine if there is any correlation between student connectedness in a CTE school environment and student academic achievement associated by gender. And, a Pearson's product-moment coefficient was used to determine if there is any correlation between student connectedness in a CTE school environment and student academic achievement associated by race and/or ethnicity.

The quantitative correlational design was appropriate for this study because it explores the association between two or more different variables. The gap in the literature regarding whether student connectedness in a highly diverse CTE school environment provides the same benefits in terms of academic achievement for CTE students is an important launching point for this design choice because I can use a valid and reliable survey instrument to collect a volume of

data to test hypotheses. This empirical process helped determine if more research is warranted. The connectedness construct is well documented and operationalized. Quantitative correlational study methods include hypothesis testing and generalizations of results from data analysis (Creswell, 2014).

In qualitative research, designs typically aim to describe data, frequencies of procedures, and characteristics of a study population or phenomenon (Creswell, 2014). A qualitative research design would yield much different results and would be better suited for formulating a theory or hypothesis based on a problem or condition from the subjective point of view of a personal experience (Fink, 2006, Creswell, 2014; Dillman, Smyth, & Christian, 2014). Qualitative and experimental research design are not appropriate for this study since such methods are appropriate when researchers intend to manipulate predictor variables to produce change in the criterion variable (Creswell, 2014). This was not the purpose of the study.

Research Questions and Hypotheses

Research questions address a problem that requires research methods and procedures to establish facts (Leedy & Ormrod, 2012). In educational research, there are three types of research questions: descriptive, correlational, and causal (Postlethwaite, 2005). The methodological design for the study was non-experimental, therefore the research questions are correlational, which means I tested hypotheses to determine if an association is identifiable between variables (Postlethwaite, 2005). The non-experimental correlational approach provides insight and exposes facts that shed light on the phenomenon by opening more pathways of discovery for further inquiry and the possibility of experimentation.

The following correlational research question guided this study: In a large urban school district of Alaska, with a diverse student population, what is the relationship between the CTE student connectedness level and academic achievement levels?

Research Question 1: Is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀1: There is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A1: There is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 2: Among males, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀2: Among males, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A2: Among males, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 3: Among females, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀₃: Among females, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_{A3}: Among females, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 4: Among Caucasian students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀₄: Among Caucasian students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_{A4}: Among Caucasian students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 5: Among Black/African American students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀5: Among Black/African American students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A5: Among Black/African American students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 6: Among Mexican/Hispanic/Latino students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀6: Among Mexican/Hispanic/Latino students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A6: Among Mexican/Hispanic/Latino students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 7: Among Asian students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀7: Among Asian students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A7: Among Asian students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 8: Among Pacific Islander students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀8: Among Pacific Islander students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A8: Among Pacific Islander students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 9: Among Multiracial students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀9: Among Multiracial students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A9: Among Multiracial students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Research Question 10: Among Alaska Native/American Indian students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀10: Among Alaska Native/American Indian students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A10: Among Alaska Native/American Indian students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

Setting

Career Tech High School or CTHS and the Far North School District or FNSD was the pseudonym used to protect the identity of the site where the study took place. The quantitative research study was conducted at the Career Tech High School (CTHS) with a random sample of currently enrolled students in Grades 9 through 12. All CTHS students (approximately 1,200 students) had a chance of being invited to take the survey. The students attending CTHS come from one of eight large comprehensive high schools, with an average population size of 1,800 or one of seven alternative schools with an average population size of 600. Students choose to attend CTHS on a semester to semester basis. This school is situated in a large Alaskan city. In 2015, a study of urban school districts ranked the Far North School District (FNSD) as the most diverse student population in the United States (Farrell, 2015). Thus, CTHS is a unique representation of the city's ethnic diversity.

Career Tech High School is a part-time elective CTE school that offers students 26 professional programs of study. CTHS is comprised of two 120 minute sessions. Students attend a morning or afternoon session. The courses at CTHS offer 1.5 core and elective credit. The school operates from 7am to 3pm with an administration team comprised of a principal and assistant principal. There are 42 teachers and 26 support staff. Many courses offer a combination of elective and core credit. The single site voluntary survey research was conducted in two computer labs on the CTHS campus. The computer labs each contain thirty computers that run on the school district’s secure network.

Target Population, Sampling Method and Power Analysis, and Related Procedures

Target population. The Far North School District includes approximately 12,000 high school students, of which approximately 1,200 students are enrolled at the Career Tech High School (CTHS), the CTE program. The target population are CTE students attending at least one class at CTHS.

The population is composed of students between the ages of 14 and 19. The total number of female students is 483 and the total number of male students is 703. There are 6 students in ninth grade, 22 students in 10th grade, 385 students in 11th grade, and 764 students in 12th grade. The following graph illustrates the race/ethnic and gender demographics of

Table 1

Demographic Breakdown of CTHS

	Alaska Native	American Indian	Asian	Black	Hispanic	Multi-Ethnic	Native Hawaiian or Pacific Islander	White	Total
Female	50	5	51	43	65	69	15	186	484
Male	67	7	46	26	69	91	25	371	702
Total	117	12	97	69	134	160	40	557	1186

Note: N = 1186; Race and Ethnic Identity (REI) N = 629; White N = 557; REI % = 53

Sampling method and power analysis. A convenience sampling method was considered and rejected because it is not based on probability which is a requirement for conducting inferential statistical analysis. A non-probable sample for a correlational study creates sampling bias and greater threats to validity. Random sampling is a probability sampling method in which every member of the population has an equal chance of being selected. A random sample reduces the chance of collecting data that is biased and unrepresentative (McLeod, 2014). The effect was a valid study that is generalizable. The target population for this study is 1,200 CTE students attending CTHS.

Social sciences research using a random sampling method are most frequently done at 95% to maximize the probability of generating statistically significant results needed to general study findings (Brace, Kemp, & Snelgar, 2006). A power analysis was conducted in G*Power 3.1.7 to determine the minimum sample size requirement. For a Pearson correlation, with a medium effect size ($\rho = .30$), alpha of .05, and power of .80, it was determined that a minimum sample of 84 participants would be necessary for the analysis. Siegel and Castellan (1988) stated that the power for Spearman correlations has approximately 91% of the efficiency of the Spearman correlation. Therefore, the sample size for a Spearman correlation required approximately 102 participants.

In order to achieve the appropriate number of participants to conduct this study, a larger number of participants were be recruited to ensure that the number of participants does not fall below the minimum sample of 84 participants. The steps for randomly selecting a sample population were the following:

1. Generated an alphabetized roster of all students who attended CTHS ($n = 1186$).
2. Assigned a sequential number to create the randomized sample size.

3. Every 6th student was selected to participate.
4. Recruited participant sample size: $n = 197$

A large sample size is advantageous because it has the power to represent the population and it reduces the probability of drawing erroneous conclusions (Lammers & Badia, 2004). Another consideration is the diversity of the population. Lammers and Badia (2004) stated, “The greater the diversity among individuals, and the greater the number of factors present, the larger the sample size is required to achieve representativeness” (p. 17).

Instrumentation

The instrument used in this study is the well-established Psychological Sense of School Membership Questionnaire (PSSM)¹ (Goodenow, 1993b). The first half of the survey (questions 1–18) was modified with the addition of questions asking for demographic information, grades, graduation status, and educational experiences. With one exception being made for the omission of question 10 which asks students, “I am included in lots of activities at this school” (Goodenow, 1993b). Question 10 was omitted because the school does not offer extracurricular activities. This self-reported information was used to test the hypotheses.

The PSSM was developed using Finn’s (1989) construct of engagement which became known as the identification-participation model. The PSSM scale is an 18-item scale designed to measure the middle and high school students’ social context and interpersonal relationships. Goodenow (1993b) theorized that interpersonal relationships fall into the following three distinct student perceptual categories: belonging, acceptance, and approval. Goodenow believed that students who feel disconnected, unwelcomed, and devalued are most susceptible of failing out of school and require intensive interventions to help restore a feeling of connectedness (Goodenow,

¹ Psychological Sense of School Membership Questionnaire (PSSM) is licensed for non-commercial research or educational purposes, therefore permission to use this scale was not required.

1993a; Goodenow & Grady, 1993). In addition to and keeping with Finn's (1989) identification and participation model, the PSSM examines the scope of social relatedness and how this impacts the goals a student chooses to pursue within the educational context (Goodenow, 1993; Goodenow & Grady, 1993). According to Goodenow (1993b), students with a diminished sense of student connectedness experience social isolation, which creates a feeling of alienation from the educational environment, and thus low achievement and the stronger probability of dropping out of school. Goodenow (1993b) reported acceptable levels of internal consistency with reliability coefficients ranging from .77 to .88 for multiple samples.

The PSSM is comprised of close-ended questions utilizing a five-point Likert Scale that is designed for respondents to rate their sense of school belonging. The scale is coded in the following way: 1= Never feel this way in school; 2 = Occasionally feel this way in school; 3 = Sometimes feel this way in school; 4 = Seldom feel this way in school; and 5 = Always feel this way in school. According to the Flesch-Kincaid scale, the readability of the questions are at grade level 5.9 (Goodenow, 1993b). The PSSM midpoint score is three with scores below three indicating a negative perception and diminished sense of connectedness.

Modifications. Questions were added to the PSSM to collect demographic information from the respondents (see Appendix A). The questions did not change, add to, or modify the original 18 questions in the PSSM. With one exception being made for the omission of question 10 which asks students, "I am included in lots of activities at this school" (Goodenow, 1993b).

To address the research question, students self-reported their GPA in the form of grades. The District does not have reliable statewide assessment data due to the introduction of two different assessments in the span of three years. In addition, Belfield and Crosta (2012)

strongly suggested that GPA is a stronger predictor of performance in the future than assessment test scores.

Data Collection and Procedures

Information about the survey was posted on the CTHS's website in an easy to find place. Paper copies of the survey were available to parents upon request. The CTHS participant sample size of 197 students were invited to take the survey in a computer lab on campus during class time. Students identified by the random selection process were individually invited by the principal researcher to participate in the study. Prospective students were given a student assent letter about the survey that they shared with their parents (see Appendix D). Students were given the date, time, and location of the lab where they completed the survey questions. In order to participate in the study, the assent letter required the signature of the student. To verify that the students who were recruited to take the survey were present, students signed in when they arrived to take the survey.

CTHS does not participate in mandatory testing or survey research, and therefore does not experience instructional time disruptions. The dissemination of this survey was a minimal disruption to instruction time. The estimated time to complete the survey was within a range of 10–15 minutes. In accordance with district policy for surveys involving students, the survey is voluntary, therefore, question number one explained that a student can “opt-out” of the survey or “opt out” of individual questions as outlined by the following statement: “This survey is voluntary you may opt out. By clicking on the START SURVEY link you are indicating your willingness to participate in this survey. You may answer only the questions you feel comfortable answering.” Survey respondents were not compensated. Participants who did not respond to a majority of the survey items would have been removed from further analysis.

The Far North School District (FNSD) approved this survey research study. The FNSD complies with the Federal Protection of Pupil Rights Amendment (PPRA), 20 U.S.C. § 1232h which requires parental consent for student participation in surveys that inquire about political or religious beliefs, mental or psychological problems, sexual behavior or attitudes, illegal or self-incriminating information, critical appraisals of family relationships, and income. In addition to the Federal regulations and guidelines, surveys must follow state statutes and School Board policy which requires parental permission for surveys that “inquire into personal or private family affairs of the student not a matter of public record or subject to public observation” (Alaska law AS 14.03.110). The nature of the student connectedness survey that was used to conduct this study utilized questions that inquired about educational experiences in a school setting and demographic information that is typical of surveys used to gather detailed information about a student population in an educational context.

Thus, to conduct the survey, I followed the district requirements that parents were notified and provided with an opportunity to review the survey at least two weeks prior to administration of the survey. Parents were informed using the same methods for District approved surveys. The parental notification method was an electronic announcement on the CTHS web page.

All data collection occurred online using Qualtrics. Data were collected in aggregate; a specific response was not recorded to a specific person and was never linked to his/her personal identity. The method for collecting data specific to academic achievement, for example GPA, was self-reported by the student. There were no parental requests that their child not participate in the study, thus there was no need to document student names for non-participation. One

computer lab was used to collect the online student survey data. The lab contained a binder with a list of the following procedures:

1. Upon arrival, student sign-in to document attendance for the purpose of being excused from class or in the event of an emergency.
2. Collect the student signed letter of assent. If they forgot the letter and want to participate, they may sign an assent letter and be admitted to take the survey. If they do not wish to participate, then kindly excuse them from the computer lab.
3. Instruct the students to find an available computer and follow the prompts on the screen. Explain that all of the instructions are on the screen and that at any time a student may opt out of the survey.
4. When students are done, thank them for taking the survey and send them back to class.

The binder contained a document to report irregularities. There were no irregularities to report.

In accordance with school district policy, the survey was voluntary, therefore there was no need for identification numbers. To avoid the accidental misprinting of questions, technical and organizational issues that may occur, the survey was published well in advance so that it may be reviewed by peers. The possibility of skipping survey questions is inevitable which may lead to misleading results. To prevent misleading results, only questionnaires that were fully answered were accepted. All surveys were fully completed, and no questions were skipped by the participants. To avoid the possibility of respondents providing more than one answer, the online survey was set up so that only one response was recorded. As with all surveys, respondents may answer questions in unintended ways. This issue was discussed as a limitation. There were no open-ended questions so there was no need to code responses.

Operationalization of Variables

Connectedness was measured continuously using the PSSM, and was treated as the independent variable. Academic achievement, as measured through GPA, corresponded to the dependent variable for the research questions. In addition, the subgroups of gender and ethnicity were used as elements for comparison.

Data Analysis Procedures

The data to be analyzed included the responses for the Psychological Sense of School Membership Scale along with demographic and enrollment data. The data were entered into a computerized spread sheet. Descriptive statistics was used to explore the trends in the demographics and variables of interest. Frequencies and percentages was used to examine the nominal level variables. Means and standard deviations was used for the continuous level variables. Skewness and kurtosis values were explored for each of the continuous variables to evaluate the distributions of the variables.

The PSSM was calculated into a sum that reflects the mean score for all of the participants. The mean scores for the PSSM range from 1 (low) to 5 (high) represent the subjective degree of student connectedness. The PSSM's scores have a range from 18 to 90 based on the sum of 18 questions with scores of 1 through 5. As is the case with surveys asking about subjective experiences, Goodenow (1993b) reversed the negatively worded questionnaire items 3, 6, 9, 12, and 16. Cronbach's alpha test of reliability was used to assess the internal consistency of the student connectedness scale. Cronbach's alpha coefficients were interpreted using the criteria suggested by George and Mallery (2016) where $\alpha > .9$ Excellent, $\alpha > .8$ Good, $\alpha > .7$ Acceptable, $\alpha > .6$ Questionable, $\alpha > .5$ Poor, $\alpha < .5$ Unacceptable.

To address the research questions, a series of Pearson correlations were conducted to examine student connectedness and student achievement associations. A Pearson correlation is an appropriate statistical analysis when assessing the strength of association between two continuous level variables (Pagano, 2013). To address RQ1, the entire sample of participants were incorporated into the correlational analysis. To address RQ2 and RQ3, males and females were examined in separate correlations. To address each ethnicity RQ4–RQ10 were examined with separate correlations.

The correlation coefficient (r) was provided to interpret the strength of the relationship. Positive coefficients suggested a direct relationship exists between the variables, and negative coefficients suggested an inverse association exists between the variables. Correlation coefficients ranging from .10 and .29 represent a small association; correlation coefficients between .30 and .49 represent a medium association; and correlation coefficients above .50 represent a large associate or relationship (Cohen, 1988).

Limitations and Delimitations of the Research Design

A non-experimental correlational research design is more accessible because it is not limited to the time and operational constraints that are inherent in a true experimental design (Pagano, 2013.). The limitations of correlational research are manipulation and how control factors do not allow for the establishment of cause and effect relationships (Simon & Goes, 2011). When conducting this type of research, it is necessary to avoid the temptation of identify a cause. The cause is subject to a third confounding variable that has an affect on the variables that was not accounted for.

Limitations. A random sample has limitations that must be considered when using this method. The results run the risk being biased when the selection process does not represent the

target population which creates the possibility of over and under representation. The possibility of biased results creates the possibility of sampling error, which limits generalizing the results into conclusions that represent a population (Pagano, 2013). Random sampling is a powerful tool and the method preferred in the world of inferential statistics. The sample population of this study was dependent upon the consent of those who elected to participate versus those who withdrew.

The limitation of self-reporting on questionnaires is a well-known weakness with studies that use a survey questionnaire. The common issues with using self-reporting questionnaires are the design of the instrument, honesty, response bias, and an introspective ability to report accurately (Belfield & Crosta, 2012). There is always a possibility in self-report questionnaires for participants to answer dishonestly due to the concern of portraying a negative image from their responses. In addition, participants may forget their GPA in the self-reporting portion of the questionnaire. Thus, the consideration of the respondents' cognitive abilities when constructing a self-reporting survey tool is of great importance. The participants were notified of the confidential nature of their responses and that all the survey data would be de-identified.

The limitation of closed-ended survey questions limits the respondent's ability to provide unique personalized information. For example, the participant may not be able to adequately distinguish between agree and strongly agree due to the perceived relevancy of the question. In addition, the uniqueness of the setting may be a limitation because the study takes place in an urban environment that is very different than most urban centers in the United States. The chosen district is unique because it represents a demographic spectrum of economics and ethnic cultures (Tunseth, 2015). In addition, a large number of transient students migrate from rural

native villages, depending on seasonal subsistence hunting and economic situations. Therefore, this study may not be generalizable.

Delimitations. Delimitations describe the population from which generalizations can be carefully made and are under the control of the researcher. The delimitations are actively chosen by the choice of research question, objectives, variables, populations, and methods of analysis based on alternative theoretical perspectives which determine how general the findings can be interpreted (Simon & Goes, 2011). In this study, the sampling was delimited to high school students in a single CTE school in Alaska. Due to the lower sample sizes for particular ethnicities, the generalization of findings to specific ethnicities was interpreted with caution.

The nature of this quantitative correlational study was to explore the relationship between CTE students' student connectedness and academic achievement, and whether gender and ethnicity effects that relationship. The population of interest was the student who attends a CTE school. Therefore, this study did not explore the CTE student experiences in a comprehensive high school where CTE courses are offered.

The focus of the study explored the effects of connectedness in an educational setting, it was not feasible to explore variables that existed outside the confines of school. The problem with student connectedness survey tools has been examined and was not directly relevant as a focal point of this study, and thus beyond the scope of this study.

Internal and External Validity

The internal and external validity and reliability pertain to the integrity of the research design and methodology. Internal validity is concerned with comparing the independent and dependent variable to verify if alterations in the dependent variable are attributed to the independent variable or caused by incidental factors (Creswell, 2014). External validity is when

the results of a study are considered generalizable to a population and setting that extends beyond the context of the current study (Creswell, 2014). This study is non-experimental and utilizes a one-time survey instrument to collect data from participants. Therefore, the study design did not experience the internal threats that occur when studies use experimental procedures, pre and post testing, and participant experiences (Creswell, 2014).

In order to prevent against threats to internal validity, it is important to use a survey instrument with internal consistency reliability. Internal consistency reliability is a measurement procedure of that seeks to determine if the instrument is reliable. To establish internal consistency reliability, Goodenow (1993b) conducted three urban and suburban studies with the survey questionnaire and tested reliability using Cronbach's alpha. The studies yielded that the PSSM follows the statistically acceptable Cronbach's alpha reliability ranges .77 to .88. This is important to note because the Cronbach's alpha is the gold standard used as a measure of internal reliability of a psychometric instrument (Tavakol & Dennick, 2011). The Cronbach alpha score increases when the test items are interrelated and measure the same construct. The PSSM asks 18 similar questions to test for a student's psychological sense of school membership. Cronbach's alpha coefficients greater than .7 met the acceptable threshold.

A pilot study was deemed unnecessary because demographic questions were added and the omission of question 10 of the PSSM, did not drastically alter the survey instrument. The modified survey instrument was analyzed and evaluated by staff at the school to ensure that the instrument was easy to understand, that the questions were relevant, and to gauge the time needed to complete the instrument.

Expected Findings

I expected to find data that shows high levels of connectedness would be correlated with academic achievement. This finding would suggest that certain groups are more connected than others and that connectedness is linked to academic achievement.

With regard to gender and connectedness, I expected to find that females are more connected than males. My assumption was based on the fact that gender gap studies of high school GPAs showed that females earn higher grades than males (Buddin, 2014; Grasgreen, 2013; Voyer & Voyer, 2014). Likewise, ethnicity and connectedness was an area of interest that proves difficult to predict because the CTE educational environment is unlike a traditional school setting. The longitudinal data nationally collected by the Nation's Report Card (2009) showed a steady increase in GPA by the leading Asian/Pacific Islander group followed by White, Hispanic, and Black.

The final expected finding was that students with a high GPA are more connected than students who have a low GPA. This assumption is based on the idea that students with high GPAs are more connected to school. The possible reasons for student success attributed to connectedness are numerous and was discussed in the conclusion of this study

Ethical Issues

This study involved collecting data from students in a school setting. The ethical issues that need to be considered are important for the safety of the participants and for the integrity of the study. Israel and Hay (2006) outlined the following ethical issues that must be accounted for when conducting research: protect the research participants, develop trust with all parties involved, and promote the integrity of the research (as cited in Creswell, 2014, p. 92).

Prior to conducting the study, site approval from the principal of CTHS was sought and granted based on the valuable data that the study provided. Then, permission from the Far North School District's office of Research and Accountability was sought to conduct the study at CTHS. A research proposal was submitted and approved on November 20, 2017. The proposal was accepted as written which was reflected in the way in which this chapter on methodology was setup. The research proposal was presented to the Concordia University–Portland Internal Review Board (IRB) on March 22, 2018. The Concordia University–Portland IRB approved the research proposal on May 02, 2018.

There was no grades or any other type of incentive offered to students or staff for taking part in my survey research study. The mere appearance of my position within the school, which carries with it authority, might coerce participation. To reduce the possible element of coercion and build trust, a transparent approach was undertaken by making the study public to the staff well in advance. I presented the staff an opportunity to participate by offering suggestions that would help enhance the quality of the study. For example, asking staff to review the questionnaire and provide critical feedback helped staff understand that I was open to input. Informing staff that this study was non-evaluative helped build trust and confidence in the study as something that benefited the institution. To reduce the possibility of the perceived conflict of interest, staff was encouraged to voice their ethical concerns to my supervisor, the principal.

In accordance with district policy, the survey was voluntary and was research designed to collect data for better understanding of student educational experiences. This study's risk classification is a Type 1, -no--risk data. All information that could be used directly or indirectly to identify an individual was removed, modified, or not collected. The survey questionnaire did not ask for harmful or sensitive information. Informed parental notification utilizing the district

consent methodologies of web page announcement was used. As previously outlined in the section on target population, sampling method, and related procedures, consent occurred when the students choose to start the survey. The student's identity remained anonymous because the data were self-reported and collected electronically in aggregate, thus anonymity was protected. The IP address of the subject's computer was erased and not attached to the electronic survey. The roster of students who were randomly selected, sign in sheets, and student assent forms will be kept in a secure file under lock and key for seven years.

The survey was voluntary and students had the option to skip questions they were uncomfortable answering or chose to withdraw from the study. Answering the survey questions did not adversely affect students, thus, no students reported experiencing any discomfort. They were encouraged to stop the survey, and if necessary would have been directed to speak with a counselor or administrator. This procedure was in place and was not needed because all students completed the survey without the need to stop for reasons of discomfort. All survey results were securely stored in a password protected digital file. All paper results were stored in a locked office file.

Chapter 3 Summary

The purpose of this quantitative correlational study was to explore the relationship between CTE students' student connectedness and academic achievement, and whether gender and ethnicity effects that relationship. A random sample size of at least 84 students for a Pearson correlation and at least 102 students for a Spearman correlation from a single CTE school in Alaska was recruited for the study. Data were collected using the Psychological Sense of School Membership Questionnaire (Goodenow, 1993b) in conjunction with demographic survey questions. Inferential statistics was used to characterize the study sample and a Pearson

correlation was employed to test hypotheses. The modifications included self-reporting questions related to demographic information and educational experiences of students attending a career and technical school in a large, ethnically diverse, urban public school district. Findings from this study brought forth new data on student connectedness related to high school career and technical education that have not been previously examined by researchers in the field. In Chapter 4, the results of the data collected using the quantitative survey research methods designed for this study are presented.

Chapter 4: Results and Analysis

Introduction

The purpose of this quantitative correlational study was to explore the relationship between CTE students' level of connectedness and academic achievement score, and whether gender, race, and ethnicity effects that relationship. A correlational research design was used to conduct this study. The instrument used for this study was a combination of questions that asked for demographic information, grades, educational experiences and Goodenow's (1993b) Psychological Sense of School Membership. A random sampling method was used to collect survey responses from the student population. A total of 132 students completed the survey. The following delimitations were identified: First, data were only collected from a CTE high school in a large urban Alaskan school system that has not explored student connectedness. Secondly, the study delimited the survey to 9th–12th-grade students who voluntarily elect to attend the CTE school on a part-time (half of a school day basis) and not CTE student experiences in a comprehensive high school where CTE courses are offered. Finally, delimitations were not imposed on other variables that involve the students such as free or reduced-price lunch eligibility, socioeconomic status, or achievement test scores.

This chapter presents the findings of the data analyses. Descriptive statistics were used to describe the trends of the nominal and continuous level variables. Cronbach's alpha was calculated to establish the internal consistency of the survey instrument. To address the research questions, Pearson product moment correlations were used to explore the relationships. Statistical significance was evaluated at the generally accepted level, $\alpha = .05$.

Description of the Sample

Survey responses were collected from a total of 132 participants. All survey responses were fully completed. The distribution of genders was split between males ($n = 74$, 56.1%) and females ($n = 58$, 43.9%). The students were distributed between 10th grade ($n = 5$, 3.8%), 11th grade ($n = 44$, 32.3%), and 12th grade ($n = 83$, 62.9%). Most of the students were of White ethnicity ($n = 53$, 40.2%). Frequencies and percentages of the demographics are presented in Table 2.

Table 2

Frequency Table for Demographic Variables

Variable	<i>n</i>	%
Gender		
Male	74	56.1
Female	58	43.9
Grade		
10	5	3.8
11	44	33.3
12	83	62.9
Race		
White	53	40.2
Black or African American	7	5.3
Asian	14	10.6
Mexican/Hispanic/Latino	18	13.6
Alaskan Native/American Indian	11	8.3
Pacific Islander	5	3.8
Multiracial	24	18.2

Nominal variables. A nominal variable has two or more categories that have no inherent ordering. For example, the color of a car is a nominal variable because there is no agreement regarding the ranking order of car colors from lowest to highest (Pagano, 2013). In this section, the nominal variables of this study are listed by category, the frequency (n), and percentages.

Most of the students indicated that it was likely that taking classes at CTHS helped with other courses outside of CTHS ($n = 121, 91.7\%$). Many students rated their experience at CTHS as excellent ($n = 86, 65.2\%$). Most participants had only taken one class ($n = 64, 48.5\%$) or two classes ($n = 44, 33.3\%$). A majority of students indicated that they knew how many credits were applied towards graduation ($n = 109, 82.6\%$) and that they would graduate on time ($n = 104, 78.8\%$). Most of the students had good ($n = 39, 29.5\%$) or near perfect ($n = 63, 47.7\%$) attendance. A majority of the sample was not involved in an extracurricular activity ($n = 79, 59.8\%$). A majority of students were enrolled in non-honors classes when not at CTHS ($n = 84, 63.6\%$). A majority of students did not utilize special support services offered by the school district ($n = 102, 77.3\%$). After graduation, most students planned to go to college ($n = 54, 40.9\%$) or take skills from CTHS right into the work force ($n = 42, 31.8\%$). Frequencies and percentages of the nominal variables are presented in Table 3.

Table 3

Frequency Table for Nominal Level Variables

Variable	Frequency (n)	Percentage of responses (%)
Taking classes at CTHS has helped with other courses outside of CTHS		
Not at all	5	3.8
Unlikely	6	4.5
Somewhat likely	53	40.2
Very likely	68	51.5
On a scale of 1–5, with 5 being excellent and 1 being poor, how would you rate your experience at CTHS?		
1	3	2.3
2	1	0.8
3	7	5.3
4	35	26.5
5	86	65.2

Table 3 (cont)

Variable	Frequency (<i>n</i>)	Percentage of responses (%)
How many classes have you taken so far at CTHS?		
1	64	48.5
2	44	33.3
3	16	12.1
4	3	2.3
No response	5	3.8
Do you know how many credits toward graduation?		
Yes	109	82.6
No	23	17.4
How likely is it that you will graduate on time?		
Not at all	3	2.3
Unlikely	8	6.1
Somewhat likely	17	12.9
Very likely	104	78.8
School attendance		
Needs improvement, with over 15 days missed	10	7.6
Poor, with 11–15 days missed	9	6.8
Good, with 5–10 days missed	39	29.5
Near perfect, with less than 5 days missed	63	47.7
Perfect, with no days missed	11	8.3
Type of school sponsored extracurricular activities		
Academic	2	1.5
Social	11	8.3
Sport	40	30.3
None	79	59.8
Hours per week spent participating in other school activities		
None	71	53.8
Less than 1 hour per week	13	9.8
More than 5 hours per week	16	12.1
1–2 hours per week	16	12.1
2–3 hours per week	9	6.8
3–4 hours per week	3	2.3
4–5 hours per week	4	3.0
Classes taken when not at CTHS		
Credit recovery	24	18.2
Non-honors	84	63.6
Honors	11	8.3

Table 3 (cont).

Variable	Frequency (<i>n</i>)	Percentage of Responses (%)
Honors with 1 AP class	7	5.3
Two AP classes	5	3.8
Three or more AP classes	1	0.8
Special support services offered by school district		
English Language Learner Services (ELL)	2	1.5
Migrant Education Services	9	6.8
Special Education Services (IEP)	12	9.1
Two of the above	5	3.8
All of the above	2	1.5
No response	102	77.3
After graduation, student plans to:		
Go to college	54	40.9
Attend vocational/technical school	18	13.6
Take skills from CTHS right into workforce	42	31.8
Use CTHS skills to help pay for college	7	5.3
Join the military	11	8.3

Continuous variables. A continuous variable has a minimum and maximum value and can take on all of the possible values within this range (Laerd Statistics, n.d.). The continuous variables are presented in Table 3 as interval and ratio variables. An interval variable is a type of continuous variable that is ordered and the distance between each tier is equal or fixed. A ratio variable is similar to the interval variable except that the condition of zero permits comparisons (Laerd Statistics, n.d.). Non-CTE GPA ranged from 0 to 4, with $M = 2.81$ and $SD = 0.91$. CTE GPA ranged from 0 to 4, with $M = 3.39$ and $SD = 0.85$. Overall GPA ranged from 0 to 4, with $M = 3.10$ and $SD = 0.74$.

Student connectedness was computed through a sum of the 17 items comprising the scale. The scores for student connectedness ranged from 37.00 to 85.00, with $M = 69.27$ and $SD = 13.00$. Score must also meet the following criteria for normality: skew and kurtosis values should be between -3.0 and 3.0 (Kline, 2011). The data for skewness and kurtosis fell in the

acceptable range, indicating that the data were approximately normal. Table 4 presents the findings of the descriptive statistics.

Table 4

Summary Statistics Table for Interval and Ratio Variables

Variable	Min.	Max.	<i>M</i>	<i>SD</i>	<i>Skew</i>	<i>Kurtosis</i>
Non-CTE GPA	0.00	4.00	2.81	0.91	-0.67	0.63
CTE GPA	0.00	4.00	3.39	0.85	-1.59	2.84
Overall GPA	0.00	4.00	3.10	0.74	-1.25	2.50
Student connectedness	37.00	85.00	69.27	13.00	-0.72	-0.50

Reliability. Cronbach’s alpha values were examined for the series of items comprising the student connectedness scale. The value of the coefficients was assessed through thresholds described by George and Mallery (2016), in which $\alpha \geq .9$ Excellent, $\alpha \geq .8$ Good, $\alpha \geq .7$ Acceptable, $\alpha \geq .6$ Questionable, $\alpha \geq .5$ Poor, and $\alpha < .5$ Unacceptable. The results for student connectedness ($\alpha = .92$) indicated excellent reliability (see Table 5).

Table 5

Cronbach’s Alpha Reliability Statistics for School Connectedness

Scale	No. of Items	α
Student connectedness	17	.92

Detailed Analysis

The following correlational research question guided this study: In a large urban school district of Alaska, with a diverse student population, what is the relationship between the CTE student connectedness level and academic achievement levels? To address the research questions, a series of Pearson correlations were conducted to examine the relationship. The variables of interest corresponded to level of student connectedness and GPA.

Research Question 1. Is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀1: There is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A1: There is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

A Pearson Product Moment Correlation test for hypothesis 1 was conducted to determine the strength of the relationship between level of student connectedness and level of academic achievement. The correlation coefficient, r , computed revealed a statistically significant relationship between student connectedness and student academic achievement, $r(130) = .47, p < .001$. This indicates the likelihood of a correlation between student connectedness and academic achievement for all students. Therefore, the null hypothesis is rejected in favor of the alternative hypothesis. The statistical means of both the student connectedness scores and GPA scores and their calculated r value are indicated in Table 6.

Table 6

Pearson Product Moment Correlation Analysis for Student Connectedness and Academic

Achievement (Overall Sample)

All Students	Mean	<i>n</i>	<i>df</i>	<i>r</i>	<i>p</i>
Connectedness scores	69.27	132	130	.47	<.001
Academic achievement (GPA)	3.10	132	130	.47	<.001

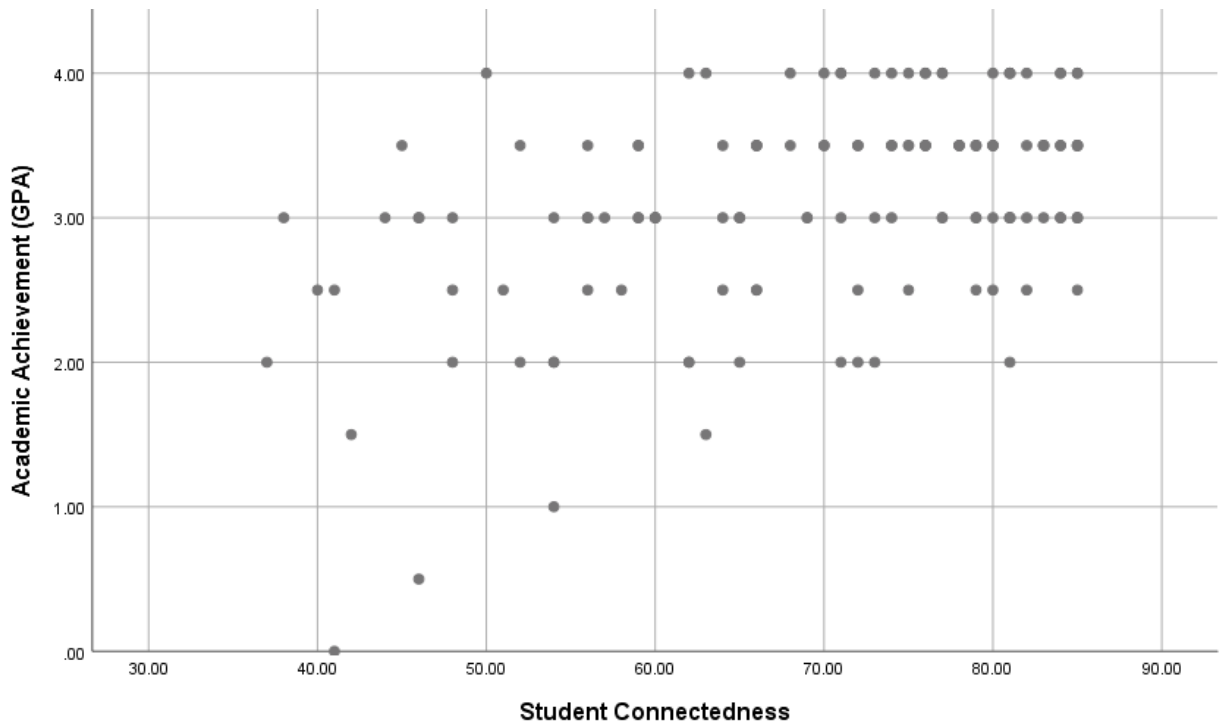


Figure 3. Scatterplot between level of student connectedness and level of academic achievement (overall sample).

Research Question 2. Among males, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀2: Among males, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A2: Among males, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

A Pearson Product Moment Correlation test was conducted to determine the strength of the relationship between level of student connectedness and level of academic achievement for the female sample. The correlation coefficient, r , computed revealed a statistically significant relationship between student connectedness and student academic achievement, $r(72) = .50, p < .001$. This indicates the likelihood of a correlation between male student connectedness and male academic achievement. Therefore, the null hypothesis is rejected in favor of the alternative hypothesis. There appears to be a linear correlation between male student connectedness value as measured on the connectedness survey and male student academic achievement as measured by their GPA. The statistical means of both the student connectedness scores and GPA scores and their calculated r value are indicated in Table 7.

Table 7

Pearson Product Moment Correlation Analysis for Student Connectedness and Academic Achievement (Male Sample)

Male Students	Mean	n	df	r	p
Connectedness scores	68.81	74	72	.50	<.001
Academic achievement (GPA)	3.03	74	72	.50	<.001

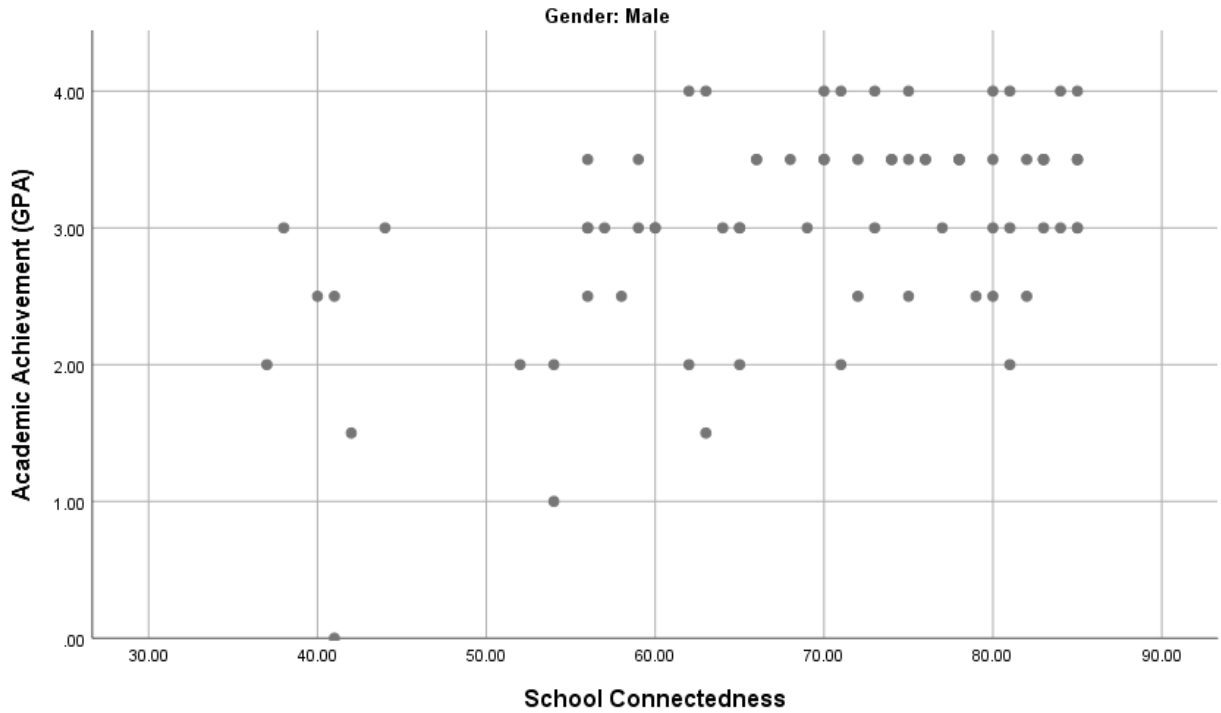


Figure 4. Scatterplot between level of student connectedness and level of academic achievement (males).

Research Question 3. Among females, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀₃: Among females, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_{A3}: Among females, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

A Pearson Product Moment Correlation test was conducted to determine the strength of

the relationship between level of student connectedness and level of academic achievement for the female sample. The correlation coefficient, r , computed revealed a statistically significant relationship between student connectedness and student academic achievement, $r(56) = .42, p = .001$. This indicates the likelihood of a correlation between female student connectedness and female student academic achievement. Therefore, the null hypothesis is rejected in favor of the alternative hypothesis. A linear correlation appears to be present between female student connectedness value as measured on the connectedness survey, and a female student academic achievement as measured by their GPA. The statistical means of both the student connectedness scores and GPA scores and their calculated r value are indicated in Table 8.

Table 8

Pearson Product Moment Correlation Analysis for Student Connectedness and Academic Achievement (Female Sample)

Female Students	Mean	n	df	r	p
Connectedness scores	69.84	58	56	.42	.001
Academic achievement (GPA)	3.18	58	56	.42	.001

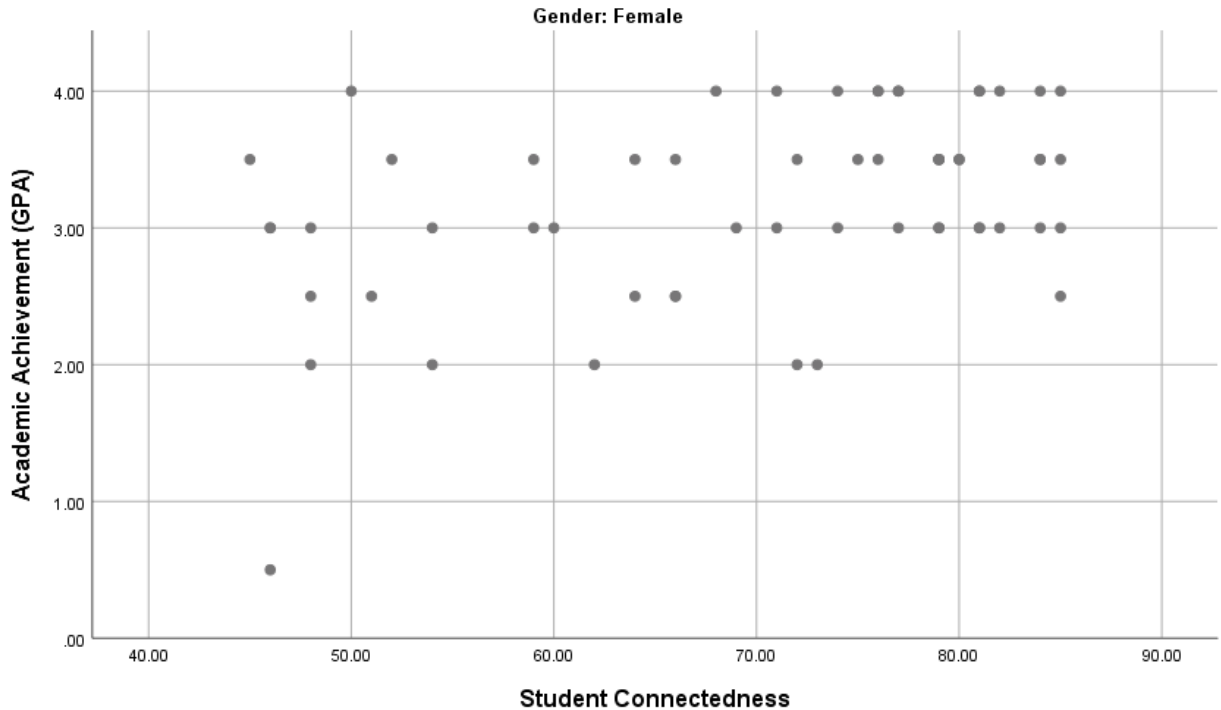


Figure 5. Scatterplot between level of student connectedness and level of academic achievement (females).

Research Question 4. Among Caucasian students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀4: Among Caucasian students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A4: Among Caucasian students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

A Pearson Product Moment Correlation test was conducted to determine the strength of the relationship between level of student connectedness and level of academic achievement for

the Caucasian sample. The correlation coefficient, r , computed revealed a statistically significant relationship between student connectedness and student academic achievement, $r(51) = .59, p < .001$. This indicates the likelihood of a correlation between Caucasian student connectedness and Caucasian student academic achievement. Therefore, the null hypothesis is rejected in favor of the alternative hypothesis. There appears to be a linear correlation between Caucasian student connectedness value as measured on the connectedness survey and a Caucasian student academic achievement as measured by their GPA. The statistical means of both the student connectedness scores and GPA scores and their calculated r value are indicated in Table 9.

Table 9

Pearson Product Moment Correlation Analysis for Student Connectedness and Academic Achievement (White Sample)

Caucasian Students	Mean	n	df	r	p
Connectedness scores	70.85	53	51	.59	<.001
Academic achievement (GPA)	3.03	53	51	.59	<.001

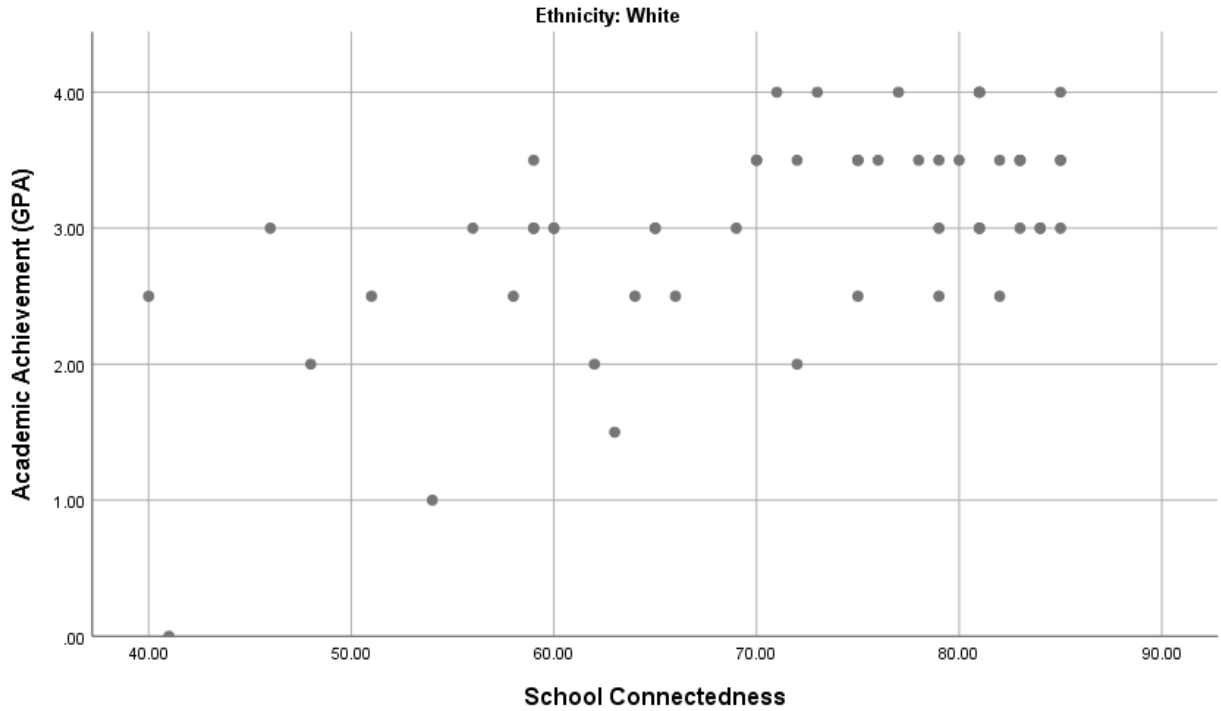


Figure 6. Scatterplot between level of student connectedness and level of academic achievement (White).

Research Question 5. Among Black/African American students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀5: Among Black/African American students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A5: Among Black/African American students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

A Pearson Product Moment Correlation test was conducted to determine the strength of the relationship between level of student connectedness and level of academic achievement for

the Black/African American sample. The correlation coefficient, r , computed revealed a statistically significant relationship between student connectedness and student academic achievement, $r(5) = .90, p = .006$. This indicates the likelihood of a correlation between Black/African American student connectedness and Black/African American academic achievement. Therefore, the null hypothesis is rejected in favor of the alternative hypothesis. There appears to be a linear correlation between Black/African American student connectedness value as measured on the connectedness survey and a Black/African American student academic achievement as measured by their GPA. The statistical means of both the student connectedness scores and GPA scores and their calculated r value are indicated in Table 10.

Table 10

Pearson Product Moment Correlation Analysis for Student Connectedness and Academic Achievement (Black/African American Sample)

Black/African American	Mean	n	df	r	p
Connectedness scores	67.86	7	5	.90	.006
Academic achievement (GPA)	3.21	7	5	.90	.006

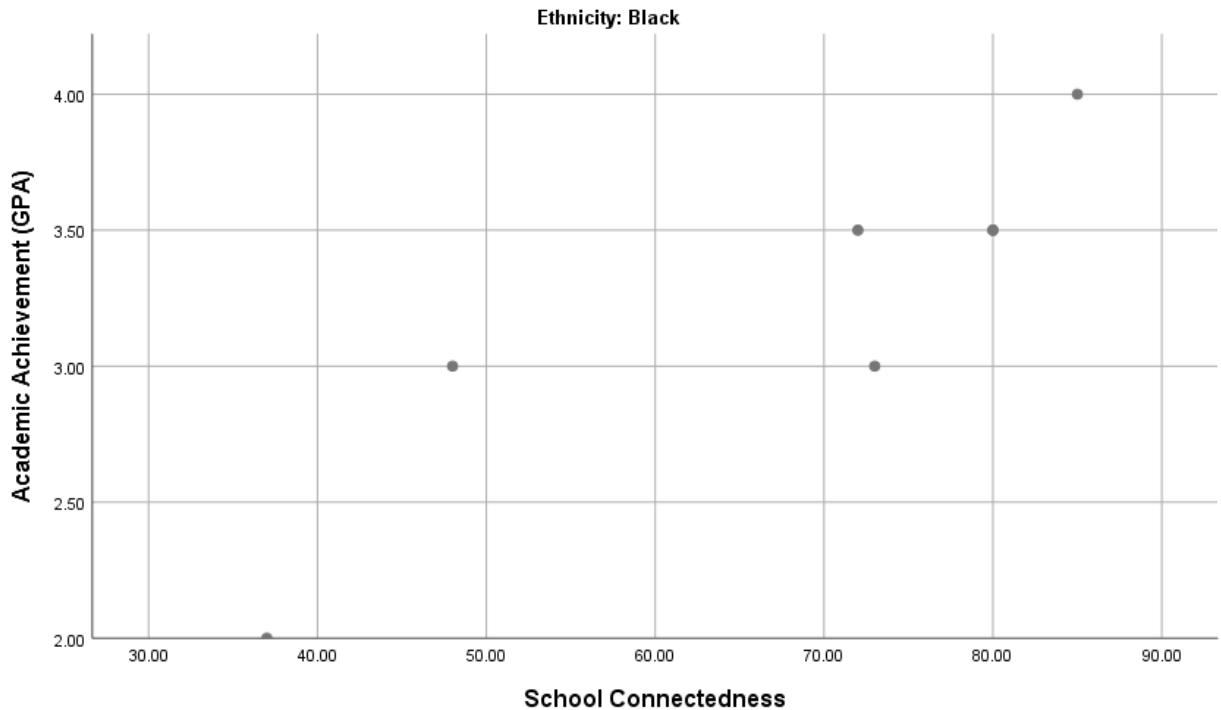


Figure 7. Scatterplot between level of student connectedness and level of academic achievement (Black).

Research Question 6. Among Mexican/Hispanic/Latino students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀₆: Among Mexican/Hispanic/Latino students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_{A6}: Among Mexican/Hispanic/Latino students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

A Pearson Product Moment Correlation test was conducted to determine

the strength of the relationship between level of student connectedness and level of academic achievement for the Mexican/Hispanic/Latino sample. The correlation coefficient, r , computed showed that it is unlikely a statistically significant relationship exists between student connectedness and student academic achievement, $r(16) = .25, p = .317$. This indicates that there is no correlation between Mexican/Hispanic/Latino student connectedness and Mexican/Hispanic/Latino academic achievement. Therefore, based on the sufficient evidence presented we fail to reject the null hypothesis. There appears to be no linear correlation between Mexican/Hispanic/Latino student connectedness value as measured on the connectedness survey and Mexican/Hispanic/Latino student academic achievement as measured by their GPA. The statistical means of both the student connectedness scores and GPA scores and their calculated r value are indicated in Table 11.

Table 11

Pearson Product Moment Correlation Analysis for Student Connectedness and Academic Achievement (Mexican/Hispanic/Latino Sample)

Mexican/Hispanic/Latino	Mean	n	df	r	p
Connectedness scores	66.39	18	16	.25	.317
Academic achievement (GPA)	2.94	18	16	.25	.317

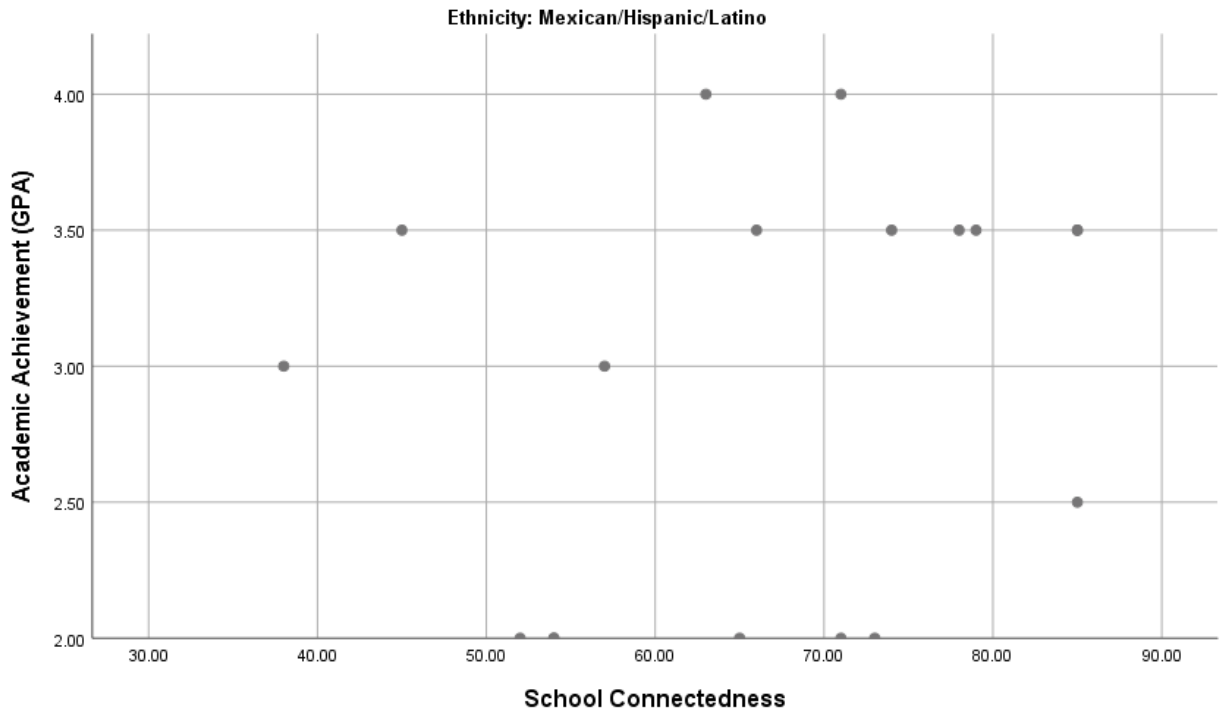


Figure 8. Scatterplot between level of student connectedness and level of academic achievement (Mexican/Hispanic/Latino sample).

Research Question 7. Among Asian students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀7: Among Asian students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A7: Among Asian students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

A Pearson Product Moment Correlation test was conducted to determine the strength of the relationship between level of student connectedness and level of academic achievement for

the Asian sample. The correlation coefficient, r , computed showed that it is unlikely a statistically significant relationship exists between student connectedness and student academic achievement, $r(12) = .486, p = .078$. This indicates there is no correlation between Asian student connectedness and Asian student academic achievement. Therefore, based on the sufficient evidence presented we fail to reject the null hypothesis. There appears to be no linear correlation between an Asian student connectedness value as measured on the connectedness survey and Asian student academic achievement as measured by their GPA. The statistical means of both the student connectedness scores and GPA scores and their calculated r value are indicated in Table 12.

Table 12

Pearson Product Moment Correlation Analysis for Student Connectedness and Academic Achievement (Asian Sample)

Asian	Mean	n	df	r	p
Connectedness scores	72.21	14	12	.486	.078
Academic achievement (GPA)	3.79	14	12	.486	.078

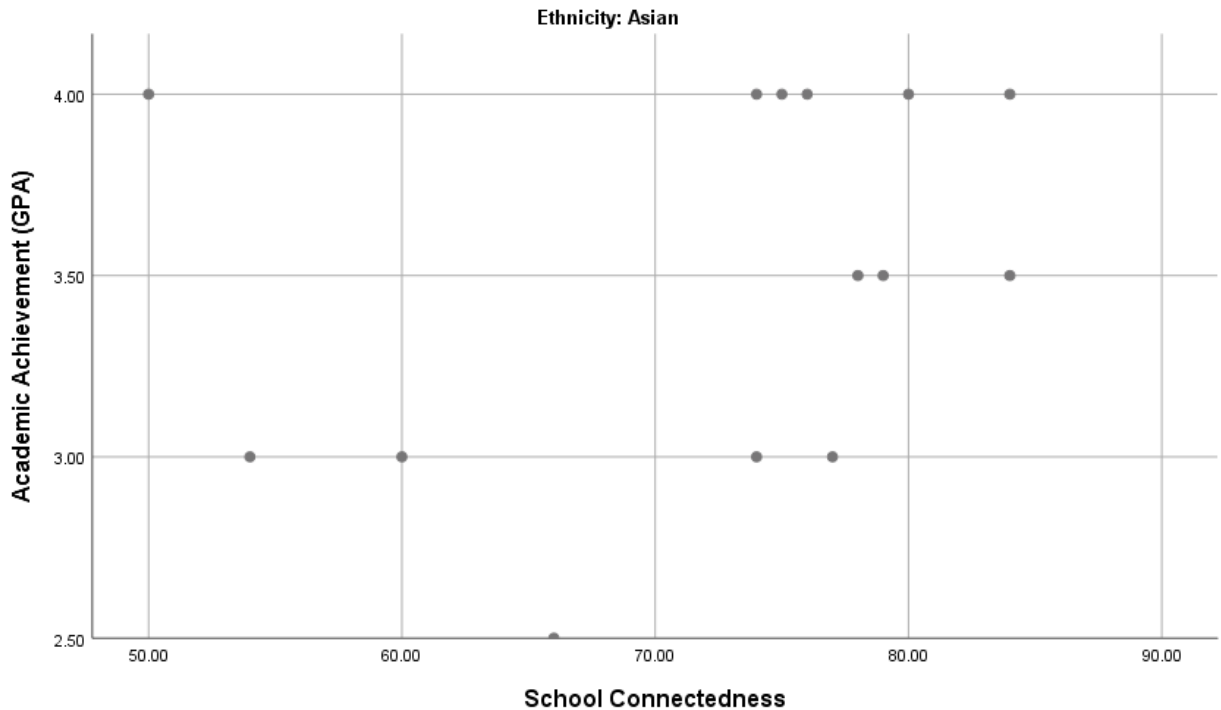


Figure 9. Scatterplot between level of student connectedness and level of academic achievement (Asian sample).

Research Question 8. Among Pacific Islander students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀8: Among Pacific Islander students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A8: Among Pacific Islander students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

A Pearson Product Moment Correlation test was conducted to determine the strength of the relationship between level of student connectedness and level of academic achievement for

the Pacific Islander sample. The correlation coefficient, r , computed could not be determined by any statistical standard or procedure that a statistically significant relationship exists between student connectedness and student academic achievement, $r(3) = .586$, $p =$ not significant. This is due to the fact, that the sample size was too small to calculate. For the purposes of this study, this indicates there is not a correlation between Pacific Islander student connectedness and Pacific Islander academic achievement. Therefore, there is insufficient evidence to reject the null hypothesis. There is no linear correlation between Pacific Islander student connectedness value as measured on the connectedness survey and Pacific Islander student academic achievement as measured by their GPA. The issue of sample size regarding this hypothesis will be discussed in Chapter 5. The statistical means of both the student connectedness scores and GPA scores and their calculated r value are indicated in Table 13.

Table 13

Pearson Product Moment Correlation Analysis for Student Connectedness and Academic Achievement (Pacific Islander Sample)

Pacific Islanders	Mean	n	df	r	p
Connectedness scores	62.20	5	3	.586	Not Significant
Academic achievement (GPA)	3.10	5	3	.586	Not Significant

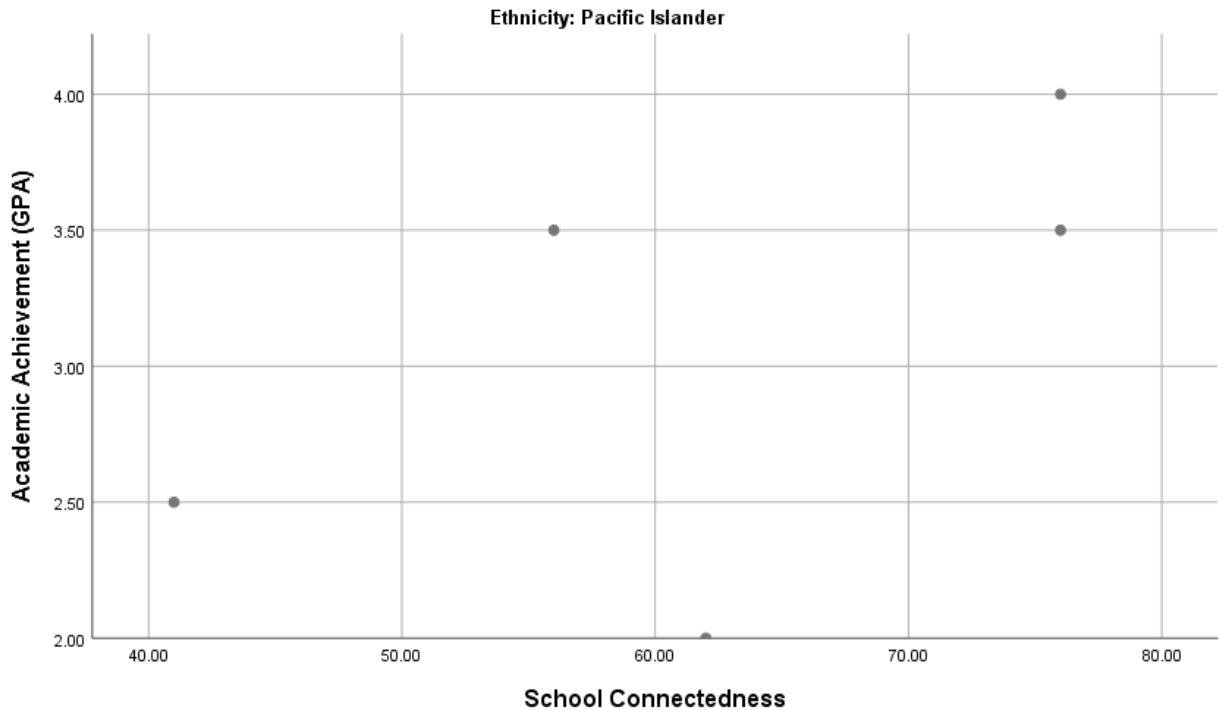


Figure 10. Scatterplot between level of student connectedness and level of academic achievement (Pacific Islander sample).

Research Question 9. Among multiracial students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H₀9: Among multiracial students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A9: Among multiracial students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

A Pearson Product Moment Correlation test was conducted to determine the strength of the relationship between level of student connectedness and level of academic achievement for

the multiracial sample. The correlation coefficient, r , computed revealed a statistically significant relationship between student connectedness and student academic achievement, $r(22) = .416, p = .0438$. This indicates the likelihood of a correlation between multiracial student connectedness and multiracial academic achievement. Therefore, the null hypothesis is rejected in favor of the alternative hypothesis. There appears to be a linear correlation between multiracial student connectedness value as measured on the connectedness survey and multiracial student academic achievement as measured by their GPA. The statistical means of both the student connectedness scores and GPA scores and their calculated r value are indicated in Table 14.

Table 14

Pearson Product Moment Correlation Analysis for Student Connectedness and Academic Achievement (multiracial sample)

Multiracial	Mean	n	df	r	p
Connectedness scores	71.17	24	22	.416	.043
Academic achievement (GPA)	3.06	24	22	.416	.043

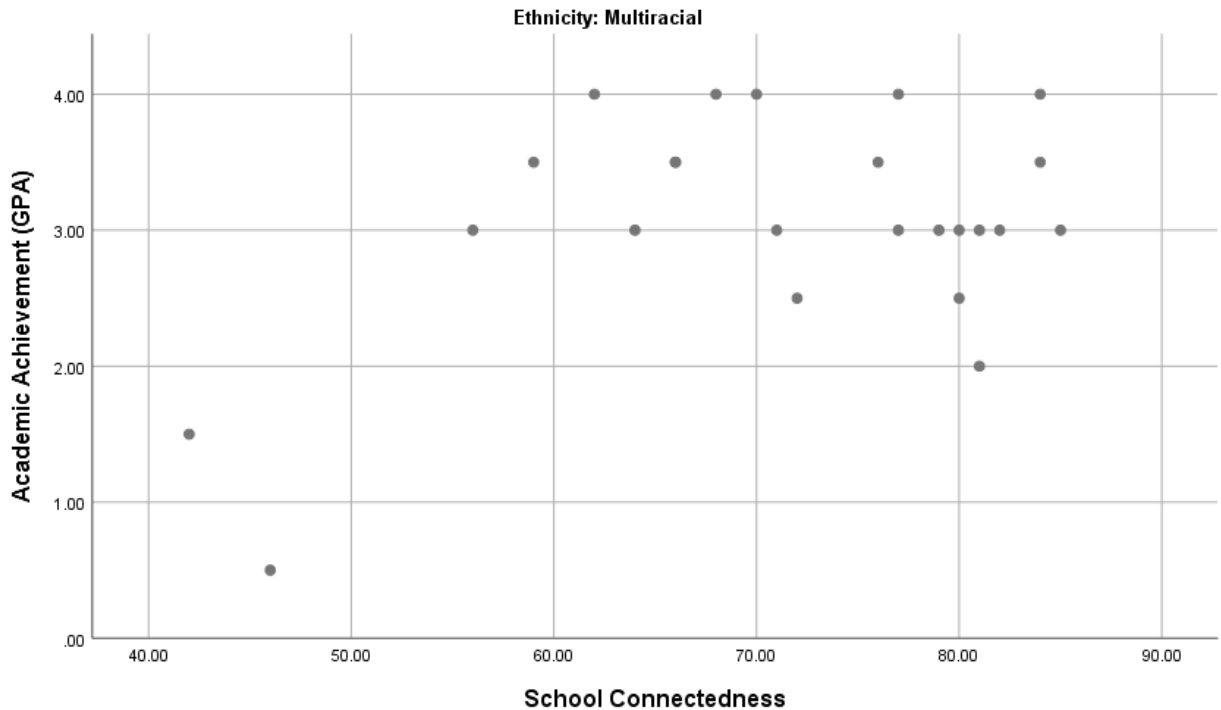


Figure 11. Scatterplot between level of student connectedness and level of academic achievement (multiracial sample).

Research Question 10. Among Alaska Native/American Indian students, is there a relationship between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA?

H_0 10: Among Alaska Native/American Indian students, there is no linear correlation between level of student connectedness in an Alaskan CTE school environment as measured on the connectedness survey and level of academic achievement as measured by their GPA.

H_A 10: Among Alaska Native/American Indian students, there is a linear correlation between level of student connectedness in an Alaskan CTE school environment as

measured on the connectedness survey and level of academic achievement as measured by their GPA.

A Pearson Product Moment Correlation test was conducted to determine the strength of the relationship between level of student connectedness and level of academic achievement for the Alaskan Native/American Indian sample. The correlation coefficient, r , computed showed that it is unlikely a statistically significant relationship exists between student connectedness and student academic achievement, $r(9) = .509$, $p = .109$. This indicates that there is no correlation between Alaska Native/American Indian student connectedness and academic achievement. Therefore, based on the sufficient evidence presented we fail to reject the null hypothesis. There is no linear correlation between Alaska Native/American Indian student connectedness value as measured on the connectedness survey and an Alaska Native/American Indian student academic achievement as measured by their GPA. The statistical means of both the student connectedness scores and GPA scores and their calculated r value are indicated in Table 15.

Table 15

Pearson Product Moment Correlation Analysis for Student Connectedness and Academic Achievement (Alaskan Native/American Indian Sample)

Alaska Native/American Indian	Mean	n	df	r	p
Connectedness scores	62.55	11	9	.509	.109
Academic achievement (GPA)	3.18	11	9	.509	.109

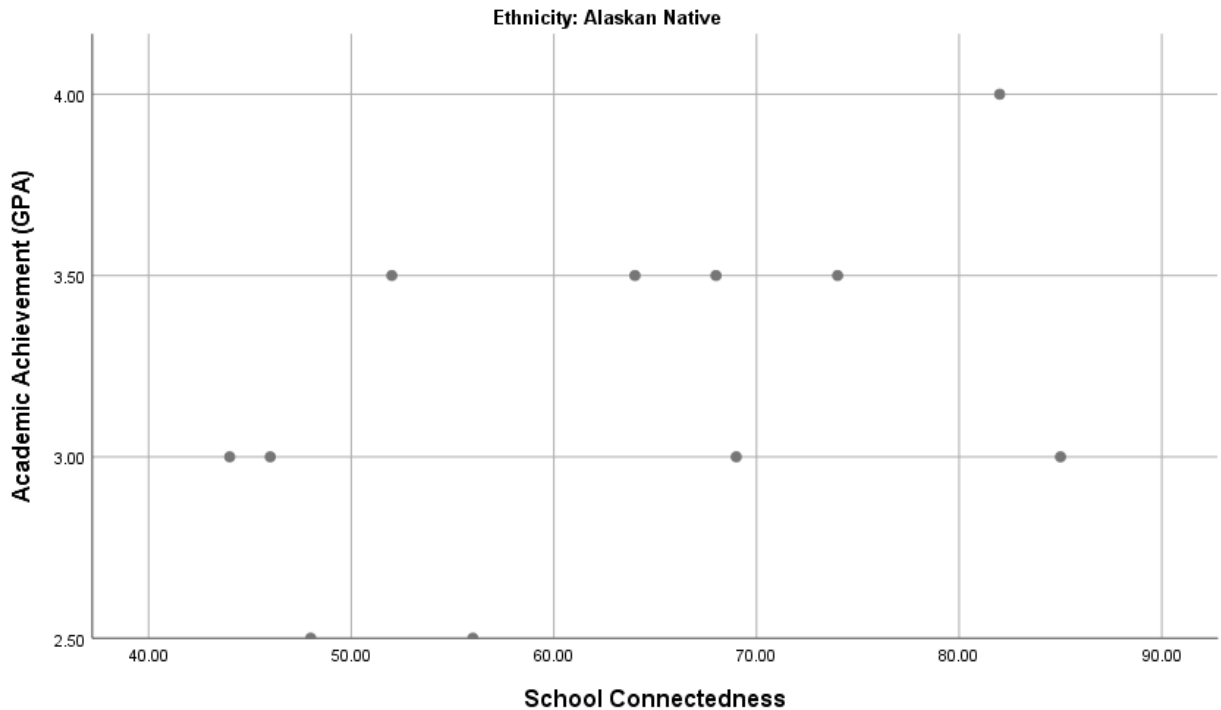


Figure 12. Scatterplot between level of student connectedness and level of academic achievement (Alaskan Native sample).

Summary

The purpose of this quantitative correlational study was to explore the relationship between CTE students’ student connectedness and academic achievement, and whether gender, race, and ethnicity effects that relationship. The findings of the Pearson correlations indicated a significant linear correlation between student connectedness and GPA for the overall sample, for males, and for females. Therefore, the null hypotheses were rejected for research questions one through three (H01–H03). For Caucasians, Black/African American, and Multiracial students, there was a linear correlation between student connectedness and GPA. Therefore, the null hypotheses were rejected for research questions one through three (H04, HO5, H09). For Mexican/Hispanic/Latino, Asian, Pacific Islander, and Native Alaskan there was not a linear correlation between student connectedness and GPA. Therefore, the null hypothesis for research

questions six, seven, eight, and ten (H06, HO7, HO8, HO10) was not rejected. In the next chapter, the findings will continue to be explored in connection with the literature.

Chapter 5: Discussion and Conclusion

Introduction

The main problem this quantitative study addressed is that student learner groups (Native Alaskan, Caucasian, Black/African American, Hispanic/Latino, Asian, and native Hawaiian/Pacific Islanders; males and females) accessing CTE programs are academically underperforming in high school reading, writing, and math. The purpose of this quantitative correlational study was to explore the relationship between CTE students' student connectedness and academic achievement, and whether gender, race and/or ethnicity effects that relationship. Previous student connectedness research has indicated that students who experience positive relationships with peers and adults in the school community are more likely to earn higher grades and complete more years of school than their less connected peers (Angus & Hughes, 2017; Pate et al., 2017). The current body of research available on student connectedness and academic achievement does not adequately address CTE school cultures comprised of racial and ethnically diverse populations.

The study conceptualized student connectedness as a continual relational process wherein students who engage in school by participating in classroom and extracurricular activity are more likely to develop a sense of school connectedness, and thus have better academic outcomes than peers who are disconnected. This conceptualization of student connectedness is based on Finn's (1989) participation-identification theoretical construct that describes belonging as a relationship that is influenced by communication between the individual and the school community. The focal point of my study was to explore if there is a correlation between connectedness, grade point average, race, ethnicity, and gender. The study incorporated perspectives from the literature regarding the student connectedness experiences of minority students and the gender

differences of students in a career and technical education school environment (Plank et al., 2008; Rojewski & Xing, 2013). This study specifically was designed to explore the relationship of the student connectedness experiences in a CTE school environment, and how this experience may influence academic achievement (GPA). In addition, the study was designed to collect information to better understand the students who are disconnected and have entered the withdraw cycle described by Finn (1989).

This study contributes to the body of literature in the field of educational research. The research literature suggested that student connectedness influences the academic achievement of career and technical education students (Hernandez-Gantes et al., 2018; Stone, 2017). Because research in this area is noticeably absent, there was a need to explore the influence of student connectedness on student achievement among gender differences, race, and ethnicity in a CTE school environment; and the need to identify elements that enhance student connectedness, and thus supporting student success in a CTE environment. This chapter summarizes the study and presents theoretical understanding, inferential conclusions, practical information to support intervention practices, and recommendations for future research.

Summary of the Results

The following correlational research question guided this study was: In a large urban school district of Alaska, with a diverse student population, what is the relationship between the CTE student connectedness level and academic achievement levels? To address the research, a total of 10 research questions were developed and a series of Pearson correlations were conducted to examine the relationship. The variables of interest corresponded to level of student connectedness and level of GPA.

The findings of the Pearson correlations indicated that there was a significant linear correlation between student connectedness and GPA for the overall sample, for males, and for females. Therefore, the null hypotheses were rejected for research questions one through three (H01-H03) in favor of the alternative hypothesis. Thus, for all students ($r(130) = .47, p < .001$), including the separate populations of males ($r(72) = .50, p < .001$) and females ($r(56) = .42, p = .001$), there is a linear correlational between a student's school connectedness value as measured by the connectedness survey and the student's academic achievement as measured by their GPA.

The Pearson correlations results indicated that there was a linear correlation between student connectedness and GPA for Caucasians ($r(51) = .59, p < .001$), Black/African American ($r(5) = .90, p = .006$), and Multiracial students ($r(22) = .416, p = .0438$). Therefore, the null hypotheses were rejected for research questions four, five, and nine (H04, HO5, H09) favor of the alternative hypothesis.

The Pearson correlations results indicated that there was not a linear correlation between student connectedness and GPA for Mexican/Hispanic/Latino ($r(16) = .25, p = .317$), Asian ($r(12) = .486, p = .078$), Pacific Islander ($r(3) = .586, p = \text{not significant}$), and Native Alaskan ($r(9) = .509, p = .109$). Therefore, the null hypothesis for research questions six, seven, eight, and ten (H06, HO7, HO8, HO10) was not rejected.

Discussion of the Results

This quantitative research study was conducted in order to explore the relationship between CTE students' student connectedness and academic achievement, and to determine whether gender, race and/or ethnicity effects that relationship. The results of the data analysis focused on research questions one, two, three, four, five, and nine demonstrated a linear correlation between connectedness scores and GPA. Thus, based on these results, the null

hypotheses (H₀₁, H₀₂, H₀₃, H₀₄, H₀₅, H₀₉) were rejected in favor of the alternative hypotheses (H_{A1}, H_{A2}, H_{A3}, H_{A4}, H_{A5}, H_{A9}). Therefore, there was a linear correlation between student connectedness and GPA for the overall sample, for males, for females, for Caucasians, for Black/African American, and for Multiracial students. Data analysis focused on research questions six, seven, eight, and ten demonstrated that there was not a linear relationship between connectedness scores and GPA. Thus, based on these results, the null hypotheses (H₀₆, H₀₇, H₀₈, H₀₁₀) were accepted and the alternative hypotheses (H_{A6}, H_{A7}, H_{A8}, H_{A10}) were rejected. Therefore, there was not a linear correlation between student connectedness and GPA for Mexican/Hispanic/Latino, Asian, Pacific Islander, and Native Alaskan student populations.

There are several reasons that might explain the surprising results for research questions six, seven, eight, and ten pertaining to the Mexican/Hispanic/Latino, Asian, Pacific Islander, and Native Alaskan student groups. After careful examination, one reason that stands out is the possibility that language barriers and cultural differences contributed to results that may not accurately represent a group's feelings. As of 2019, the Mexican/Hispanic/Latino, Asian, Pacific Islander, and Native Alaskan student groups represent the largest population of 9th–12th grade students (10.79% of 10,958) in the district that speak English as a second language (Anonymous, 2019). This raises an important consideration regarding the language selected and words used to construct a survey instrument. A survey instrument presented in one language is a strong limitation due to the language barriers that exist. The other serious consideration are the words selected to construct questions which are often confused because of the multiple meanings of language in different cultural contexts (Brown, 2015; McGorry, 2000). These points raise concerns regarding threats to internal validity that were not previously identified when developing the research methodology for this study.

Discussion of the Results in Relation to the Literature

The results of the study are associated with a community of practice, the student connectedness literature, and the community of scholars. The problem this study addressed is the student learner groups accessing CTE programs (Native Alaskan, Caucasian, Black/African American, Hispanic/Latino, Asian, and Native Hawaiian/Pacific Islanders) are academically underperforming in high school reading, writing, and math (Alaska Department of Education and Early Development, 2019). The state assessment data also showed that males and females are academically underperforming. The purpose of this quantitative correlational study was to explore the relationship between CTE students' student connectedness and academic achievement, and whether gender, race and/or ethnicity effects that relationship. Information from this study can assist school districts, CTE practitioners, educational leaders, and stakeholders to develop a course of action that will help diverse student learner groups connect with their schools, potentially leading to enhanced academic achievement and increased post-secondary options.

The student connectedness findings have been supported by previous researchers as having a positive effect on academic achievement. Previous researchers have identified student connectedness as having a positive effect on the contributing factors of academic achievement, such as, better attendance, reduction of behavior problems, health benefits, extracurricular participation, and increases in social capital (Brookmeyer et al., 2006; Eiseman, 2005; Freiberg et al., 2001; Freiberg & Lapointe, 2006; Hunter & Csikszentmihalyi, 2003; Li & Lerner, 2011; Seligman et al., 2009; Shernoff et al., 2003; Wallace et al., 2012; Walker & Greene, 2009; Whiteside-Mansell et al., 2015; Zullig et al., 2010a). Researchers discovered that student connectedness has a correlation with academic achievement outcomes. This link though is not

easily articulated because of the variance among survey instruments and discrepancies regarding the factors that influence student connectedness. Previous research has linked the relational mediation power of student connectedness with overall satisfaction of classes (Loukas et al., 2006), which translates into better academic achievement success (Walker & Greene, 2009; Wallace et al., 2012; Zullig et al., 2010a). Schools that offer a positive climate built on an engaging curriculum and an intentional student-centered teacher culture promote student connectedness and the benefits attributed to better health and graduation rates (Gottfried & Plasman, 2018). Thus, CTE's non-traditional classes are helping students connect to school and as a result, academic performance as measured by GPA increases is occurring.

Previous researchers have found that gender does not experience the same levels of student connectedness benefits. Academic achievement gender gap studies of high school GPAs have showed that females earn higher grades than males (Buddin, 2014; Grasgreen, 201e; Voyer & Voyer, 2014). In addition, Oelsner et al. (2011) found that males have lower levels and greater decreases in student connectedness than females. However, this study's findings indicate there was a significant linear correlation between student connectedness and GPA for males and females. The results show that females reported a mean GPA of 3.18 with a mean connectedness score of 69.84 compared to what males reported with a mean GPA of 3.03 with a mean connectedness score of 68.81. Thus, the study's results regarding gender, GPA, and student connectedness are not completely aligned with previous research.

Previous researchers have found that race and ethnic groups do not experience the same levels of student connectedness benefits. The longitudinal data nationally collected by the Nation's Report Card (2009) showed a steady increase in GPA by the leading Asian/Pacific Islander group followed by White, Hispanic, and Black. Student connectedness research has

indicated that Caucasian students felt like they naturally fit into school and that concerns about belonging do not interfere with learning in the way that racial and ethnic minority students perceive the environment -- as an outsider (Altschul et al., 2006). The capacity for increasing engagement and achievement within a school community is a viable outcome, when the perception of belonging is reinforced by multiracial environmental supports (Walker & Greene, 2009).

The study's findings indicate for Caucasians, Black/African American, and Multiracial students, there was a linear correlation between student connectedness and GPA. With regard to the other race and ethnicities represented in the study, for Mexican/Hispanic/Latino, Asian, Pacific Islander, and Native Alaskan there was not a linear correlation between student connectedness and GPA. The study's results regarding race and ethnic identity, GPA, and student connectedness are almost aligned with previous research on GPA which indicated in ranking order that Asian/Pacific Islander group leads the pack followed by White, Hispanic, and Black. The results of the study put the Black/African American (3.21) student population second to Asian (3.79) followed by Caucasian (3.03) and Mexican/Hispanic/Latino (2.94). The results of the study indicate that among minority students, student connectedness has a beneficial influence on the GPAs of Black/African American and Multiracial (3.06) students. In the next section, the results will be discussed in relation to student connectedness, academic achievement, and CTE literature.

A recent study conducted by Fluhr et al. (2017) found that CTE students continue to have a strong tendency to choose "gender-traditional" courses. Likewise, the influence of CTE courses on graduation rates was recently explored in a study that found students who take a greater number of CTE courses were less likely to drop-out of high school and more likely to

graduate on time (Gottfried & Plasman, 2018). Despite this new information, the question remains: How do educational leaders connect women, minorities, and students at-risk of dropping out of high school to CTE programs? One way to connect marginalized student populations to CTE programs is to identify what student populations need the extra encouragement to explore CTE programs and to focus on marginalized student populations that are currently enrolled in a CTE program. This student connectedness study was designed to address this problem by focusing on student connectedness and how it influences academic achievement regarding gender, race, and ethnicity.

Community of practice. The community of practice regarding student connectedness is comprised of educational researchers, educational leaders, and school staff. The central component of practice is the development of student connectedness research methodology. In this study, I used a modified student connectedness survey instrument that was focused on collecting demographic and student connectedness data. The survey instrument used was rooted in Finn's (1989) participation-identification theoretical construct. The results of this study are consistent with other student connectedness surveys including Appleton et al. (2008), Bradshaw et al., 2014, Lohmeier and Lee, 2011, Chung-Do et al., 2015, Whiteside-Mansell et al., 2015. The results of this study confirm the importance of using a survey tool that focuses on race and ethnic identity, gender, grade point average, and participation in extracurricular activities (CTE courses).

Most of the previous research has established how factors about student connectedness influence health, behavior, and academic achievement. This study, for the most part, found a correlation between student connectedness and academic achievement across the population. However, this was not the case for the Mexican/Hispanic/Latino, Asian, Pacific Islander, and

Native Alaskan students where no significant linear correlation existed between student connectedness and GPA. Singh et al. (2010) found that the variance in academic achievement have to do with race, ethnicity, SES, and gender.

Literature. This study finds alignment with the research literature on student connectedness, as well as gender, race, and ethnic identity. I used a quantitative survey that was consistent with previous connectedness research. Finn's (1989) identification-participation model was the theoretical framework used as the entry point of this study. The results of the study confirm previous studies that indicate that student connectedness and student self-concept influence academic achievement.

The student connectedness literature implies that race and ethnic identity (REI), and gender are self-concepts have been shown to impact academic achievement and are dependent upon the role of racial socialization at home and the social unit identification at school (Altschul et al., 2006). Many researchers have associated student demographic characteristics as an influential aspect of student connectedness. For example, Lee (2010) hypothesized that high poverty schools were impacted by a "heighted state of emotional arousal" which accounts for micro-aggressional type social interactions and affective misattunement where students believe they cannot relate to staff. (as cited in Wallace et al., 2012). In addition to poverty, Rovis et al. (2015) demonstrated in their study that girls are more at-risk than boys when there is a diminished sense of commitment to school. Furthermore, REI has been shown to play an important role in the development of racial socialization. Stereotype threat theory and the engagement achievement paradox are two elements that studies have suggested impact student connectedness and academic achievement. (Murphy & Zirkel, 2015; Shernoff & Schmidt, 2008). Research has demonstrated that the feeling of discrimination impacts student

performance and sense of well-being, which has long-term consequences for life satisfaction (Altschul et al., 2006; Bradshaw et al., 2014; Chung-Do et al., 2015; Lohmeier & Lee, 2011; Murphy & Zirkel, 2015; Shernoff & Schmidt, 2008; Whiteside-Mansell, et al., 2015). Thus, the study has identified that the Mexican/Hispanic/Latino, Asian, Pacific Islander, and Native Alaskan populations are less connected to school than the Caucasian, Black/African American, and multiracial student populations who are connected and academically achieving as a result. Therefore, the less connected populations might be experiencing stereotype threat and the engagement-achievement paradox.

Community of scholars. This study is beneficial to the community of scholars who have an interest in student connectedness, academic achievement, career and technical education, gender, and ethnicity. My study is unique because it explored student connectedness in a career and technical education school. Educators who promote student connectedness appear to be affecting academic achievement, and thus increasing the graduation rate. Therefore, schools that take an intentional positive psychological approach may be impacting the health and wellbeing of students to the extent that education becomes a more meaningful experience leading to success in the present and future.

The results of my study showed that student connectedness has a correlation with academic achievement for some student populations. There was a linear correlation between student connectedness and GPA for the overall sample, for males, for females, for Caucasians, for Black/African American, and for Multiracial students. The modified survey included the Psychological Sense of School Membership scale which is based on Finn's (1989) participation and model. The results of my study revealed differences in the way some student populations feel about their school experience. There was not a linear correlation between student

connectedness and GPA for Mexican/Hispanic/Latino, Asian, Pacific Islander, and Native Alaskan student populations. Therefore, it is reasonable to conclude that when administrators and teachers create a welcoming and engaging learning environment, students participate and identify with the school, and thus have a better chance of academically achieving. This is an important finding because educational leaders need to have access to tools that scientifically reveal student strengths and needs within subgroups for the design and implementation of appropriate student growth interventions.

Limitations

The limitations of a study may have impacted the results; thus, it is important that all limitations are reported. One limitation of this study is the students self-reporting GPA. The two main weaknesses with self-reporting are memory and honesty (Fowler, 2008). The only way to eliminate self-reporting bias would be to use real time grade point averages from student report cards or transcripts; however, to do such creates FERPA and parental consent conditions that make participant recruitment more difficult and time consuming. Sticca et al. (2017) conducted an accuracy study of academic grade self-reporting using a three-phase longitudinal design across four subject areas with a sample of 916 high school students. The results of the study found a positive correlation between self-reported and actual academic grades. Thus, it is reasonable to conclude that self-reporting of academic grades is reliable and valid (Sticca et al., 2017).

Another limitation is that the study explored the connectedness of students. The study did not include survey data of teachers' or administrators' perceptions of student connectedness. This type of data would open-up other dimensions of student connectedness elaborating to what extent teachers' and administrators' sense of connectedness influences student connectedness.

Recent research has noted stark differences between student, teacher, and administrator's perception of student connectedness, with students often having worse perceptions of the school than the adults (Ramsey, Spira, Parisi, & Rebok, 2016).

The random sampling method used to conduct this study presented a representation limitation with the gender and ethnicity comparison. As indicated in Chapter 3, for a Pearson correlation, with a medium effect size ($\rho = .30$), alpha of .05, and power of .80, it was determined that a minimum sample of 84 participants would be necessary for the analysis. The sample size sought for the study was 197 students. The number of students who opted to participate was 132. However, for the gender and ethnicity comparisons, the sample size was below the power analysis calculation suggested. The significance and non-significant findings for all the correlations by gender and ethnicity must be interpreted with a level of caution.

The research questions and the Pearson correlations used in this study presented a few limitations. The study addressed the research questions regarding the gender of the entire population. The study did not explore the relationship of gender within each racial and ethnic group. While this data could prove useful, the challenge would have been ensuring enough males and females were represented within each racial and ethnic group to conduct Pearson correlations.

Implication of the Results for Practice, Policy, and Theory

Student connectedness theories focus on how a student feels about their experience in a school. Studies have demonstrated different approaches to developing an understanding of the student connectedness phenomena. Student connectedness researchers agree that when students experience a deep connection to a school they benefit with growth in the areas of health, safety,

cognitive, behavioral, emotional, peer and adult relationships, and academic achievement (Angus & Hughes, 2017; Chung-Do et al., 2015; Pate et al., 2017).

The results of this study have implications for practice, policy, and theory. The results of the study showed that students are connected even though among some ethnic groups there is no correlation with academic achievement. There was not a linear correlation between student connectedness and GPA for Mexican/Hispanic/Latino, Asian, Pacific Islander, and Native Alaskan student populations. Although there was no correlation with academic achievement among these ethnic groups, their GPA was reported as a 2.50 or better. This finding suggests a theoretical implication for Finn's (1989) participation-identification model, in that students were connected in some groups, but connectedness was not related to academic achievement. Thus, the implication may be that different ethnic groups experience connectedness differently and that connectedness may not lead to increased academic outcomes for those groups, necessitating discussion and further research on connectedness in specific groups. The following sections will explore this implication and what it means regarding practice, policy, and theory.

Implications for practice. The results of this study indicated a statistically significant correlation between student connectedness and student academic achievement among all students who participated in the study. In addition, for Caucasians, Black/African American, and Multiracial students, there was a linear correlation between student connectedness and GPA. However, this was not the case for Mexican/Hispanic/Latino, Asian, Pacific Islander, and Native Alaskan where there was no linear correlation between student connectedness and GPA. Educational leaders need to have access to student connectedness survey data and GPAs to explore what genders and ethnic identities are not experiencing the benefits of student

connectedness. This information will help with devising connectivity plans that are rooted in data and theory.

Researchers have identified student connectedness interventions that have been shown to increase a student's sense of belonging. Schools that concentrate on the pro-social dimensions of trust, encouragement, self-discipline, responsibility, and free choice making have higher levels of student connectedness (Freiberg & Lamb, 2009). Student connectedness is strengthened when students are given the latitude to make choices in an environment that is person-centered and that gives students the benefit of the doubt in a supportive manner supports the amplification of student voice (Chapman et al., 2013; Freiberg & Lamb, 2009). These findings align with Finn's (1989) participation and identification model which emphasized the importance of student voice by increasing opportunities for students to actively engage in setting goals, making decisions, and participating in the governance of the school's disciplinary structure.

The final intervention piece attributed to increasing connectedness is participation in extracurricular activities. Extracurricular is any activity that is not required to graduate from high school. Extracurricular is used to refer to electives, clubs, and sports. In essence, a CTE school is extracurricular because the course offerings are non-traditional and are not a requirement for graduation. Career and technical education students engage in project-based learning that takes the place of extensive participation in academic coursework. Finn's (1989) participation and identification model aligns with the CTE educational mission of supporting struggling learner by influencing a sense of belonging through the opportunity to participate in real-world projects that create connections with interests and career pathways.

Howard and Ziomek-Daigle (2009) examined extracurricular activities and found no increase in school bonding; however, they found a significant increase in academic achievement.

These findings are intriguing because the study was conducted in a comprehensive high school setting which does not resemble a CTE school. The findings of my study suggest students feel connected to the CTE extracurricular school and that the sense of belonging does influence academic achievement. This is a positive direction for students because the CTE learning environment with its non-traditional course offerings works as a binding agent. Students who have become disconnected have a better chance of connecting and graduating because the CTE learning experience intentionally makes connections to the workforce.

Racial socialization impacts the way in which students engage peers and teachers unlike them. Racial socialization and stereotype threat are evidenced in the way students respond to discipline and poor grades often citing racism as a reason for negative outcomes. The perception of discrimination prohibits a student from full unification to the educational environment and benefitting from the protective factors of connectedness. The researched phenomena known as the engagement-achievement paradox explains why Black students report experiencing higher levels of engagement, intrinsic motivation, and learning in classrooms, but lower GPA than White students. The same results were found with students identified as low socioeconomic status (Shernoff & Schmidt, 2008). Research has demonstrated that the feeling of discrimination impacts student performance and sense of well-being, which has long-term consequences for life satisfaction (Altschul et al.; Bradshaw et al., 2014; Chung-Do et al., 2015; Lohmeier & Lee, 2011; Murphy & Zirkel, 2015; Shernoff & Schmidt, 2008; Whiteside-Mansell, et al., 2015). The educational leader must devise intervention strategies that increase connectivity and diminish a sense of threat created by discrimination, stereotypes, and bias with consideration to what extent Finn's Model (1989) is influenced by such. For example, as demonstrated in Figure 13, stereotype threat theory may influence the quality of instruction and a student's abilities

(Dotterer et al., 2009; Murphy & Zirkel, 2015). Likewise, the engagement achievement paradox may influence a student’s identification with school and nonparticipation (Shernoff & Schmidt, 2008).

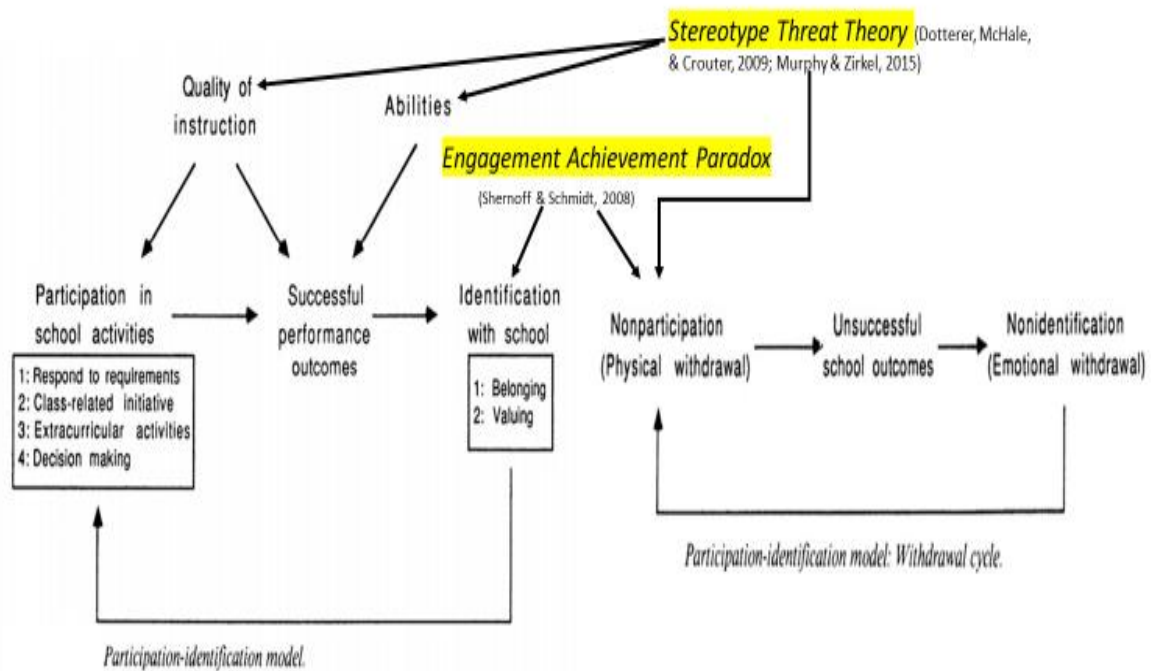


Figure 13. Finn’s (1989) Participation-Identification model with race and ethnic identity implications.

The idea that CTE is the conduit that will connect underperforming students with learning is important and valid. A learning environment with robust project-based course offerings still must contend with the issue of connecting disconnected students to learning. A CTE program or school with basic student connectedness intervention strategies is not enough, a comprehensive intervention process is necessary. For an educational leader who is concerned about the atmosphere of the school and how it impacts student achievement, a correlational study of student connectedness and academic achievement is a strong starting point. It is very important for an educational leader to approach the underperforming and student connectedness

problem with a research method that fully identifies what population of students needs a connectedness intervention.

Connecting the disconnected student requires collecting and analyzing a student's REI, gender preference, academic background, attendance records, behavior documentation, health records, understanding the family unit and income levels, extracurricular activities, and most importantly their frame of reference regarding school. This information must be thoroughly analyzed and processed with the student as an active participant. The goal of this comprehensive intervention process is look for the signals and to identify the barriers that exist or have been constructed by the student that impair their feelings about school; and to help the student understand where something in their educational experience went wrong; and through building trust and restoring faith in learning—thus transforming the frame of reference and the greater the likelihood of increasing student connectedness.

A comprehensive intervention strategy (see Figure 14) is not a sole effort, it requires a team approach. First and foremost, a student needs to feel cared for and respected when an inquiry into the disconnection problem begins. For example, when a student reports to a student services office for a disciplinary reason, the conversation should begin with a wellness check. If the student is angry, then the educational leader should refrain from creating more anger by giving the student the space and time to process the situation. Most often, disconnected students distrust teachers and administrators and tend to resist cooperating. Thus, when treated differently than expected the student is caught off guard and in disbelief that they are not experiencing the typical way in which a disciplinary problem is processed—with an emphasis on punitive action rather than taking the time to explore learning opportunities. The administrator's office is no different than a classroom, it is an educational environment where the subject matter is a human

being who is experiencing problems that are interfering with accessing their education. As the conversation with the student unfolds, the administrator should include all the adults that the student trusts and the appropriate specialists (counselor, nurse, or security personnel) that can help the student process the problem(s) they are experiencing.

Connecting the disconnected student requires a sensitivity toward the appropriate placement in a CTE course. Career and Technical Education has an advantage over traditional academic high school settings because the courses are hands-on and emphasize job readiness skills. Before enrolling a student in a CTE course, counselors should work through collecting information regarding strengths, job experiences, parent jobs, hobbies, interests, passions, and uncovering the student's outlook for the future. This information must be used to determine what CTE course aligns with the student's present situation and future ambitions. The appropriate CTE course placement serves as an initial connecting point because it is a unique non-traditional setting that is linked to the student's interest with links to a tangible future related to the workforce.

Signals – Physical Withdraw	Intervention Strategies – Person Centered	Connectivity – Increased Participation
Underperforming Poor Attendance Disciplinary Problems Psychological Issues Race Ethnic Identity Gender Identity Family Problems Diminished Social Capital Activities Nonparticipation Poor Health Substance Abuse Violence Sexual Activity Crime Homelessness Low quality of Instruction	Student Inventory Placement Disconnection Narrative Frame of Reference Barrier Identification Wellness Check De-escalation Trust Building Staff Resources -- Linking Humor Learn first, punitive later Encouragement Benefit of the doubt Engagement-achievement paradox Stereotype threat Professional Development CTE units 2 or more	Increased Academic Performance Responsibility Self-discipline Identification Group Affiliation Health and Wellbeing Quality of Instruction Schoolwide Improvements PD Implementation

Figure 14. Comprehensive intervention strategies

Implications for Policy. With high school academic underperformance and the high dropout rate continuing to challenge school systems, it is important for policy makers to prioritize improving student connectedness. The national dropout rate has decreased from 10.9% in 2000 to 6.1% in 2016, with a male decrease from 12.0 to 7.1 and a female decrease from 9.9 to 5.1% (National Center for Educational Statistics, 2017). The dropout rate gap between race and ethnicity has seen significant decreases. Since 2000, the Caucasian youth dropout rate was lower than Black/African American youth except for 2016 where the gap has appeared to close with no measurable difference between the two groups. The numbers from this time period show a dropout rate decline from 6.9 to 5.2% for Caucasian youth, from 13.2 to 6.2% for Black/African American, and from 27.8 to 8.6% for Mexican/Hispanic/Latino youth. The graduation data shows significant decreases; however, the disparity among racial and ethnic groups continues with Asian and Caucasian students still more likely to graduate than Black/African American and Mexican/Hispanic/Latino youth (National Center for Educational

Statistics, 2017). Educational policy makers need to consider alternative approaches to connecting the disconnected to school, such as finding ways to generate greater access and equity to CTE schools and/or programs.

Student connectedness has become the subject of more attention with several states using surveys to collect data. Student connectedness occurs when adults show students that they care about their learning and equally about them as individuals. Students, no matter the status of family income, gender, their race, or ethnicity are more likely to succeed when they feel and believe a strong connection to school. It is essential to have school leaders who are prepared to implement student connectedness strategies. Focusing on standardized tests scores, teacher evaluations, technological enhancements, and fidelity to curriculum are important; however, as the research on student connectedness has indicated the positive psychological dimension of building relationships with students is the most important binding agent that influences students' beliefs about and feelings toward school. My study implies that professional development focusing on increasing student connectedness is of critical importance. The professional development model for increasing student connectedness would incorporate the use of student connectedness data and the delivery of culturally appropriate methodology designed to increase student connectedness among groups with connection problems.

Educational policies must focus on ways to improve student connectedness as a viable means for reducing the dropout rate. Perhaps surveys and data collection could aid in developing research-based professional development that focuses on increasing student connectedness. Student connectedness in a traditional school setting is a phenomenon influenced by intentional strategies and techniques, thus it is not something that can be easily managed by the adoption of policy. However, federal policy through Perkins IV has continued to forge ahead by funding a

CTE curriculum that emphasizes a high school delivery model that is relevant and engaging. Students at-risk of dropping out need access to curriculum linking them with educational content that relates to employment possibilities that extends beyond the traditional classroom experience. Career and technical education has the power to create the persistence and career pathway interest needed to overcome the mundane traditional obstacles to succeed by achieving a high school diploma.

Gottfried and Plasman (2018) found that the more CTE units a student completed, the less likely they were to drop out of high school and the more likely they were to graduate on time. Therefore, school systems would benefit from policy that revolves around introducing learners to CTE courses and the concept of workforce preparedness as early as middle school (Fluhr et al., 2017). A CTE curriculum that is less hobby like and more career pathway oriented is an essential component to helping students with workforce orientation and connection with the importance of education. This initiative would be achieved by developing an 8 to 9 grade CTE summer school exploratory program. For many 8th graders, earning high school credit, transcripts, and planning a post-secondary trajectory are foreign concepts. A CTE focused summer academy for incoming 9th graders that provides students the opportunity to earn high school credit and begin developing a post-secondary plan is one way to leverage CTE programs and increase student connectedness among underperforming student populations.

Implications for Theory. It essential to continue to explore the impact of student connectedness so we can help educators understand how to improve academic achievement and promote a prevailing sense within a school building of health and wellbeing. Researchers have indicated the importance of student connectedness and its association with academic achievement, health, safety, cognitive, behavioral, emotional, peer and adult relationships

(Chung-Do et al., 2015; Oyserman, Bybee, & Terry, 2006; Pate et al., 2017). Previous research has identified practices that have been associated with increasing student connectedness. These include increasing the pro-social dimensions of trust, encouragement, self-discipline, responsibility, and free choice making, a person-centered approach that gives students the benefit of the doubt in a supportive manner, and the amplification of student voice (Chapman et al., 2013; Freiberg & Lamb, 2009).

This study confirmed that students participating in a CTE school feel connected and that this identification positively influences academic achievement. Thus, Finn's (1989) participation-identification model is an important piece because it stipulates that the more engaged the students are the more, they identify with the school and the greater the opportunity for success. The results of this study suggest that Finn's (1989) model has a universal application across gender, race, and ethnicity. The application of Finn's (1989) model takes on greater meaning for CTE when looking at the issue of women in the nontraditional trades. The literature on gender as a predictor of nontraditional course taking suggests males are less likely to take non-traditional courses than females; however, a current study has found that males are more likely to take gender-nontraditional courses than females, and that CTE students tend not to deviate from gender traditional courses (Fluhr et al., 2017; Hernandez-Gantes et al., 2018). Therefore, it is important to encourage gender traditional students to participate in gender-nontraditional courses to help with breaking the assumed identity mold that is in place regarding gender traditional roles in the workforce. In addition, to help with breaking down the gender bias connected to traditional roles in the workforce, whenever possible gender-nontraditional teachers should be considered for teaching positions. Finn's theory and the results of this study raise new questions and quite possibly offer a reinterpretation.

This study addressed the problem regarding the absence of CTE research on gender, race, ethnicity, student connectedness, and academic achievement is noticeably absent (Rojewski & Xing, 2013). Previous research has not explored the relationship between gender, race, ethnicity, CTE student connectedness, and academic achievement. Therefore, it was important to study CTE students' feelings about their connectedness and the influence that connectedness has on academic achievement. My research in this domain provides CTE educational leaders with a conceptual model for quantitatively exploring the relationship between student connectedness and academic achievement, and whether gender and ethnicity effects that relationship. Creswell (2014) noted, "instead of focusing on methods, researchers emphasize the research problem and use all approaches available to understand the problem" (p. 10). This re-contextualization of quantitatively measuring student connectedness in a CTE environment will assist in identifying underperforming diverse learners who continue to be at-risk of missing out on the benefits that come with obtaining a high school diploma, including higher income, post-secondary opportunities, and career advancement (Aliaga et al., 2014; McDermott et al., 2019).

Recommendations for Further Research

The results of this study showed a statistically significant correlation between student connectedness and student academic achievement. Various directions for extending and improving student connectedness research would include focusing on academic achievement, gender, race, ethnicity, and career and technical education. To verify inferences, it would be advantageous to school systems, educational leaders, and professional learning developers to examine the impact of student connectedness on academic achievement by conducting similar scientific research.

More research on student connectedness from a teacher and administrator perspective would be beneficial. My study focused on the student experience of student connectedness. To fully understand other important factors of student connectedness, an exploration of teacher and administrator perceptions would help to explain the impact of the educational context and culture of school. In a career and technical education school, this direction for a study would be beneficial because teachers often come out of industry with little to no teaching experience. In addition, administrators in a CTE school have the difficult task of providing instructional support to teachers who are new to the profession and have not had the benefit of completing a teacher preparation program. Currently, there are no studies that examine CTE teacher and administrator perceptions of student connectedness.

More research focused on student connectedness among specific races and ethnicities would be beneficial. My study explored student connectedness across an urban CTE school culture, revealing that some race and ethnicities are more connected than others. I recommend future research that examines more specific reasons regarding the lack of connectedness among racial and ethnic groups. In addition, this research direction should consider REI connectedness to an in-group, an awareness of racism, and in-group focus on academic achievement. The engagement-achievement paradox, because it emphasizes why Black students report experiencing higher levels of engagement, intrinsic motivation, and learning in classrooms, but lower grade point average (GPA) than White students should be studied and the connection it shares with stereotype threat theory.

Future research that examines the influence of family and socioeconomic status on student connectedness and academic achievement is warranted. Rovis et al. (2015) conducted a study of disturbed family relationships and risk behaviors and found that a healthy school

environment with high levels of connectedness has the power to motivate students and protect students from dysfunctionality at home. Likewise, household income was associated with school bonding and school grades to the extent that academic achievement improved as socioeconomic status increased. Therefore, a study exploring family dysfunctionality and low socioeconomic status could help schools develop intervention strategies and programs that seek to combat these challenges by increasing student connectedness.

Another direction for future research would be to examine the connectedness phenomena from the opposite side, that of disconnectedness. Based on the findings within research literature, the methods used to study student connectedness predominately operate from the worldviews of post-positivism and pragmatism (Creswell, 2014). To add more depth to understanding student connectedness, a constructivist worldview direction is justified. A shift to a constructivist approach is appropriate for studying disconnectedness because it would transcend the narrowing of meanings into a few ideas and categories by offering the complexity of views based on individual experiences. The quantitative method's survey tool orientation is a weakness when we consider that the disconnected student was most likely not present on the day in which the survey was given. A school disconnectedness qualitative study would be beneficial because it would access a population of students who are at-risk due to factors such as frequent absences. Thus, a case study or a phenomenological study of school disconnectedness could interview students with poor attendance, low grades, and behavior problems. Students identified and recruited to participate in an interview where they are asked questions about their feeling and perception of school would help articulate the experience of disconnectedness.

Conclusion

This quantitative correlational study addressed the problem of underperforming student learner groups accessing CTE programs by exploring the relationship between CTE students' student connectedness and academic achievement, and whether gender, race, and ethnicity effects that relationship. The following correlational research question guided this study: In a large urban school district, with a diverse student population, what is the relationship between CTE student connectedness and academic achievement? To address this question, a total of 10 hypotheses were developed and a series of Pearson correlations were conducted to examine the relationship.

My study was designed to help with understanding the influence student connectedness has on academic achievement, and, within a CTE school context. This study produced results that may be used by educational leaders, teachers, professional development specialists, and future researchers who seek to determine if student connectedness is influencing academic achievement and how the variables of gender, race, and ethnicity generate different beliefs and attitudes about school. A correlation between student connectedness and academic achievement was determined that may help school systems see the value in professionally developing a school environment that emphasizes the need for consistent positive psychological approaches focused on increasing student connection with school. The enhancement of student connectedness with the utilization of research-based methods may lead to academic achievement and student health improvements.

The results of this study suggest that student connectedness has an impact on academic achievement and that ethnic groups within a school may need more attention than others. When students feel supported, cared for, and have access to engaging programs, such as CTE, they are

more likely to connect with school and experience the benefits of better health and academic achievement. Student connectedness is a very important component of school culture and warrants more research on ways to better test for connectedness and to determine how to improve preparation of educational leaders regarding ways to transform the culture of a school and specific populations experiencing school disconnectedness.

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Appendix A: Demographic Questionnaire

What kind of grades do you get in the school outside of CTHS (check only one)?

Mostly A's (4.0)

Mostly B's (3.0)

Mostly C's (2.0)

Mostly D's (1.0)

Mostly F's (0.0)

What kind of grades do you get at CTHS (check only one)?

Mostly A's (4.0)

Mostly B's (3.0)

Mostly C's (2.0)

Mostly D's (1.0)

Mostly F's (0.0)

The following questions will be asked to allow for descriptive analysis and the possibility of post hoc analysis for the purposes of this study.

Do you know how many credits you have earned toward graduation?

Yes

No

How would you describe your school attendance this year?

Perfect, with no days missed.

Near Perfect, with less than 5 days missed

Good, with 5–10 days missed

Poor, with 11–15 days missed

_____ Needs improvement, with over 15 days missed

How likely is it that you will graduate on time?

_____ Very Likely

_____ Somewhat Likely

_____ Unlikely

_____ Not at all

What type of school do you attend when you are not at CTHS (check one)?

_____ a large high school

_____ an alternative school

_____ an alternative optional school

_____ a charter school

_____ home school

What kind of classes do you take (check one)?

_____ Credit recovery

_____ Non-honors

_____ Honors

_____ Honors with 1 AP class

_____ 2 AP Classes

_____ 3 or more AP Classes

I decided to take a class at CTHS because _____ (check one).

_____ a strong interest in a career.

_____ a family member went here.

_____ a counselor recommended it.

- I need credits to graduate.
- I have friends who go here.
- I attended the third session exploratory program
- the courses are interesting and fit my style of learning.

Would you consider graduating from CTHS (check one)?

- Yes
- No

Taking classes at KCC has helped me with other courses outside of CTHS (check one).

- Very Likely
- Somewhat Likely
- Unlikely
- Not at all

On a scale of 1–5, with 5 being excellent and 1 being poor, how would you rate your experience at KCC (check one)?

- 5
- 4
- 3
- 2
- 1

How many classes have you taken so far at CTHS (check one)?

- 1
- 2
- 3

_____ 4

_____ 5 or more

What type of school sponsored extracurricular activities do you participate in (check one)?

_____ Sport

_____ Academic Club

_____ Social Club

_____ None of the above

How many hours per week do you spend participating in school sponsored clubs, sports, or other school activities (check one)?

_____ None

_____ Less than 1 hour per week

_____ 1 to 2 hours per week

_____ 2 to 3 hours per week

_____ 3 to 4 hours per week

_____ 4 to 5 hours per week

_____ More than 5 hours per week

Do you receive any of the following special support services offered by the school district (check one)?

_____ English Language Learner Services

_____ Special Education Services

_____ Migrant Education Services

_____ Two of the above

All of the above

None of the above

After graduation, I plan to (check one).

take my skills from CTHS right into the workforce.

advance my CTHS skills through additional vocational school training.

join the military.

use my CTHS skills to help pay for college.

go to college.

Appendix B: Survey Instrument

Q1 CONSENT FOR ANONYMOUS SURVEY (click consent) **The purpose of this study is to explore student connectedness and academic achievement.** We are offering the survey to all students. No one will be paid to be in the study. To be in the study, you complete this online survey. The survey will ask you questions about your grade point average, attendance, educational experiences, and your connections with peers and staff. Completing the survey should take less than 20 minutes of your time. The online survey is anonymous. We will not ask you any personal identifying information and we will have no record of who completes this survey. **There are no risks** to participating in this study other than the everyday risk of your being on your computer as you take this survey. The benefit is your answers will help us understand better understand the interactions and relationships among students and staff that constitute the King Career Center's learning environment. You could benefit by reflecting on your own educational experience. **All data is collected anonymously.** If you were to write something that made it to where we predict that someone could possibly deduce your identity, we would not include this information in any publication or report. And data you provide would be held privately. All data will be destroyed three years after the study ends. You can stop answering the questions in this online survey if you want to stop. You may print a copy of this for your records. If you have questions you can talk to or write the principal investigator, contact Mr. McGinley at [redacted]. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee

Branch (email obranch@cu-portland.edu or call 503-493-6390).

Q2 Click the button below to consent to take this survey.

I consent (1)

I do not consent (2)

End of Block: Block 1

Start of Block: Please select the best answers, Thanks!

Q3 What Grade are you in?

9 (1)

10 (2)

11 (3)

12 (4)

Q4 I am a

Male (1)

Female (2)

Q5 What racial or ethnic group do you most identify with (check one)?

Alaska Native/American Indian (1)

Black/African American (2)

Mexican/Hispanic/Latino (3)

Asian (4)

Pacific Islander (5)

White (not Hispanic) (6)

Multiracial (7)

Q6 What school do you attend when you are not at CTHS?

Q7 I decided to take a class at CTHS because (check the best choice)

- of a strong interest in career training. (1)
- a family member went to school here. (2)
- a counselor recommended it. (3)
- I need credits to graduate. (4)
- I have friends who go here. (5)
- I attended the third session exploratory program. (6)
- the courses are interesting and fit my style of learning. (7)

Q8 Would you consider graduating from Career Tech High School?

- Yes (1)
- Maybe (2)
- No (3)

Q9 Taking classes at CTHS has helped me with other courses outside of CTHS (check one).

- Very Likely (1)
- Somewhat Likely (2)
- Unlikely (3)
- Not at all (4)

Q10 On a scale of 1–5, with 5 being excellent and 1 being poor, how would you rate your experience at CTHS (check one)?

5 (1)

4 (2)

3 (3)

2 (4)

1 (5)

Q11 How many classes have you taken so far at CTHS (check one)?

1 (1)

2 (2)

3 (3)

4 (4)

5 or more (5)

Q12 Do you know how many credits you have toward graduation?

Yes (1)

No (2)

Q13 How likely is it that you will graduate on time?

- Very likely (1)
- Somewhat likely (2)
- Unlikely (3)
- Not at all (4)

Q14 What kind of grades do you get in school outside of CTHS?

- Mostly A's (1)
- Mostly B's (2)
- Mostly C's (3)
- Mostly D's (4)
- Mostly f's (5)

Q15 What kind of grades do you get at CTHS?

- Mostly A's (1)
- Mostly B's (2)
- Mostly C's (3)
- Mostly D's (4)
- Mostly F's (5)

Q16 How would you describe your school attendance this year?

- Perfect, with no days missed (1)
- Near perfect, with less than 5 days missed (2)
- Good, with 5–10 days missed (3)
- Poor, with 11–15 days missed (4)
- Needs improvement, with over 15 days missed (5)

Q17 What type of school sponsored extracurricular activities do you participate in (check one)?

- Sport (1)
- Academic Club (2)
- Social Club (3)
- None of the Above (4)

Q18 How many hours per week do you spend participating in school sponsored clubs, sports, or other school activities (check one)?

- None (1)
- Less than 1 hour per week (2)
- 1 to 2 hours per week (3)
- 2 to 3 hours per week (4)
- 3 to 4 hours per work (5)
- 4 to 5 hours per week (6)
- More than 5 hours per week (7)

Q19 What kind of classes do you take when you are not at CTHS (check one)?

- Credit Recovery (example:APEX) (1)
- Non-honors (2)
- Honors (3)
- Honors with 1 AP class (4)
- 2 AP classes (5)
- 3 or more AP classes (6)

Q20 Do you receive any of the following special support services offered by the school district (check one)?

- English Language Learner Services (ELL) (1)
- Special Education Services (IEP) (2)
- Migrant Education Services (3)
- Two of the above (4)
- All of the above (5)
- None of the above (6)

Q21 After graduation, I plan to _____ (check one).

- Take my skills from CTHS right into the workforce (1)
- Attend a vocational/technical school (2)
- join the military (3)
- use my CTHS skills to help pay for college (4)
- go to college (5)

Q22 Please select the the best answer.

	Never Feel This Way In School (1)	Seldom Feel This Way In School (2)	Sometimes Feel This Way In School (3)	Occasionally Feel This Way In School (4)	Always Feel This Way In School (5)
I feel like a real part of this school. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People here notice when I'm good at something. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is hard for people like me to be accepted here. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other students in this school take my opinions seriously. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most teachers at my school are interested in me. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q23 Please select the best answer.

	Never Feel This Way In School (1)	Seldom Feel This Way In School (2)	Sometimes Feel This Way In School (3)	Occasionally Feel This Way In School (4)	Always Feel This Way In School (5)
Sometimes I feel as if I don't belong here. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There's at least one teacher or adult in this school I can talk to if I have a problem. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People at this school are friendly to me. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teachers here are not interested in people like me. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am treated with as much respect as other students. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel very different from most other students here. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q24 Please select the best answer.

	Never Feel This Way In School (1)	Seldom Feel This Way In School (2)	Sometimes Feel This Way In School (3)	Occasionally Feel This Way In School (4)	Always Feel This Way In School (5)
I can really be myself at this school. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The teachers here respect me. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People here know I can do good work. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wish I were in a different school. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel proud of belonging to this school. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other students here like me the way I am. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Please select the best answers, Thanks!

Appendix C: Data Collection

Participant#	Age	Gender	Gender code	Race	Ethnicity code	OverallGPA	Connectedness score
1.00	12	Female	1	White (not Hispanic)	1.00	3.50	80.00
2.00	12	Female	1	White (not Hispanic)	1.00	4.00	85.00
3.00	12	Female	1	White (not Hispanic)	1.00	4.00	81.00
4.00	12	Female	1	White (not Hispanic)	1.00	3.00	60.00
6.00	12	Female	1	White (not Hispanic)	1.00	2.00	72.00
10.00	11	Female	1	White (not Hispanic)	1.00	2.50	64.00
12.00	11	Female	1	White (not Hispanic)	1.00	2.50	66.00
26.00	11	Female	1	White (not Hispanic)	1.00	3.00	84.00
27.00	12	Female	1	White (not Hispanic)	1.00	3.50	79.00
62.00	12	Female	1	White (not Hispanic)	1.00	3.00	59.00
88.00	11	Female	1	White (not Hispanic)	1.00	3.00	79.00
89.00	12	Female	1	White (not Hispanic)	1.00	4.00	77.00
91.00	12	Female	1	White (not Hispanic)	1.00	3.00	46.00
94.00	10	Female	1	White (not Hispanic)	1.00	4.00	81.00
102.00	11	Female	1	White (not Hispanic)	1.00	2.00	48.00
107.00	12	Female	1	White (not Hispanic)	1.00	2.50	51.00
123.00	12	Female	1	White (not Hispanic)	1.00	3.50	75.00
127.00	12	Female	1	White (not Hispanic)	1.00	3.00	81.00
129.00	12	Female	1	White (not Hispanic)	1.00	2.00	62.00
5.00	12	Male	2	White (not Hispanic)	1.00	4.00	73.00
8.00	12	Male	2	White (not Hispanic)	1.00	3.00	65.00
13.00	11	Male	2	White (not Hispanic)	1.00	3.50	59.00
16.00	11	Male	2	White (not Hispanic)	1.00	3.50	83.00
17.00	11	Male	2	White (not Hispanic)	1.00	4.00	71.00
19.00	11	Male	2	White (not Hispanic)	1.00	3.50	85.00
22.00	11	Male	2	White (not Hispanic)	1.00	3.00	81.00
28.00	12	Male	2	White (not Hispanic)	1.00	3.00	85.00
30.00	12	Male	2	White (not Hispanic)	1.00	3.00	60.00
32.00	11	Male	2	White (not Hispanic)	1.00	3.50	85.00
45.00	11	Male	2	White (not Hispanic)	1.00	1.00	54.00
48.00	12	Male	2	White (not Hispanic)	1.00	2.50	75.00
49.00	12	Male	2	White (not Hispanic)	1.00	3.00	65.00
51.00	11	Male	2	White (not Hispanic)	1.00	2.50	40.00
52.00	12	Male	2	White (not Hispanic)	1.00	2.50	58.00
53.00	11	Male	2	White (not Hispanic)	1.00	3.00	84.00
56.00	12	Male	2	White (not Hispanic)	1.00	4.00	81.00

59.00	11	Male	2	White (not Hispanic)	1.00	2.50	79.00
66.00	12	Male	2	White (not Hispanic)	1.00	3.50	72.00
67.00	12	Male	2	White (not Hispanic)	1.00	3.50	70.00
71.00	12	Male	2	White (not Hispanic)	1.00	3.00	83.00
79.00	12	Male	2	White (not Hispanic)	1.00	3.50	83.00
80.00	11	Male	2	White (not Hispanic)	1.00	3.50	70.00
81.00	11	Male	2	White (not Hispanic)	1.00	3.50	82.00
85.00	12	Male	2	White (not Hispanic)	1.00	0.00	41.00
92.00	12	Male	2	White (not Hispanic)	1.00	3.50	75.00
95.00	11	Male	2	White (not Hispanic)	1.00	3.00	69.00
96.00	11	Male	2	White (not Hispanic)	1.00	3.50	76.00
98.00	11	Male	2	White (not Hispanic)	1.00	3.50	78.00
103.00	12	Male	2	White (not Hispanic)	1.00	3.50	83.00
104.00	11	Male	2	White (not Hispanic)	1.00	3.00	59.00
105.00	12	Male	2	White (not Hispanic)	1.00	1.50	63.00
108.00	12	Male	2	White (not Hispanic)	1.00	2.50	82.00
121.00	11	Male	2	White (not Hispanic)	1.00	3.00	56.00
21.00	12	Female	1	Black/African American	2.00	3.50	80.00
72.00	12	Female	1	Black/African American	2.00	3.00	48.00
73.00	12	Female	1	Black/African American	2.00	3.50	72.00
57.00	12	Male	2	Black/African American	2.00	3.50	80.00
82.00	12	Male	2	Black/African American	2.00	4.00	85.00
87.00	12	Male	2	Black/African American	2.00	2.00	37.00
128.00	12	Male	2	Black/African American	2.00	3.00	73.00
7.00	12	Female	1	Asian	3.00	3.50	79.00
34.00	11	Female	1	Asian	3.00	3.00	74.00
36.00	11	Female	1	Asian	3.00	4.00	74.00
43.00	12	Female	1	Asian	3.00	3.00	54.00
64.00	12	Female	1	Asian	3.00	4.00	76.00
86.00	12	Female	1	Asian	3.00	3.00	77.00
106.00	12	Female	1	Asian	3.00	3.50	84.00
118.00	12	Female	1	Asian	3.00	4.00	50.00
126.00	12	Female	1	Asian	3.00	2.50	66.00
35.00	12	Male	2	Asian	3.00	4.00	80.00
65.00	12	Male	2	Asian	3.00	4.00	84.00
97.00	10	Male	2	Asian	3.00	4.00	75.00
124.00	12	Male	2	Asian	3.00	3.00	60.00
125.00	12	Male	2	Asian	3.00	3.50	78.00
41.00	12	Female	1	Pacific Islander	4.00	4.00	76.00

114.00	11	Female	1	Pacific Islander	4.00	3.50	76.00
14.00	10	Male	2	Pacific Islander	4.00	2.00	62.00
18.00	12	Male	2	Pacific Islander	4.00	2.50	41.00
61.00	11	Male	2	Pacific Islander	4.00	3.50	56.00
39.00	12	Female	1	Mexican/Hispanic/Latino	5.00	3.50	85.00
46.00	12	Female	1	Mexican/Hispanic/Latino	5.00	2.00	73.00
69.00	12	Female	1	Mexican/Hispanic/Latino	5.00	3.50	79.00
74.00	11	Female	1	Mexican/Hispanic/Latino	5.00	3.50	45.00
78.00	12	Female	1	Mexican/Hispanic/Latino	5.00	2.50	85.00
113.00	11	Female	1	Mexican/Hispanic/Latino	5.00	4.00	71.00
122.00	11	Female	1	Mexican/Hispanic/Latino	5.00	2.00	54.00
25.00	12	Male	2	Mexican/Hispanic/Latino	5.00	2.00	54.00
29.00	12	Male	2	Mexican/Hispanic/Latino	5.00	4.00	63.00
31.00	11	Male	2	Mexican/Hispanic/Latino	5.00	2.00	71.00
38.00	12	Male	2	Mexican/Hispanic/Latino	5.00	2.00	52.00
40.00	12	Male	2	Mexican/Hispanic/Latino	5.00	3.00	38.00
42.00	12	Male	2	Mexican/Hispanic/Latino	5.00	3.50	66.00
44.00	11	Male	2	Mexican/Hispanic/Latino	5.00	2.00	65.00
55.00	12	Male	2	Mexican/Hispanic/Latino	5.00	3.50	78.00
70.00	12	Male	2	Mexican/Hispanic/Latino	5.00	3.50	85.00
115.00	12	Male	2	Mexican/Hispanic/Latino	5.00	3.50	74.00
130.00	11	Male	2	Mexican/Hispanic/Latino	5.00	3.00	57.00
15.00	12	Female	1	Alaska Native/American Indian	6.00	3.50	52.00
33.00	12	Female	1	Alaska Native/American Indian	6.00	4.00	82.00
58.00	12	Female	1	Alaska Native/American Indian	6.00	3.00	69.00
93.00	11	Female	1	Alaska Native/American Indian	6.00	2.50	48.00
99.00	12	Female	1	Alaska Native/American Indian	6.00	3.00	46.00
119.00	11	Female	1	Alaska Native/American Indian	6.00	3.50	64.00
132.00	11	Female	1	Alaska Native/American Indian	6.00	3.00	85.00
24.00	11	Male	2	Alaska Native/American Indian	6.00	3.50	68.00
54.00	12	Male	2	Alaska Native/American Indian	6.00	2.50	56.00
83.00	12	Male	2	Alaska Native/American Indian	6.00	3.50	74.00

112.00	12	Male	2	Alaska Native/American Indian	6.00	3.00	44.00
9.00	12	Female	1	Multiracial	7.00	3.50	84.00
60.00	11	Female	1	Multiracial	7.00	3.50	59.00
68.00	11	Female	1	Multiracial	7.00	3.00	81.00
76.00	12	Female	1	Multiracial	7.00	3.00	79.00
77.00	12	Female	1	Multiracial	7.00	3.00	82.00
84.00	10	Female	1	Multiracial	7.00	4.00	84.00
90.00	11	Female	1	Multiracial	7.00	4.00	77.00
100.00	11	Female	1	Multiracial	7.00	3.00	71.00
101.00	11	Female	1	Multiracial	7.00	3.50	66.00
110.00	12	Female	1	Multiracial	7.00	0.50	46.00
120.00	12	Female	1	Multiracial	7.00	4.00	68.00
11.00	12	Male	2	Multiracial	7.00	2.50	80.00
20.00	12	Male	2	Multiracial	7.00	2.50	72.00
23.00	11	Male	2	Multiracial	7.00	4.00	70.00
37.00	12	Male	2	Multiracial	7.00	2.00	81.00
47.00	11	Male	2	Multiracial	7.00	3.00	56.00
50.00	10	Male	2	Multiracial	7.00	3.00	64.00
63.00	12	Male	2	Multiracial	7.00	3.00	77.00
75.00	12	Male	2	Multiracial	7.00	3.00	85.00
109.00	12	Male	2	Multiracial	7.00	3.50	66.00
111.00	11	Male	2	Multiracial	7.00	3.00	80.00
116.00	12	Male	2	Multiracial	7.00	4.00	62.00
117.00	12	Male	2	Multiracial	7.00	1.50	42.00
131.00	12	Male	2	Multiracial	7.00	3.50	76.00

Appendix D: Letter of Assent

Dear Student:

Congratulations! You have been randomly selected to participate in my research study on student connectedness. If you decide you want to be part of this study, you will be asked to participate by completing a brief survey. The survey will be conducted at school during your class time.

There are some things you should know about this study. The survey is anonymous. Your name will not be revealed in the study nor will your survey answers be linked to you.

When I am finished with this study, I will write a report about what was learned. This report will not include your name or that you were in the study. The information will be published in the hopes that the research will help teachers and schools do a better job understanding student connectedness. It may even help our school do a better job in the future of educating students like you. You do not have to participate in this study, your relationship with me as your administrator, or anything else about what you do at school will not affect your status as a student. If you decide to stop after we begin, that is okay, too. If you decide you want to be in this study, please sign your name.

I, _____, want to be in this research study.

(Sign your name here)

(Date)

Thank you for your attention in reading this form and your consideration in if you want or do not want to be in this study.

Kern McGinley
Investigator email: [redacted]
c/o: Professor Therrell
Concordia University–Portland
2811 NE Holman Street
Portland, Oregon 97221

Appendix E: IRB Approval Letter



CONCORDIA
UNIVERSITY

-PORTLAND, OREGON-

DATE: May 2, 2018

TO: Kern McGinley
FROM: Concordia University–Portland IRB (CU IRB)

PROJECT TITLE: [1213600-2] A Correlational Study: Student Connectedness and Academic Achievement

REFERENCE #: EDD-20180320-Therrell-McGinley

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVED

APPROVAL DATE: May 2, 2018

EXPIRATION DATE: May 2, 2019

REVIEW TYPE: Administrative Review

Thank you for your submission of Amendment/Modification materials for this project. The Concordia University–Portland IRB (CU IRB) has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

The reporting requirements described in the original approval letter for the -1 package of this project remain the same for the -1 and this -2 package of this project.

This submission has received Administrative Review based on the applicable federal regulations. If you have any questions, please contact Dr. OraLee Branch at 503-493-6390 or irb@cu-portland.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Concordia University - Portland IRB (CU IRB)'s records. May 2, 2018

Appendix F: Web Page Announcement Informing Parents

Dear Parent or Guardian:

The [redacted] is conducting a Student Connectedness Survey. The survey measures how students feel about their relationships with peers, adults, and learning at the [redacted]. The goal of this survey is to collect data that will help us explore what student connectedness at the [redacted] means and how our unique learning environment supports student learning.

This survey will be administered to all students at the [redacted] on May 07.

The survey is voluntary, anonymous, confidential, and does not ask questions about students' families. The survey takes 10–15 minutes. The survey and information describing its purpose and benefits to the [redacted] are available at the school office and on our website.

You are free to opt-out of this research study. If you do not want your child to take the survey, please notify me in writing or via email. Saying “no” to this study will not affect you or your child in any way.

Results of this survey will help students and staff to better understand the interactions and relationships among students and staff that constitute the [redacted]'s learning environment.

Thank you for understanding and your cooperation!

Kern McGinley

Appendix G: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously- researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

Statement of academic integrity.

As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

Explanations:

What does “fraudulent” mean?

“Fraudulent” work is any material submitted for evaluation that is falsely or improperly presented as one’s own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate’s final work without full and complete documentation.

What is “unauthorized” assistance?

“Unauthorized assistance” refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another’s work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.

Statement of Original Work (Continued)

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University–Portland Academic Integrity Policy during the development and writing of this dissertation.
2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*

Kern P. McGinley

Digital Signature

Kern P. McGinley

Name (Typed)

July 18, 2019

Date