

THE PREDICTION OF GRADE POINT AVERAGE FROM THE LINEAR COMBINATION
OF PERSISTENCE FACTORS FOR HISPANIC COLLEGE STUDENTS

by

Laurel Lucy Mo

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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ABSTRACT

The purpose of this quantitative predictive correlation study was to address the lack of research regarding the impacts of persistence factors on the educational outcomes of Hispanic college students. The study was a predictive correlation design with a criterion variable of grade point average (GPA). Predictor variables were the persistence factors of institutional commitment, degree commitment, academic integration, social integration, advising effectiveness, collegiate stress, financial strain, scholastic consciousness, academic efficacy, career integration, and academic motivation. The study setting was a two-year public community college serving a county with a population of 218,000 in Northern Arizona. A college persistence and academic success survey converted into an online survey was the instrument used in this study. The sample size was 87 which exceeded the minimum sample size of 66 required for multiple linear regression. Multiple linear regression analytical results indicated a predictive correlation between GPA and various combinations of persistence factors. Recommendations for further research include additional studies to improve the generalizability of this study. This study provides insight into the educational outcomes resulting from the factors that influence the persistence of Hispanic college students. This study is important in the formulation of policies to improve the educational outcomes of the Hispanic population.

Keywords: academic, GPA, Hispanic, outcomes, persistence.

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List of Abbreviations

College Persistence Questionnaire (CPQ)

First Generation College Student (FGCS)

Grade Point Average (GPA)

Hispanic Serving Institute (HSI)

Institutional Review Board (IRB)

Point of Contact (POC)

Socioeconomic status (SES)

CHAPTER ONE: INTRODUCTION

Overview

The purpose of this quantitative, predictive correlation study is to determine if there is a difference in grade point average (GPA) between Hispanic college students with various combinations of persistence factors. Chapter One provides a background for the topic of the impacts of persistence factors on the educational outcomes of Hispanic college students. Included in the background is an overview of the theoretical framework for this study. The problem statement examines the scope of the recent literature on this topic. The purpose of this study is followed by the significance of the current study. Finally, the research question is introduced, and definitions pertinent to this study are provided.

Background

According to the United States Census Bureau, the Hispanic community is the fastest-growing ethnic group in the United States that accounted for 19% of the national population as of the 2020 census (Jones et al., 2021). However, research by Smith et al. (2017) indicated a disparity in educational outcomes as only 23% of Hispanic adults have attained any form of postsecondary degree in contrast to 42% of all American adults. Carales (2020) found that many Hispanic students initiate their post-secondary education at community colleges, however, the financial difficulties of Hispanic students may impact their persistence. Abrica and Dorsten (2020) explained that the familial social contexts of Hispanic students are confounded by cultural expectations to support their families or work several jobs to pay for tuition. Consequently, the authors indicated that familial social contexts may pressure Hispanic college students to decide to work instead of persisting in their post-secondary education.

Historical Overview

According to Nunez and Sansone (2016), the Hispanic population is the one of the least wealthy ethnic groups in the United States and, consequently, unable to attend college without some form of tuition assistance. Data from the 2020 United States census (Jones et al., 2021) indicated that Hispanic household income has improved since 2016, however, the Hispanic poverty rate of 15.7% is still more than twice the 7.3% poverty rate of the Asian and White populations (Creamer, 2020). Research by Berry et al. (2015) found that the increased use of loans for financial aid tended to increase student persistence in academic institutions. Anderson and Goldrick-Rab (2018) observed that students who received need-based financial aid reported working fewer hours consistent with a study by Park and Scott-Clayton (2018) that examined the educational outcomes of students receiving need-based financial aid in a state community college system in 2008-2010 and found that students receiving need-based financial aid tended to report reduced work hours while increasing academic intensity. In addition, Yu (2015) analyzed a sample of students from fifty community colleges in 2003-2004 and observed a negative relationship between long working hours and student persistence. Casillas et al. (2020) found that financial aid increased the persistence and educational outcomes of Hispanic first-generation college students (FGCS) in studies conducted at a university in the southern region of the United States.

Boatman et al. (2018) observed, however, that Hispanic students tended to avoid the use of loans to pay for educational costs and were likely to be more loan-averse than other students. Furthermore, Aguilar and Kim (2019) explained that low-income Hispanic students may perceive that there are no long-term advantages in financing a post-secondary education and, therefore, settle on employment with no requirements for a college degree. The researchers

suggested that components of Hispanic culture may influence the decision of Hispanic students to not borrow money to fund their education and discontinue their college education.

Abrica and Martinez (2016) explained that many Hispanic students are nontraditional students who may be more influenced by cultural norms and familial obligations than by the educational institution in which they are enrolled. Tello and Lonn (2017) described the familial context of Hispanic students to be an interdependent, cohesive, and loyal relationship with family in which the needs of the family take priority over individual needs. Abrica and Dorsten (2020) observed that the familial contexts of Hispanic students are complicated by cultural gender expectations to provide for their families. The familial context is exacerbated by findings by Navarro-Cruz et al. (2021) that approximately 18% of Hispanic males and 33% of Hispanic females have responsibilities for child care while enrolled in college.

Hispanic males may also experience negative perceptions of self-worth from their peers who view working as a masculine attribute, as opposed to attending school which may be seen as less than masculine (Sáenz et al., 2018). The authors found that Hispanic male students often found navigation of post-secondary educational processes to be challenging as they were often unsure of whom they could seek assistance. Sáenz et al. (2018) explained that Hispanic male FGCS could not rely on their families for help in navigating higher educational systems as their families had no experience with college processes and student expectations. In addition, the authors further explained that Hispanic cultural gender expectations of male self-reliance and responsibility for self often make it uncomfortable for Hispanic male college students to ask for help from peers, staff, and faculty. Esquivel et al. (2022) additionally observed that cultural gender expectations tended to make male Hispanic college students averse to seeking mental health counseling when experiencing college stress.

Aguilar and Kim (2019) observed that Hispanic cultural aspects may also deter Hispanic students from using loan-based financial aid for educational expenses and influence decisions to withdraw from college. Abrica and Dorsten (2020) found that cultural familial context and gender stereotypes may further compel Hispanic students to work rather than continue their post-secondary education. These studies indicated that further research is warranted regarding the effect that persistence factors, such as financial aid, familial obligations, institutional support, and other external influences, have on the educational outcomes of Hispanic college students.

Society-at-Large

According to Carales (2020), the Hispanic community is considered to be the most numerous and rapidly increasing ethnic group in the United States which is predicted to comprise 29% of the national population by 2060. The author observed consistent increases in Hispanic student participation in post-secondary education since 1990 with Hispanic students currently accounting for 34% of total higher education enrollments in the United States. Simmons and Smith (2020) reported that Hispanic student enrollments between 2000 and 2014 grew by 119% but educational outcomes were disproportionately less than those of Caucasian students. Capers (2019) estimated that 63.2% of white students and 71% of Asian students graduate within six years of enrollment in contrast to a graduation rate of only 54% for Hispanic students.

Casillas et al. (2020) found that 48% of Hispanic students could be considered first-generation college students (FGCSs) generally from low-income families in which English is not the primary language. The authors observed that Hispanic FGCS are often ill-prepared scholastically as Hispanic FGCS parents are unfamiliar with higher educational institutions and unable to adequately prepare their children for the rigors of post-secondary education. Consequently, Casillas et al. (2020) found that Hispanic FGCSs have been attributed with the

lowest educational outcomes of any ethnic group with only an estimated 19% of Hispanic FGCSs attaining a bachelor's degree within 8 years of graduation from high school. The authors also found that Hispanic FGCSs have the lowest persistence between the first and second years of enrollment in higher educational institutions.

Luciano-Wong and Crowe (2019) stated that the increasing Hispanic population has a significant role in the United States economy as informed voting citizens, as vital consumers, and as members of an increasingly technologically based workforce. Arellano (2020) indicated that the combined phenomena of a fast-growing Hispanic population and low educational outcomes by Hispanic students present issues vital to the American economy that need to be addressed for the sustainment of the United States economy in a technological world market.

Carales (2020) predicted that 65% of future employment opportunities will be requisite on the attainment of post-secondary education. Capers (2019) explained that the United States economy is dependent upon the estimated 30.5 million Hispanic workers present in the workforce as of 2020. Consequently, the authors stressed the importance of addressing issues that may be barriers to successful educational outcomes of Hispanic students that will become necessary for the sustainment of the American economy in the modern global market.

Luciano-Wong and Crowe (2019) indicated that failure to address the low educational outcomes of Hispanic students could also result in income disparity with associated socioeconomic impacts to the Hispanic community and American society at large. Demographic research by Mora and Davila (2018) explained that the wage gap between Hispanic workers and White workers has remained unchanged for nearly two decades due primarily to low educational attainment by members of the Hispanic population. Capers (2019) estimated that 31% of American adults between 25 and 34 years of age have attained a bachelor's degree while only

13% of young Hispanic adults have attained a bachelor's degree. The author explained that the low educational attainment of the Hispanic population hinders the economic and social advancement of the Hispanic community. Capers (2019) concluded that understanding the factors influencing Hispanic persistence and educational outcomes is necessary in order to improve the educational attainment of the Hispanic population.

Theoretical Background

The subject topic focused on the impacts of persistence factors on Hispanic college educational outcomes. The theoretical framework guiding this study included Bronfenbrenner's ecological systems theory (Bronfenbrenner, 1979), in which human development is the product of environmental interactions, including cultural experiences; Tinto's theory of student departure (Tinto, 1975), whereby, academic and social integration are factors influencing the decision to withdraw from academic institutions; Bean and Metzner's theory of nontraditional student departure (Bean & Metzner, 1985), whereby, external influences, such as family, work, and finances factor into the decision to withdraw from academic institutions; and Nora's model of student/institution engagement that extended previous theories of student departure into a proposed model of student/institution engagement as the result of studies of Hispanic college students (Nora, 2003).

Bronfenbrenner's ecological systems theory involved two developmental principles: personal experiences cannot be disconnected from their settings and individuals shape and are shaped by their social contexts (Bronfenbrenner, 1979). Since scholastic institutions, family, work, and culture could be viewed as ecological systems that influence Hispanic student persistence and educational outcomes, Bronfenbrenner's ecological systems theory would be

applicable for guiding research regarding the impact of persistence factors on Hispanic student educational outcomes.

Ecological systems theory principles and the effect of cultural and ideological context are apparent in Tinto's theory of student departure. Tinto (1975) developed a theory to explain individual interactions with academic institutions that influence individual students to withdraw from school that was based on Durkheim's theory of suicide. Durkheim (1951) theorized that suicide is more likely to occur when individuals are not adequately incorporated into society and the probability of suicide is greater when the values of a person differ from societal values and personal associations with other members of society are lacking. Tinto (1975) applied Durkheim's theory of suicide to his model of student departure by considering academic institutions as social systems with intrinsic characteristics, values, and social constructs.

Accordingly, Tinto (1975) theorized that insufficient student integration into academic institutional social systems can manifest in low individual commitment to the academic social system and increase the probability that an individual student will withdraw from the educational institution. Therefore, Tinto (1975) believed that the process of student departure from an academic institution consists of the interactions between individual students and school academic and social systems that influence students to modify their objectives and commitments to either persist or withdraw from the academic institution.

Whereas some Hispanic students may be traditional students for which Tinto (1975) is applicable, other Hispanic students may be nontraditional students who are employed while attending an educational institution and may have familial obligations that constrain the time available for academic and social interactions within the educational institution. Bean and Metzner (1985) studied the social contexts of nontraditional students and theorized that

nontraditional students are more influenced by external social environments than by the institutional social variables influencing traditional student persistence proposed by Tinto (1975). The theorists described nontraditional students as students who are either 24 years of age or older, attend school part-time, or do not live on campus; are not influenced by academic institutional social aspects; and are only interested in the scholastic aspects of the academic institution.

Bean and Metzner (1985) described finances, work, family commitments, and external support systems as the social environments outside of the academic institution that influence nontraditional student persistence. Consequently, the researchers postulated that there were four variables influencing the decisions of nontraditional students to withdraw from an academic institution. These variables included academic performance; psychological outcomes and formation of intent to withdraw; student background and academic objectives; and the social environment outside of the academic institution (Bean & Metzner, 1985). Some Hispanic students could be considered nontraditional students as defined by Bean and Metzner (1985) as they may be attending college while employed, may not live on campus, and may believe that family commitments are more important than the social characteristics of the academic institution. While Bean and Metzner (1985) did examine ethnicity in their study, they did not account for different ethnicities and grouped all study participants as either white or minority students. The authors found that minority students had lower GPAs than white students and attributed minority student intention to drop out as the result of minority student GPA, thus, establishing a correlation between minority college student persistence and educational outcomes. Accordingly, Bean and Metzner's theory of nontraditional student departure could

appropriately guide research on the impact of persistence factors of financial aid, familial context, and cultural aspects on Hispanic college student educational outcomes.

Nora (2003) extended previous theories of student departure into a proposed model of student/institution engagement as the result of studies of Hispanic college students. The author postulated that the decision by a Hispanic college student to persist in post-secondary education is influenced by an interrelated collective of demographic and precollege variables; environmental pull factors; and cognitive and psychosocial factors. Nora (2003) described demographic variables to be the characteristics that individual students possess as they engage with a post-secondary educational institution. The author stated that demographic variables include age, gender, race/ethnicity, socioeconomic status (SES), academic preparation, first-generation status, delayed enrollment, and educational aspiration. Nora (2003) explained that environmental pull factors were those life situations that tended to pull Hispanic college students away from their educational endeavors and led to their decisions to withdraw from post-secondary educational institutions. The authors found that environmental pull factors for Hispanic college students included financial aid, work, and family. Nora (2003) described psychosocial factors to be those cognitive abilities and experiences that affect the ability of an individual Hispanic college student to interact within the academic and asocial constructs of a post-secondary educational institution. The author explained that psychosocial factors include self-efficacy, motivation, sense of belonging, college stress, institutional cultural climate, and mentoring. Accordingly, Nora's model of student/institution engagement could appropriately guide research on the impact of persistence factors on Hispanic college student educational outcomes.

Problem Statement

According to Carales (2020), tuition can impede the educational outcomes of Hispanic students relying on financial aid. Research has had contradictory findings regarding the effect that financial aid has on student persistence and educational attainment. Chen and Hossler (2017) found that any financial aid increased the persistence of 3,390 first-year nontraditional students receiving financial aid from 2003-2004, while Anderson and Goldrick-Rab (2018) found that state financial aid had little effect on the persistence of 1,063 students in Wisconsin from 2008-2013 and Herzog (2018) found that student loans had a negative effect on low-income student persistence in a study of 3,730 first-year students at a public university.

Research indicated that financial aid could improve Hispanic college student persistence. A study by Latino et al. (2020) of 2,499 first-year Hispanic students enrolled in 2012 at a Hispanic-serving college found that financial aid increased the persistence of first-generation students similar to the findings of Carales (2020) and his study of 800 Hispanic students at community colleges. However, Boatman et al. (2018) indicated that cultural aspects, such as a tendency towards loan aversion, may influence decisions associated with financial aid and influence low-income Hispanic students to drop out of college, rather than take on student loans. In addition, Aguilar and Kim (2019) explained that low-income Hispanic students may also believe that working is more financially advantageous than the investment of time and money in a college education. Abrica and Dorsten (2020) suggested that gendered familial contexts may also cause Hispanic males to work instead of persisting in school.

Carales (2020) observed that while research has been focused on Hispanic student persistence, there have been few quantitative studies exclusively examining Hispanic student persistence and educational outcomes. Consequently, the author examined the educational

outcomes of a sample of 800 Hispanic students from a national database of enrollments at community colleges in the United States to determine factors affecting persistence and educational outcomes. Analysis by Carales (2020) indicated that factors influencing Hispanic college student persistence included enrollment intensity, academic integration, and financial aid, while factors predicting certificate or degree completion by a Hispanic college student included citizenship status, home language, family income, academic performance, and financial aid.

Carales (2020) did not include psychosocial factors, such as student sense of belonging, motivation, or institutional cultural climate in the analysis, as specifications of those factors were not included in the sampled national database used in the study. The author recognized that the inclusion of psychosocial factors could have varied the prediction of educational outcomes in the study. Consequently, the author recommended that future research consider the inclusion of psychosocial factors with other persistence factors to address Hispanic college student persistence and educational outcomes more comprehensively.

Martin et al. (2017) stated that research regarding GPA as an educational outcome is important in addressing racial and ethnic academic achievement inequities. The authors explained that GPA is often used in establishing academic standing, financial aid eligibility, admission criteria for courses of study, and graduate school, as well as post-graduation employment. Acee et al. (2018) maintained that GPA is also a relevant indicator of community college student progress toward the attainment of an associate degree or sufficient credit for transfer to a four-year degree-granting university or college. Martin et al. (2017) observed that though many factors have been indicated that may contribute to racial and ethnic academic achievement inequities, comprehensive studies of the range of factors influencing the educational

outcomes of Hispanic college students need to be conducted to facilitate the reduction of racial and ethnic academic achievement inequities.

Accordingly, the problem is that more research is needed to determine how accurately the educational outcome of grade point average (GPA) can be predicted from the linear combination of comprehensive persistence factors for Hispanic college students to address the gaps identified by Carales (2020) and Martin et al. (2017).

Purpose Statement

The purpose of this quantitative predictive correlation study is to address the lack of research regarding the impact of persistence factors on the educational outcomes of Hispanic college students. The study will be a predictive correlation design with a criterion variable of student GPA. The scale for GPA will be 0-4 in which a D has a value of 1, a C has a value of 2, a B has a value of 3, and an A has a value of 4. Predictor variables will be persistence factors of institutional commitment, degree commitment, academic integration, social integration, advising effectiveness, collegiate stress, financial strain, scholastic consciousness, academic efficacy, career integration, and academic motivation that were found by Beck et al. (2015) and Beck and Davidson (2016) to encompass the persistence factors theorized by Tinto (1975) and Bean and Metzner (1985). Beck et al. (2015) described academic and social integration as the degree by which students adjust to an educational institution as influenced by academic and social interactions, and advising as the perceptions that minority students develop towards an educational institution regarding fulfillment of their needs and respect. The authors explained that degree commitment is the significance that students place into efforts to achieve an educational goal, while institutional commitment is the intention of a student to continue enrollment or disenroll based on the degree by which the student believes that the school is

conducive to their educational goals and personal context. Beck et al. (2015) described collegiate stress as the pressure felt by students from the academic environment and financial stress as student worries about meeting their financial needs while attending school. The authors explained that scholastic conscientiousness relates to student ability to attend class and complete coursework on time. Beck et al. (2015) described academic efficacy as student confidence in their scholastic abilities and academic motivation as student enthusiasm and commitment to academic tasks. Career integration is the extent to which a student believes that the education that they are receiving is in alignment with their employment goals (Beck & Davidson, 2016). The study population will consist of students in a college located in Northern Arizona who identified their ethnicity as Hispanic for academic year 2023-2024.

Significance of the Study

According to Luciano-Wong and Crowe (2019), the Hispanic community is a rapidly growing ethnic population in the United States, yet Hispanic students have the lowest educational outcomes of any other ethnic group, indicating that cultural contexts may influence Hispanic student persistence and educational outcomes. Aguilar and Kim (2019) explained that Hispanic cultural attributes may cause Hispanic students to not consider loans for educational expenses and influence decisions to withdraw from college. Many Hispanic students are also nontraditional students who may be more influenced by cultural familial obligations than by the expectations of academic institutions (Abrica & Dorsten, 2020). The unique aspects of Hispanic students suggest that studies explicit to the relationship between Hispanic student persistence and educational outcomes are warranted.

This study will extend Bronfenbrenner's ecological systems theory into the familial and cultural environments of Hispanic college students. This study will also add to the existing body

of knowledge regarding student persistence by building off of Bean and Metzner's theory of nontraditional student departure in which external factors, such as family, work, and finances influence Hispanic student decisions to withdraw from academic institutions. Empirically, this study will provide insight into the educational outcomes resulting from the factors influencing the persistence of Hispanic college students observed by Abrica and Dorsten (2020), Boatman et al. (2018), and Carales (2020).

This study is important in the formulation of policies and programs intended to improve the persistence and educational outcomes of the Hispanic population. Carales (2020) predicted that 65% of future employment opportunities will require some form of post-secondary education. Capers (2019) explained that the American economy depends upon an estimated 30.5 million Hispanic workers present in the workforce. Luciano-Wong and Crowe (2019) indicated the low educational outcomes by Hispanic students can also result in income disparity with associated socioeconomic impacts on the Hispanic community and American society at large. The authors explained that the low educational attainment of the Hispanic population negatively impacts the economic and social advancement of the Hispanic community. Luciano-Wong and Crowe (2019) emphasized the importance of addressing barriers to the persistence and educational achievement of Hispanic students. Accordingly, this study will serve to guide the implementation of policies and programs that facilitate increased Hispanic student persistence and positive educational outcomes.

Research Question

The problem is that more research is needed to determine how accurately GPA can be predicted from the linear combination of persistence factors for Hispanic college students.

Accordingly, the following research question is proposed.

RQ1: How accurately can GPA be predicted from the linear combination of persistence factors (institutional commitment, degree commitment, academic integration, social integration, advising effectiveness, collegiate stress, financial strain, scholastic consciousness, academic efficacy, career integration, and academic motivation) for Hispanic college students?

Definitions

1. *Academic Efficacy* – Student confidence in their scholastic abilities (Beck et al., 2015).
2. *Academic Integration* – The degree to which students adjust to an educational institution as influenced by academic interactions (Beck et al., 2015).
3. *Acculturation* – How a person adopts and adapts to a dominant culture (Holloway-Friesen, 2018).
4. *Advising Effectiveness* – The perceptions that students develop of an educational institution regarding respect and fulfillment of their needs (Beck et al., 2015).
5. *Career Integration* – The extent to which a student believes that the education that they are receiving is in alignment with their employment goals (Beck & Davidson, 2016).
6. *Collegiate Stress* – The pressure felt by students from the academic environment (Beck et al., 2015).
7. *Degree Commitment* – The significance that students place on efforts to achieve an educational goal (Beck et al., 2015).

8. *Environmental Pull Factors* – The circumstances that tend to cause Hispanic students to persist or withdraw from postsecondary educational institutions (Carales, 2020).
9. *Familial Social Context* – The cultural expectations of Hispanic students to support their families or work several jobs to pay for tuition (Abrica & Dorsten, 2020).
10. *Financial Stress* – Student worries about meeting their financial needs while attending school. (Beck et al., 2015).
11. *First Generation College Student* – A student who is the first member of their family to attend a post-secondary educational institution (Latino et al., 2018).
12. *Institutional Commitment* – The intention of a student to continue enrollment or disenroll based on the degree to which the student believes that the school is conducive to their educational goals and personal context (Beck et al., 2015).
13. *Loan Aversion* – The tendency to not take out loans to fund educational costs (Boatman et al., 2018).
14. *Minority status stress* – The stress incurred by minority students who perceive that negative academic and social experiences at school are the result of their ethnicity (Arbona et al., 2018).
15. *Nontraditional Student* – A student who is either 24 years of age or older, attends school part-time, or does not live on campus; is not influenced by educational institutional social aspects; and is only interested in the scholastic aspects of the post-secondary educational institution (Bean & Metzner, 1985).
16. *Scholastic Conscientiousness* – Student ability to attend class and complete coursework on time (Beck et al., 2015).

17. *Social Integration* – The degree to which students adjust to an educational institution as influenced by social interactions (Beck et al., 2015).
18. *Student Persistence* – The decision by a student to remain enrolled in a post-secondary educational institution (Tinto, 1975).

CHAPTER TWO: LITERATURE REVIEW

Overview

The purpose of this literature review is to describe the factors that impact the persistence of Hispanic college students and to review the relationship between persistence and educational outcomes. The chapter opens with the theoretical framework. This study is grounded first in Bronfenbrenner's (1979) ecological systems theory that human development is the product of environmental interactions, including cultural experiences. In addition, Tinto's (1975) theory of student departure whereby, academic and social integration are factors influencing the decision to withdraw from academic institutions; Bean and Metzner's (1985) theory of nontraditional student departure whereby, external influences, such as family, work, and finances factor into the decision to withdraw from academic institutions; and Nora's (2003) model of student/institution engagement are also foundational to this research study. A thorough review of the literature pertinent to Hispanic college student persistence factors and educational outcomes completes the chapter with a summary.

Theoretical Framework

The subject topic focused on the impacts of persistence factors on Hispanic college educational outcomes. The theoretical framework guiding this study included Bronfenbrenner's ecological systems theory (Bronfenbrenner, 1979), in which human development is the product of environmental interactions, including cultural experiences; Tinto's theory of student departure (Tinto, 1975), whereby, academic and social integration are factors influencing the decision to withdraw from academic institutions; and Bean and Metzner's theory of nontraditional student departure (Bean & Metzner, 1985), whereby, external influences, such as family, work, and finances factor into the decision to withdraw from academic institutions. Nora's model of

student/institution engagement based on previous theories of student departure provided insight into factors influencing Hispanic college student persistence (Nora, 2003). The results of this research will add to the knowledge base regarding Hispanic college student educational outcomes by providing insight into the influences combinations of the various Hispanic student persistence factors have on educational outcomes.

Ecological Systems Theory

Bronfenbrenner (1979) believed that studies of human development necessitate the examination of various people in settings that could account for the environmental aspects outside the proximity of the subject. Bronfenbrenner (1979) theorized that individual development occurs through dynamic associations between individuals and various levels of their ecological environment. His ecological systems theory postulated two developmental principles: personal experiences cannot be separated from their settings and individuals influence and are influenced by their social context. Tudge et al. (2021) explained in their study of Bronfenbrenner's (1979) ecological systems theory that the development of an individual in ecological systems theory can be viewed as the result of increasingly more sophisticated and complicated interactions made by an individual with other persons in their various environments.

Bronfenbrenner (1979) theorized that there were four distinct ecological systems nested around an individual in concentric circles. He believed that the innermost system was a microsystem of settings in which individuals have explicit roles, experiences, and associations with other people. Bronfenbrenner (1979) theorized a second system as a mesosystem consisting of exchanges between various contextual settings within an individual microsystem. He theorized that an exosystem, including indirect influences from settings that the individual does

not engage in, surrounds the mesosystem and a macrosystem of cultural and ideological influences on the individual, in turn, encompasses the exosystem.

Neal and Neal (2013) used the example of child development to illustrate Bronfenbrenner's ecological systems theory. The authors described the family as a microsystem of a child where the child may be a daughter who has explicit experiences with the family, such as eating a meal, and explicit social experiences, such as sharing a book with a parent. Neal and Neal (2013) explained that a parent-teacher conference is an example of the family microsystem interacting socially with the educational institution microsystem. The authors described school policies as an exosystem in which the child does not have a direct role, however, the school policies do influence the development of the child. Neal and Neal (2013) explained that national educational policies, such as standardized testing, could be viewed as a macrosystem that represents a broad ideology with long-term ramifications for the development of the child.

Scholastic institutions, family, work, and culture could be viewed as interrelated, nested ecological systems that influence the persistence and educational outcomes of a Hispanic college student. Consequently, Bronfenbrenner (1979) is applicable for guiding research regarding the impact of persistence factors on Hispanic college student academic performance.

Tinto's Theory of Student Departure

Ecological systems theory principles and the effect of cultural and ideological context are apparent in Tinto's theory of student departure. Tinto (1975) developed a theory to explain individual interactions with academic institutions that influence individual students to withdraw from school that was based on Durkheim's theory of suicide. Durkheim (1951) theorized that suicide is more likely to occur when individuals are not adequately incorporated into society and the probability of suicide is greater when the values of a person differ from societal values and

personal associations with other members of society are lacking. Tinto (1975) applied Durkheim's theory of suicide to his model of student departure by considering academic institutions as social systems with intrinsic characteristics, values, and social constructs.

Accordingly, Tinto (1975) theorized that insufficient student integration into academic institutional social systems can manifest in low individual commitment to the academic social system and increase the probability that an individual student will withdraw from the educational institution. Therefore, Tinto (1975) believed that the process of student departure from an academic institution consists of the interactions between individual students and school academic and social systems that influence students to modify their objectives and commitments to either persist or withdraw from the academic institution. Whereas some Hispanic students may be traditional students for which Tinto (1975) is applicable, other Hispanic students may be nontraditional students who are employed while attending an educational institution and may have familial obligations that constrain the time available for academic and social interactions within the educational institution.

Bean and Metzner's Theory of Nontraditional Student Departure

Tinto's theory of student departure may not be appropriate for studies regarding the persistence of nontraditional Hispanic students who may be employed while attending an academic institution or who may have familial obligations or commitments that are deemed by students to be more important than social obligations to the academic institution. Bean and Metzner (1985) studied the social contexts of nontraditional students and theorized that nontraditional students are more influenced by external social environments than by the institutional social variables influencing traditional student persistence proposed by Tinto (1975). The theorists described nontraditional students as students who are either 24 years of age or

older, attend school part-time, or do not live on campus; are not influenced by academic institutional social aspects; and are only interested in the scholastic aspects of the academic institution.

Bean and Metzner (1985) described finances, work, family commitments, and external support systems as the social environments outside of the academic institution that influence nontraditional student persistence. Consequently, the researchers postulated that there were four variables influencing the decisions by nontraditional students to withdraw from an academic institution. These variables included academic performance; psychological outcomes and formation of intent to withdraw; student background and academic objectives; and the social environment outside of the academic institution (Bean & Metzner, 1985). Some Hispanic students could be considered nontraditional students as defined by Bean and Metzner (1985) as they may be attending college while employed, may not live on campus, and may believe that family commitments are more important than the social characteristics of the academic institution. While Bean and Metzner (1985) did examine ethnicity in their study, they did not account for different ethnicities and grouped all study participants as either white or minority students. The authors found that minority students had lower GPAs than white students and attributed minority student intention to drop out as the result of minority student GPA, thus, establishing a correlation between minority college student persistence and educational outcomes. Accordingly, Bean and Metzner's theory of nontraditional student departure could appropriately guide research on the impact of persistence factors of financial aid, familial context, and cultural aspects have on Hispanic college student educational outcomes.

Nora's Model of Student/Institution Engagement

Nora (2003) extended previous theories of student departure into a proposed model of student/institution engagement as the result of studies of Hispanic college students. The author postulated that the decision by a Hispanic college student to persist in post-secondary education is influenced by an interrelated collective of demographic and precollege variables; environmental pull factors; and cognitive and psychosocial factors. Nora (2003) described demographic variables to be the characteristics that individual students possess as they engage with a post-secondary educational institution. The author stated that demographic variables include age, gender, race/ethnicity, socioeconomic status (SES), academic preparation, first-generation status, delayed enrollment, and educational aspiration. Nora (2003) explained that environmental pull factors were those life situations that tended to pull Hispanic college students away from their educational endeavors and led to their decisions to withdraw from post-secondary educational institutions. The authors found that environmental pull factors for Hispanic college students included financial aid, work, and family. Nora (2003) described psychosocial factors to be those cognitive abilities and experiences that affect the ability of an individual Hispanic college student to interact within the academic and asocial constructs of a post-secondary educational institution. The author explained that psychosocial factors include self-efficacy, motivation, sense of belonging, college stress, institutional cultural climate, and mentoring.

Related Literature

Related literature associated with Hispanic college student persistence factors and educational outcomes was reviewed. Hispanic college student persistence factors included environmental pull factors of financial aid, work, and familial context as described within this section. Psychosocial persistence factors included sense of belonging, motivation, college stress, mentoring, institutional cultural climate, career integration, and self-efficacy.

Persistence Factors

Carales (2020) examined the variables influencing the educational outcomes of 800 Hispanic students enrolled in community colleges during academic years 2003-2004 using Nora's (2003) student/institution engagement model. The researcher found that educational outcomes were influenced by demographic variables, college experiences, and environmental pull factors. Carales (2020) explained that demographic variables included home language, citizenship, and socio-economic class, while college experiences involved academic integration, first-year GPA, and enrollment intensity. The author further explained that Hispanic college student persistence factors consisted of the environmental pull factors that tended to pull students in or out of school. Carales (2020) stated that the primary environmental pull factors for Hispanic college students were financial aid, work obligations, and family commitments. Psychosocial factors of sense of belonging, self-efficacy, mentoring, stress, career integration, and institutional cultural climate were also indicated to be predictors of persistence for Hispanic motivation, college students by Carales and Nora (2020), Chang (2023), Holloway-Friesen (2018), and Manzano-Sanchez et al. (2018).

Impact of Financial Aid

According to the United States Census Bureau, the Hispanic community is the fastest-growing ethnic group in the United States that accounted for 19 % of the national population as of the 2020 census (Jones et al., 2021). However, research by Smith et al. (2017) indicated a disparity in educational outcomes as only 23 % of Hispanic adults have attained any form of postsecondary degree in contrast to 42 % of all American adults. According to Casillas et al. (2020), Hispanic students are more likely to come from low-income families than other students and financial aid may be the only option for them to attend college. Luna-Torres et al. (2019) explained that postsecondary education may cost low-income students as much as half of their household income. Consequently, literature was reviewed to identify the impact of the different forms of financial aid on Hispanic student persistence and educational outcomes.

Loans and Grant Aid

Literature was reviewed to identify studies indicating the effect that student loans and grants have on student persistence and academic achievement. Millea et al. (2018) examined the persistence and educational outcomes of 12,812 students enrolled at a public university in the Southeastern region of the United States between 1998 and 2004. The researchers found that non-loan financial aid increased persistence and educational outcomes while student loans decreased persistence and educational outcomes. Similar findings were made by Stoddard et al. (2018) of 97,084 students in Montana colleges with loans for some portion of their enrollments between 2002 and 2012. In their study, Stoddard et al. (2018) found students with loans had lower persistence and educational outcomes than students without loans, and increasing non-loan financial aid caused increases in persistence and educational outcomes. In addition, Herzog (2018) reported that student loans had a negative effect on low-income student persistence in a

study of 3730 first-year students at a public university. Contradictory findings regarding the impact of financial aid on student persistence and educational outcomes were reported by Chen and Hossler (2017) who found that while any financial aid increased persistence, need-based aid had the greatest effect on the outcomes of 3390 first-year nontraditional students receiving financial aid as loans or need-based grants from 2003-2004. In addition, Anderson and Goldrick-Rab (2018) found that need-based financial aid had little effect on the persistence of 1063 students in Wisconsin from 2008-2013.

Demographics, including race and ethnicity, were only discussed in two of the reviewed studies. While Chen and Hossler (2017) and Herzog (2018) included demographics of race and ethnicity in their analyses, the sampling of Hispanic students was underrepresented by comparison to the study by Simmons and Smith (2020) that found Hispanic students as comprising 34% of national college enrollments. In addition, neither Chen and Hossler (2017) nor Herzog (2018) reported results in terms of race or ethnicity.

The importance of including Hispanic students in financial aid studies is that cultural aspects may deter them from funding their education with student loans and decrease student persistence. Carales (2020) found that Hispanic college students with educational loans were nearly four times more likely to complete a degree program than those without financial aid. A study by Casillas et al. (2020) of 2499 first-year Hispanic students enrolled in 2012 at a Hispanic-serving college found that financial aid increased the persistence of first-generation college students similar to the findings of Carales (2020) and his study of 800 Hispanic students at community colleges. While Casillas et al. (2020) did not differentiate between types of financial aid, Carales (2020) found that grant aid was more likely to have a greater impact on Hispanic student persistence than student loans. Carales (2020) also reported that academic

integration combined with grant aid positively influenced Hispanic student persistence similar to the effect observed by Casillas et al. (2020).

Boatman et al. (2018) studied the tendency of some students to not borrow money for post-secondary educational costs. They found that while 35% of all undergraduate students received some form of educational loan, Hispanic students were more likely to be loan averse than white students, suggesting that a cultural component of Hispanic students may influence the decision to not borrow money for educational expenses. Boatman et al. (2018) speculated that, perhaps, parental education or citizenship status may cause Hispanic students to be more loan-averse than white students. Aguilar and Kim (2019) explained that low-income Hispanic students may also perceive that there are no long-term advantages in financing a post-secondary education and, therefore, settle on employment with no requirements for a college degree.

Caution needs to be exercised when comparing studies of financial aid, as there are different types of grant aid in the form of merit-based or need-based grants according to research by Nguyen et al. (2019). Merit-based grants are awarded based on individual academic performance while need based grants are based on the student and family financial situation (Nguyen et al., 2019). In those cases, the researchers found that merit-based grant programs had little effect on persistence, while need-based grant programs positively influenced persistence. As much of the current literature regarding financial aid and student persistence has been on a state level, the conflicting results may be an edifice of the type of grant aid and the amount, which can vary by source. In addition, since most of these studies were constrained to specific state financial aid programs or individual educational institutions, it is plausible that factors of locality may be influencing the effect that financial aid plays in student outcomes. Such factors may be present in the administration of the financial aid program, tuition, student demographics,

and post-graduate employment opportunities. Regardless, the conflicting findings are cause for further research and indicate that financial aid specificity and local community effects need to be considered in studies of Hispanic student persistence and educational outcomes.

Financial Aid and Student Work

Literature was reviewed to identify the effects that financial aid has on student work outside of the collegial environment. Sáenz et al. (2018) observed a negative relationship between the amount of work performed by a student and the probability of persistence. Anderson and Goldrick-Rab (2018) found that students who received state need-based aid reported fewer work hours. Park and Scott-Clayton (2018) examined the educational outcomes of 89,205 students receiving need-based aid in a state community college system in 2008-2010 and found evidence that students receiving aid seemed to reduce their work hours while increasing enrollment intensity. These studies indicate that financial aid could have a positive effect on Hispanic students who, according to Abrica and Dorsten (2020), may feel cultural pressure to work instead of persisting in school.

Impact of Culture on Hispanic Student Persistence and Educational Outcomes

Bronfenbrenner (1979) theorized that culture has significant effects on human development, while Bean and Metzner (1985) proposed that the environment external to nontraditional students influences student persistence. Nora (2003) extended previous theories of student departure into a proposed model of student/institution engagement as the result of studies of Hispanic college students. The author postulated that the decision by a Hispanic college student to persist in post-secondary education is influenced by a culturally interrelated collective of demographic and precollege variables; environmental pull factors; and cognitive and psychosocial factors. Consequently, literature associated with the cultural aspects of Hispanic

college student were reviewed to further identify the impacts of external factors on Hispanic student persistence and educational outcomes.

Hispanic Familial Context

Literature was reviewed to understand the effects that Hispanic family cultural values may have on student persistence. Elliott and Parks (2018) explained that Hispanic families often consist of extensive intergenerational associations of related individuals that provide mutual support for family members. According to Tello and Lonn (2017), the cooperative nature of family is a core Hispanic cultural value with an expectation that members prioritize family needs before their own. Elliott and Parks (2018) further explained that familial context may compel Hispanic college students to be more involved in family matters than academic and social interactions at their schools. Studies by Azmitia et al. (2019) indicated that Hispanic college students often reported family responsibilities for advocacy, language translations, financial arrangements, caring for family property, babysitting, income contributions, and advice. Chang (2023) explained that while family responsibilities serve to maintain Hispanic college student bonds with their families, the cultural prioritization of family before individual needs reduced the amount of time available for academic endeavors.

Abrica and Dorsten (2020) found that the familial contexts of Hispanic students are complicated by the gender expectations of their families. Elliott and Parks (2018) explained that gender expectations are prevalent in the Hispanic culture. The authors observed that the traditional concept of machismo molds the identity of Hispanic males as the main wage earners in their families. Conversely, according to Elliott and Parks (2018), females in traditional Hispanic culture are expected to manage the domestic aspects of their families including taking care of their homes and children. However, Brown et al. (2023) found that while Hispanic

students who are parents experience a great deal of stress, they are motivated to persist in their goals for the betterment of their children.

Abrica and Dorsten (2020) explained that familial contexts may cause Hispanic male students to feel pressured to work instead of persisting in their education. Sáenz et al. (2018) observed that Hispanic males may also experience negative perceptions of self-worth from their peers who view working as a masculine attribute, as opposed to attending school which may be seen as less than masculine. In addition, the authors found that the machismo aspect of Hispanic culture can cause Hispanic male students to be averse to seeking help which can make navigation of post-secondary educational processes challenging. Sáenz et al. (2018) wrote that the impact of the familial contexts of Hispanic males on persistence is little understood as research has not focused on the influences of gender in the Hispanic culture on educational outcomes. However, the researchers have observed that Hispanic male college students graduate at a much lower rate than other college students. Sáenz et al. (2018) explained that studies indicated that only 5% of Hispanic male college students graduate with an associate degree or certificate within three years of enrollment at community college in contrast to 32% of white male college students. Camacho et al. (2023) recommended research and policies aimed at engaging male Hispanic college students within their cultural gender context to improve their educational outcomes. Jones and Sáenz (2020) found that institutional cultures that support Hispanic male contexts may increase the connection and sense of belonging of male Hispanic college students.

According to Navarro-Cruz et al. (2021), the impact of familial contexts of Hispanic female students on persistence is further exacerbated as approximately 33% of Hispanic female students are also mothers challenged with the financial and physical aspects of raising children while attending college. Rodriguez et al. (2021) observed that Hispanic female college students

may feel conflicted by the rigors of academic life and familial expectations especially if their concept of self is based on their family bonds and cultural female roles. The authors explained that the gendered cultural expectation of placing the needs of the family over individual needs can adversely affect Hispanic female college student persistence. Zollner (2022) observed similar results in her study of female Hispanic college students at an HSI. Biggs and CIPHER (2023) also found that conflicts between financial and work responsibilities may tend to cause a disproportionate number of Hispanic nursing school students to drop out of courses.

Aguilar and Kim (2019) observed that a Hispanic cultural tendency to be loan averse may deter Hispanic students from using loan-based financial aid for educational expenses and influence decisions to withdraw from college. Long (2022) explained that Hispanic college students tend to work while attending school to minimize their debt. Abrica and Dorsten (2020) found that cultural familial context and gender stereotypes may further compel Hispanic students to work rather than continue their post-secondary education. Consequently, Carales (2020) concluded that the familial contexts and corresponding family responsibilities of both male and female Hispanic students are significant persistence factors for Hispanic students.

First Generation College Students

Pratt et al. (2019) estimated that 20% of United States students of all races and ethnicities in four-year colleges are first-generation college students (FGCS). The authors observed it is 71% more probable that an FGCS will withdraw from school in the first year than non-FGCS. Pratt et al. (2019) found that FGCS persistence issues continue in subsequent years with a pronounced difference between graduation rates of FGCS and non-FGCS. The authors reported that FGCS have only a 13% graduation rate within five years of enrollment in contrast with a graduation rate of 33% for non-FGCS. The number of Hispanic students who are FGCS is higher

than the percentage of students of all races and ethnicities that are FGCS, as an estimated 47.8% of Hispanic college students are FGCS (Latino et al., 2020).

Clayton et al. (2019) explained that Hispanic FGCS come from families with lower income than other Hispanic college students. The authors also reported that Hispanic FGCS are less prepared for college than Hispanic non-FGCS and are compelled to be self-reliant in navigating higher educational processes as their families lack knowledge of college academic and administrative systems and corresponding student expectations for success. Pratt et al. (2019) found that the less than adequate college preparation of Hispanic FGCS undermines their confidence in college success such that they tend to avoid courses that they perceive to be difficult and are likely not to undertake studies in science, technology, engineering, or mathematics. The authors explained that students lacking confidence in their academic abilities also tend to have lower GPAs and graduation rates than those students with higher self-efficacy.

Duncheon (2018) reported that Hispanic FGCS are often deficient in the skills necessary to set objectives, manage time, and ask for assistance. The author explained that Hispanic FGCS may also experience academic difficulties as they may not comprehend the instructional requirements for due dates, composition specifications, and writing quality. Duncheon (2018) found that the lack of understanding of course and instructor requirements can be barrier to Hispanic FGCS persistence and educational outcomes. Ali et al. (2021) further observed a negative correlation between FGCS status and the educational outcomes of Hispanic college students in their study of Hispanic Serving Institutions (HSIs).

Martinez (2018) wrote that the Hispanic FGCS parental lack of knowledge of postsecondary education limits their understanding of the financial and social advantages of a college degree. Consequently, the author explained that Hispanic FGCS parents may not be

supportive of the length of time required for degree completion and pressure Hispanic FGCS to work rather than continue their postsecondary education. According to Martinez (2018), Hispanic FGCS are also subject to the cultural familial context that may compel Hispanic FGCS to be more involved in family responsibilities than the academic and social interactions of their educational institutions.

Mendez and Bauman (2018) examined factors influencing the persistence and educational outcomes of migrant Hispanic FGCS. The authors found that migrant Hispanic FGCS were most likely to withdraw from college when faced with family obligations, student loans, and full-time employment. Mendez and Bauman (2018) suggested that the importance of maintaining the financial welfare of their families may cause migrant Hispanic FGCS to withdraw from post-secondary educational institutions. The authors indicated that loan aversion may factor into the decision by migrant Hispanic FGCS to drop out of school rather than fund their education with student loans. Moreno (2021) also found that Hispanic FGCS may also feel guilty about leaving their families to attend school and the guilt may cause them to have doubts about persisting in school. Mendez and Bauman (2018) found that student counseling was a mitigating factor that could improve Hispanic FGCS persistence. However, Dueñas et al. (2021) indicated that cultural context may be the reason that Hispanic FGCS in their study were observed as underutilizing available counseling services.

Psychosocial factors

Carales (2020) did not include psychosocial factors such as student sense of belonging, motivation, or institutional cultural climate, as specifications of those factors were not present in the sampled national database used in his study. Accordingly, the author recognized that the inclusion of psychosocial persistence factors could have varied the prediction of educational

outcomes in his study. Manzano-Sanchez et al. (2018) conducted a systematic review of the literature and found few studies of the influence of Hispanic psychosocial factors on student educational outcomes. The authors did, however, find literature indicating a positive correlation between the psychosocial persistence factor of self-efficacy and the educational outcomes of Hispanic college students. In addition, Holloway-Friesen (2018) found a relationship between institutional cultural climate, educational persistence, and the career objectives of Hispanic college students. Consequently, this study will consider the influences of psychosocial persistence factors of sense of belonging, institutional cultural climate, mentoring, self-efficacy, stress, motivation, and career aspirations on the educational outcomes of Hispanic college students.

Sense of Belonging

Luciano-Wong and Crowe (2019) found a strong correlation between student sense of belonging and intention to persist in their study of 2,405 Hispanic college students enrolled in four-year universities during academic years 2013-2104. The authors also found an association between sense of belonging and variables of satisfactory faculty interaction, satisfactory first-year courses, and satisfactory peer interaction. Luciano-Wong and Crowe (2019) observed that the combination of sense of belonging with variables of satisfactory academic social interactions and programs tended to improve Hispanic college student persistence.

A study by Carales and Nora (2020) of Hispanic students at a southwestern college found that factors influencing Hispanic student sense of institutional belonging included financial issues, ethnic identity, racial discrimination, and social stress during campus interactions. The authors explained that low-income Hispanic college students can experience negative emotions associated with their financial issues and may feel that since they cannot afford to attend school

without financial aid they do not belong at the college. Carales and Nora (2020) found that perceptions of racial discrimination, discussions about their ethnic identity, and interactions with college staff who are not Hispanic can also detract from the Hispanic college student sense of belonging. Amaresh et al. (2022) also observed that Hispanic students from rural families reported feelings of isolation and of not belonging when encountering discrimination in a college setting.

Elliott and Parks (2018) emphasized understanding the importance that a sense of belonging plays in the cultural context of Hispanic college students. The authors explained that Hispanic college students enter a post-secondary educational institution with established cultural expectancies and compartments. Elliott and Parks (2018) observed that Hispanic college students who feel constrained in conveying their personal identity may feel isolated within the educational institution and withdraw from their academic pursuits. Miller and Vaughn (2023) also found decreased educational outcomes for underrepresented Hispanic nursing college students who perceive that they are being treated differently than other students. Conversely, Andrews et al. (2023) found an increased sense of belonging and improved educational outcomes for those Hispanic college students enrolled in HSIs, as opposed to those Hispanic college students enrolled in non-HSIs.

Institutional Cultural Climate

Akinlade and Gavino (2021) observed that the perception of an adverse cultural climate can negatively influence Hispanic college student persistence and educational outcomes in addition to negatively impacting their sense of belonging. Garza (2023) observed that the educational outcomes of Hispanic college students can also be negatively influenced by the belief that a cultural hierarchy exists within their educational institutions. Bennett et al. (2022)

found that regional socio-political contexts may inhibit the understanding of equity and social justice by Hispanic college students. Arbona et al. (2018) explained that Hispanic college students can also experience minority status stress if they perceive negative academic and social interactions at school are the result of their ethnicity. The authors found that minority status stress can manifest as depression, which, in turn, can cause Hispanic college students to not persist in the educational institution. Cano et al. (2021) observed that Hispanic college student discomfort with the English language as a second language, as well as their ethnic identity on campus were predictive of anxiety and depression. Htway et al. (2021) also found language to hinder the educational outcome of studied Hispanic doctoral students.

Conversely, Akinlade and Gavino (2021) observed that Hispanic college students who perceived the cultural climate of the educational institution to be one of respect that valued diversity led to positive institutional integration and engagement, which in turn increased persistence and educational outcomes. Jeffrey (2020) noted that the persistence and positive educational outcomes of minority college students can be facilitated by the school cultural climate and the acceptance of minority students within the educational institutional community. Ortega (2021) explained that studies have indicated that engagement with the educational institutional community enables Hispanic college students to establish supportive peer relationships that can improve persistence, GPA, and the probability of graduation.

Furthermore, Ortega (2021) observed that Hispanic college student interaction with faculty outside of the instructional setting has also been shown to improve academic performance. Luciano-Wong and Crowe (2019) additionally found that Hispanic college student intentions to persist improved when they were able to form associations with faculty that were racially diverse. Elliott and Parks (2018) emphasized the importance of self-expression in the

Hispanic culture and its relationship with the Hispanic college student sense of connection with the educational institution. The authors explained that Hispanic students who are unable to express themselves comfortably with faculty and peers in an educational setting may feel unable to connect with the school and withdraw from the educational institution.

Mentoring

Inadequate advising was cited by Cantu et al. (2022) as a cause of low educational outcomes of Hispanic college students in their study of community college transfer students. Verdin and Godwin (2018) also observed that minority female students tend to withdraw from the engineering field when they do not feel a sense of belonging. The authors found that mentoring and student integration with the institutional community can serve to mediate a lack of sense of belonging that minority female students may experience. Verdin and Godwin (2018) also observed that Hispanic FGCS students who were able to align their cultural and student identities reported a greater sense of academic self-efficacy and institutional integration. The authors explained that Hispanic FGCS students can better bring about cultural and academic identity alignment through role models who reflect their cultural context. Shelton (2022) observed that mentoring in the form of positive encouragement and institutional navigation also tends to increase the persistence of Hispanic FGCS students.

Barbera et al. (2020) stated that frequent assessments of academic performance tend to improve student success. The authors explained that feedback from instructors facilitates positive educational outcomes, particularly during the freshman year of college as students attempt to integrate academic settings that they may not be familiar with. Barbera et al. (2020) found during their review of student persistence studies conducted since 2010 that Hispanic college students may, especially, require validation that they are fit for post-secondary education. The authors

observed that faculty and peer interaction with Hispanic college students tended to increase academic and social integration and, subsequently, improve their persistence. Garbee et al. (2021) found that some Hispanic college students who were separated from their families formed school families consisting of peers and faculty. Doran et al. (2021), however, observed that non-Hispanic students at an Iowa university expressed genuine empathy for their Hispanic peers but varied in their abilities to provide peer support.

Seah (2021) found that educational outcomes improved when faculty shared the same ethnicity and language as Hispanic college students. Doran (2022) observed variations in the specific ethnicities that make up the Hispanic population. Consequently, the author recommended research to examine cultural nuances that may impact the educational outcomes of the different ethnicities of Hispanic college students.

Murphy and Murphy (2018) examined factors in the literature influencing the persistence and educational outcomes of Hispanic college students. The authors found that culture has a distinct correlation with the persistence of Hispanic college students. Murphy and Murphy (2018) emphasized the importance of family as a focal point of both responsibility and support for Hispanic college students. Consequently, the authors concluded that Hispanic college student persistence could be improved through faculty and peer mentoring that affirms the cultural identity and values of Hispanic college students and provides for an academic family in the post-secondary educational institution. In addition, research by Holloway-Friesen (2021) at a Western university found that mentoring improved the sense of belonging and academic self-efficacy of Hispanic college students.

Self-efficacy

Manzano-Sanchez et al. (2018) observed that self-efficacy has been identified in literature as a psychosocial factor that correlates with student persistence. The authors described self-efficacy as the belief that individuals have of their abilities to perform or accomplish specific activities or tasks. Manzano-Sanchez et al. (2018) found that Hispanic college students with high academic self-efficacy tended to have higher educational outcomes than those with low academic self-efficacy. The authors observed that the FGCS status of Hispanic college students may negatively impact associations between academic self-efficacy and educational outcomes due to socioeconomic class, low family education, and little experience with post-secondary educational institutions. Ching (2022) indicated that academic self-efficacy which is an individualistic trait, may also be hindered by cultural collectivist values that manifest in Hispanic students as low self-esteem and a lack of confidence when engaged in the college environment. Cortina and Vazquez (2023) noted that conflicts between academic self-efficacy and cultural values of familismo may result in mental health and academic performance issues for Hispanic college students.

Aguilar and Kim (2019) further explained that the ability of an individual to complete a demanding task hinges upon the self-efficacy of the individual, as one cannot overcome the barriers to success unless one believes that one can actually succeed. The authors noted that Hispanic college students face a variety of difficulties in their education and it would be unlikely for them to succeed without a high degree of academic self-efficacy. Aguilar and Kim (2019) observed that Hispanic college student academic self-efficacy is directly associated with academic motivation and behaviors necessary for the setting and attainment of educational objectives. The authors found evidence in agreement with Manzano-Sanchez et al. (2018) that

academic self-efficacy was a significant predictor of educational outcomes for Hispanic college students. Ermis-Demirtas, H., et al. (2021) observed that academic self-efficacy improved the adjustment and persistence of first-year college students at an HSI. Hamann et al. (2022) also observed a positive correlation between self-efficacy and GPA for Hispanic college students in their study at a large university.

College Stress

Jones et al. (2021) observed that Hispanic college students report feeling levels of stress greater than college students of European descent. The authors stated that Hispanic college student stress can originate from interpersonal relationships, academic stress, financial strain, and racial discrimination. Chen et al. (2023) found an association between loneliness and stress in Hispanic college students in their study at a California university. Cano et al. (2021) observed that cultural contexts may also cause elevated levels of anxiety and depression in Hispanic college students. Arbona et al. (2018) further explained that Hispanic college students can undergo minority status stress from negative academic and social experiences within the educational institution that they perceive are the result of their ethnicity. The authors found that college stress and minority status stress are predictive of student depression, which in turn negatively influences Hispanic college student persistence.

Jones et al. (2021) observed evidence of academic stress among Hispanic college students due to low self-efficacy, feelings of being scholastically overwhelmed, and negative experiences with faculty who are perceived as having low expectations of Hispanic college students. Cowan et al. (2022) found that cultural stressors may result in identity confusion and depression of Hispanic college students. Garcia-Reid et al. (2020) observed that increased stress and depression may also be exacerbated by Hispanic young adults who have not developed

coping skills sufficient to manage collegiate stress. Carlo et al. (2022) found that stress In Hispanic college students was directly associated with coping strategies of reaction and avoidance. Diaz and Fenning (2021) additionally noted that undocumented Hispanic college students may experience additional stress due to anxiety over concerns of being deported. Barton et al. (2021) further observed that bilingual Hispanic college students may experience stress from acculturation between home and collegiate settings.

Serpas (2021) investigated the effect that discrimination has as a stressor among ethnic minority students at a California college. The author observed greater reductions in the mental health of Hispanic college students who reported discrimination than non-Hispanic college students who reported discrimination. Molina et al. (2021) found that discrimination is correlated with depression in Hispanic college students. Serpas (2021) concluded that discrimination can promote minority status stress and negative educational outcomes for Hispanic college students. The author's conclusion is supported by Becker and Cox (2022) who observed decreased reported minority discrimination and increased educational outcomes of Hispanic students enrolled in Hispanic Serving Institutions (HSIs) than those Hispanic students enrolled in non-HSIs in Florida colleges.

Stevens et al. (2018) examined the results of the 2015 National College Health Assessment to determine the extent of discrimination perceived by 70,000 American students and its impact on their academic performance. The authors found that 7.8 percent of Hispanic college students indicated that they had experienced discrimination. Howell et al. (2023) reported that Hispanic college students in their study cited discrimination from their peers to be most prevalent. Stevens et al. (2018) observed that 20.3% of Hispanic college students who experienced discrimination reported that the discrimination had negatively impacted their

academic performance. The authors also observed that the experiences of discrimination and its negative impact on academic performance were consistent regardless of socioeconomic variables. Stevens et al. (2018) concluded that their findings indicated that experiences of discrimination by minority students were academic stressors that can negatively influence their educational outcomes.

Motivation

Pina-Watson et al. (2018) found an association between student depression, satisfaction with life, and scholastic thoughts where greater satisfaction with life correlated with greater academic motivation. Conversely, the authors found that greater student depression correlated with greater academic skepticism. Pina-Watson et al. (2018) explained that Hispanic college students who are optimistic about their futures may become more motivated to perform academically, whereas Hispanic college students who feel hopeless may tend to lose interest in their education as they become skeptical of the utility of post-secondary education. In addition, Adachi et al. (2022) found that Hispanic college students with independent self-construal had greater academic motivation than Hispanic college students with interdependent self-construal.

Azpeitia and Bacio (2022) examined the different aspects of the Hispanic familial construct to determine their influences on the academic motivation of Hispanic college students. The researchers explained that components of the Hispanic familial construct or familismo include familism obligation, familism support, and familism referent. Azpeitia and Bacio (2022) described familism obligation as the deep bond and duty to family that Hispanic students may hold as a core value. The authors explained that familism support is the dependence on family for strength, encouragement, and sustenance that Hispanic students may have. Azpeitia and Bacio (2022) described familism referent as the placement of family needs over individual needs

that Hispanic students may feel is a priority in their lives. The authors did not find a correlation between familism obligation or familism referent and academic motivation. However, Azpeitia and Bacio (2022) found that familism support was a positive predictor of academic motivation for first-generation Hispanic college students of any gender and second-generation female Hispanic college students.

Jimenez et al. (2022) found that familism support can decrease Hispanic college student depression and improve their persistence. Doran et al. (2022) and Garcia-Tellez et al. (2021) observed that familism support in terms of recognition and positive encouragement led to increased academic motivation of Hispanic college students in Engineering fields. Ekpe et al. (2022) concluded from their studies of Hispanic online college students that family support in conjunction with routine and peer contact also increased positive educational outcomes. Hinojosa and Vela (2019) also found a decrease in mental health issues when Hispanic college students feel they have the support of their families in their academic efforts.

Career Aspirations

Holloway-Friesen (2018) studied the effects that culture and institutional climate have on the perceptions that Hispanic college students will encounter barriers in future careers. The author stated that the perception of barriers to potential employment opportunities can cause Hispanic college students to rashly set aside their future hopes and withdraw from their post-secondary educational institutions. Holloway-Friesen (2018) explained that the impact of perceptions of barriers can be amplified by the stress of acculturation as Hispanic college students attempt to adapt to post-secondary educational institutions that are often influenced by Anglo-American culture. The author surveyed 140 Hispanic college students at two west coast Hispanic-serving educational institutions and found that the more Hispanic college students were

acculturated to Anglo-American culture, the less they were inclined to perceptions of barriers regarding their future career opportunities. Holloway-Friesen (2018) observed that when Hispanic college students were comfortable in the educational setting perceptions of barriers to employment opportunities were reduced, thus increasing Hispanic college student motivation and persistence.

Garriott (2020) found that FGCS who feel a sense of belonging within their post-secondary educational institution, who feel they have sufficient assets, and who believe that their academic and familial worlds are cohesive tend to possess a high degree of career self-authorship. The author described career self-authorship as including the capability to evaluate social constructs and their experiential influences, personal responsibility for decisions, and self-efficacy. Garriott (2020) suggested that FGCS psychosocial experiences correlate with persistence.

Luedke (2020) found that the engagement of family in FGCS college experiences had a positive influence on Hispanic college student persistence. Catano et al. (2022) further observed that supportive female family members were especially significant in the persistence of male Hispanic college students. Johnson and Suwintvattichai (2022) explained that collegiate stress experienced by FGCS can be mitigated by family support. Huss-Keeler (2022) found that self-efficacy, resilience, family support, and mentoring contributed to positive educational outcomes of Hispanic FGCS students at an HSI in Texas.

Summation of Hispanic College Student Persistence Factors

Bronfenbrenner (1979) theorized that individual development occurs through dynamic associations between individuals and various levels of their ecological environment. His ecological systems theory postulated two developmental principles: personal experiences cannot

be separated from their settings and individuals influence and are influenced by their social context. Bean and Metzner (1985) theorized that the environment external to nontraditional students influences student persistence. Nora (2003) incorporated previous theories of student departure into a theoretical model of student/institution engagement as the result of studies of Hispanic college students. The author postulated that the decision by a Hispanic college student to persist in post-secondary education is influenced by a culturally interrelated collective of demographic and precollege variables; environmental pull factors; and psychosocial factors.

A review of literature was made to identify demographic and precollege variables and persistence factors that research has indicated as influencing Hispanic college student educational outcomes. Gender and status as first-generation college students were indicated as having distinct effects on Hispanic college student persistence. Financial aid, student work hours, and family obligations were indicated to be environmental pull factors that were predictive of Hispanic college student persistence. Sense of belonging, institutional cultural climate, mentoring, self-efficacy, college stress, motivation, and career aspirations were indicated to be psychosocial factors affecting Hispanic college student persistence. Demographic variables and persistence factors that have been indicated as influencing Hispanic college student educational outcomes are listed with reference sources in Table 1.

Table 1*Demographic Variables and Persistence Factors*

Variable/Factor	Reference
<i>Demographic Variable</i>	
Gender	(Abrica & Dorsten, 2020) (Elliott & Parks, 2018) (Navarro-Cruz et al., 2021) (Rodriguez et al., 2021)
FGCS	(Clayton et al., 2019) (Duncheon, 2018) (Latino et al., 2020) (Martinez, 2018) (Mendez & Bauman, 2018) (Pratt et al., 2019)
<i>Environmental Pull Factor</i>	
Finances	(Aguilar & Kim, 2019) (Boatman et al., 2018) (Carales, 2020) (Latino et al., 2018)

Table 1*Demographic Variables and Persistence Factors (continued)*

Variable/Factor	Reference
Work	(Abrica & Dorsten, 2020) (Anderson & Goldrick-Rab, 2018) (Park & Scott-Clayton, 2018) (Sáenz et al., 2018)
Family	(Abrica & Dorsten, 2020) (Azmitia et al., 2019) (Elliott & Parks, 2018) (Tello & Lonn, 2017)
<i>Psychosocial Factor</i>	
Sense of Belonging	(Carales & Nora, 2020) (Elliott & Parks, 2018) (Luciano-Wong & Crowe, 2018)
Institutional Cultural Climate	(Akinlade & Gavino, 2021) (Arbona et al., 2021) (Elliott & Parks, 2018) (Jeffrey, 2020) (Luciano-Wong & Crowe, 2018) (Ortega, 2021)

Table 1*Demographic Variables and Persistence Factors (continued)*

Variable/Factor	Reference
Mentoring	(Barbera et al., 2020) (Murphy & Murphy, 2018) (Verdin & Godwin, 2018)
Self-Efficacy	(Aguilar & Kim, 2019) (Manzano-Sanchez et al., 2018)
College Stress	(Arbona et al.2018) (Jones et al., 2021) (Stevens et al., 2018)
Motivation	(Azpeitia & Bacio, 2022) (Pina-Watson et al., 2018)
Career Aspirations	(Garriott, 2020) (Holloway-Friesen, 2018)

Hispanic Student Persistence and Educational Outcomes

Margarit and Kennedy (2019) estimated that 60% of Hispanic college students are enrolled at community colleges due to their low educational costs, location close to student families, ease of enrollment, and accommodating course schedules. However, the authors observed that the persistence of Hispanic community college students is low with reported dropout rates as high as 80%. Margarit and Kennedy (2019) also observed low educational outcomes in which only 50% of Hispanic community college students achieve any form of postsecondary degree and only 15% transfer to four-year degree-granting universities and colleges. Given the high percentages of Hispanic students attending community colleges and as many of those students do not intend to graduate from the institution, but, rather, are enrolled for the purpose of acquiring credits for transfer to a four-year degree-granting university or college, the authors suggested that research of Hispanic college student persistence and educational outcomes should consider academic performance metrics other than graduation rates.

Martin et al. (2017) stated that research regarding GPA is important in addressing racial and ethnic achievement gaps. The authors explained that GPA is also often used in establishing academic standing, financial aid eligibility, admission criteria for courses of study, and graduate school, as well as post-graduation employment. Acee et al. (2018) maintained that GPA is also a relevant indicator of community college student progress toward the attainment of an associate degree or sufficient credit for transfer to a four-year degree-granting university or college. In their study of student motivation, Acee et al. (2018) observed that Hispanic community college students were generally more motivated to master the knowledge of a subject for the purpose of learning than to demonstrate competence through the performance of an educational goal in order to gain the approval of others. The authors found that GPA and persistence were both

higher for those students with a high mastery orientation and moderate performance orientation than those with a high-performance orientation and low mastery orientation.

Martin et al. (2017) examined the racial disparities in GPA for students at a university in the southeastern region of the United States to determine factors associated with an observed national achievement gap between Hispanic and White college students. The authors explained that Hispanic college students generally take longer to complete their degrees and their average grades are less than those of White students. In a comparison of GPA, Martin et al. (2017) found that during the first year of enrollment the mean GPA for White students was approximately one-quarter of a letter grade higher than the mean GPA for Hispanic students. The authors also found that the GPA gap reduced with each succeeding year with a mean GPA for White students in the fourth year of enrollment that was approximately one-sixth of a letter grade higher than the mean GPA for Hispanic students, thus, indicating that GPA improved with persistence of Hispanic students. Martin et al. (2017) observed that course and major selection and student perceptions of college cultural climate were prominently associated with their observed racial gap in GPA.

Carales (2020) observed that while research has been focused on Hispanic student persistence, there have been few quantitative studies exclusively examining Hispanic student persistence and educational outcomes. Consequently, the author examined the educational outcomes of a sample of 800 Hispanic students from a national database of enrollments at community colleges in the United States to determine factors affecting persistence and educational outcomes. Analysis by Carales (2020) indicated that factors influencing Hispanic college student persistence included enrollment intensity, academic integration, and financial aid, while factors predicting certificate or degree completion by a Hispanic college student included citizenship status, home language, family income, first-year GPA, and financial aid.

Carales (2020) did not include psychosocial persistence factors, such as student sense of belonging, motivation, or institutional cultural climate in the analysis, as specifications of those, factors were not included in the sampled national database used in the study. Accordingly, the author recognized that the inclusion of psychosocial persistence factors could have varied the prediction of educational outcomes in the study. Consequently, the author recommended that future research consider the inclusion of psychosocial factors with other persistence factors to fully address the gap in the literature regarding Hispanic college student persistence and educational outcomes.

Summary

Bean and Metzner (1985) described finances, work, family commitments, and external support systems as the social environments outside of the academic institution that influence nontraditional student persistence. Consequently, the researchers theorized that there were four variables influencing the decisions of nontraditional students to withdraw from an academic institution. These variables included academic performance; psychological outcomes and formation of intent to withdraw; student background and academic objectives; and the social environment outside of the academic institution (Bean & Metzner, 1985).

Carales (2020) examined the variables influencing the educational outcomes of 800 Hispanic students enrolled in community colleges during academic years 2003-2004 using Nora's (2003) model of student/institution engagement. The researcher found that educational outcomes were influenced by demographic variables, college experiences, and environmental pull factors. Carales (2020) explained that demographic variables included home language, citizenship, and socio-economic class, while college experiences involved academic integration, first-year GPA, and enrollment intensity. The author stated that the primary environmental pull

factors for Hispanic college students were financial aid, work obligations, and family commitments.

According to Casillas et al. (2020), Hispanic students are more likely to come from low-income families than other students and financial aid may be the only option for them to attend college. However, Aguilar and Kim (2019) observed that a Hispanic cultural tendency to be loan-averse may deter Hispanic students from using loan-based financial aid for educational expenses and influence decisions to withdraw from college. Abrica and Dorsten (2020) found that cultural familial context and gender stereotypes may further compel Hispanic students to work rather than continue their post-secondary education. Consequently, Carales (2020) concluded that the familial contexts and corresponding family responsibilities of both male and female Hispanic students are significant persistence factors for Hispanic students.

A study by Carales and Nora (2020) of Hispanic students at a southwestern college found that factors influencing Hispanic student sense of institutional belonging included financial issues, ethnic identity, racial discrimination, and social stress during campus interactions. The authors found that perceptions of racial discrimination, discussions about their ethnic identity, and interactions with college staff who are not Hispanic can detract from the Hispanic college student sense of belonging. Akinlade and Gavino (2021) observed that the perception of an adverse cultural climate can negatively influence Hispanic college student persistence and educational outcomes in addition to negatively impacting their sense of belonging.

Martin et al. (2017) stated that research regarding GPA is important in addressing racial and ethnic achievement gaps, as GPA is also often used in establishing academic standing, financial aid eligibility, admission criteria for courses of study, and graduate school, as well as post-graduation employment. Acee et al. (2018) maintained that GPA is also a relevant indicator

of community college student progress toward the attainment of an associate degree or sufficient credit for transfer to a four-year degree-granting university or college. Martin et al. (2017) observed that though many factors have been indicated that may contribute to racial and ethnic academic achievement inequities, comprehensive studies of the range of factors influencing the educational outcomes of Hispanic college students need to be conducted to facilitate the reduction of racial and ethnic academic achievement inequities.

Carales (2020) observed that while research has focused on Hispanic student persistence, there have been few quantitative studies exclusively examining Hispanic student persistence and educational outcomes. The author indicated that factors influencing Hispanic college student persistence included enrollment intensity, academic integration, and financial aid, while factors predicting certificate or degree completion by a Hispanic college student included citizenship status, home language, family income, first-year GPA, and financial aid. The author did not include psychosocial factors, such as student sense of belonging, motivation, or institutional cultural climate, in the analysis, as specifications of those factors were not included in the sampled national database used in the study. Consequently, the author recommended that future research consider the inclusion of psychosocial factors with other persistence factors to address the gap in the literature regarding Hispanic college student persistence and educational outcomes in a comprehensive manner. This study will serve to address the gap in the literature identified by Carales (2020) and Martin et al. (2017) by examining the influence of comprehensive persistence factors on the educational outcomes of Hispanic college students.

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative, predictive correlation study is to address the lack of research regarding the impacts of persistence factors on the educational outcomes of Hispanic college students. This chapter begins by introducing the design of the study, including full definitions of all variables. The research question and null hypothesis follow. The participants and setting, instrumentation, procedures, and data analysis plans are presented.

Design

A quantitative, predictive correlation design was used in this study. Gall et al. (2007) stated that prediction studies are appropriate for determining the degree to which predictions can be made of patterns of criterion behavior. The authors explained that a predictive correlation research design uses statistical analyses to measure the extent to which independent variables are related to outcome variables to determine the accuracy by which the independent variables can be used to predict outcomes. Gall et al. (2007) stated that the independent variables and outcome variables are known as predictor variables and criterion variables, respectively, in predictive correlation designs. The terms predictor variable and criterion variable will be used in the remainder of this document.

Cresswell and Guetterman (2019) explained that predictive correlation research is often used for the prediction of outcomes using multiple predictor variables. Consequently, the authors stated that multiple variable analysis is conducted to determine the impact of each predictor variable. Cresswell and Guetterman (2019) explained that multiple variable analysis for predictive correlational studies can be either partial correlation or multiple regression. The authors described the use of partial correlations for determining the influence that a mediating

variable may have on both criterion and predictor variables. Cresswell and Guetterman (2019) explained that multiple regression analysis is used to examine the combined association of multiple predictor variables with a single criterion variable. The authors stated that the objective of multiple regression analysis is to determine the proportion of change in a criterion variable that can be attributed to individual predictor variables and the change in a criterion variable that can be attributed to the combination of all predictor variables.

Li et al. (2019) used a predictive correlation design to determine the accuracy by which predictor variables of student perception of long-term prospects, academic self-concept, self-esteem, academic conscientiousness, grit, intelligence, ACT score, and high school GPA could predict criterion variables of first semester GPA and first-year GPA. The researchers used multiple regression analyses and found that high school GPA, ACT scores, and student perception of long-term prospects were significant predictors of both first-semester GPA and first-year GPA, while academic conscientiousness was a significant predictor for only first-semester GPA but not first-year GPA. Li et al. (2019) demonstrated that a predictive correlation design is appropriate for studies involving the prediction of GPA from a variety of predictor variables. Additional studies in which predictive correlation designs were used to examine associations of persistence factors with GPA included Barbera et al. (2020), Hall et al. (2021), Kim (2015), Casillas et al. (2020), Mendez and Bauman (2018) and Murphy and Murphy (2018).

Consequently, a predictive correlation design was selected for this study to determine if GPA can be predicted from the linear combination of persistence factors for Hispanic college students. The criterion variable for this design was cumulative GPA and predictor variables were persistence factors of institutional commitment, degree commitment, academic integration, social integration, advising effectiveness, collegiate stress, financial strain, scholastic

consciousness, academic efficacy, career integration, and academic motivation as specified in Beck et al. (2015) and Beck and Davidson (2016). Academic and social integration were described by Beck et al. (2015) as the degree to which students adjust to an educational institution as influenced by academic and social interactions, and advising effectiveness as the perceptions that students develop of an educational institution regarding respect and fulfillment of their needs. The authors explained that degree commitment is the significance that students place on efforts to achieve an educational goal, while institutional commitment is the intention to continue enrollment or disenroll. Beck et al. (2015) described collegiate stress as the pressure felt by students from the academic environment and financial stress as student worries about meeting their financial needs. The authors explained that scholastic conscientiousness relates to student ability to attend class and complete coursework on time. Beck et al. (2015) described academic efficacy as student confidence in their scholastic abilities and academic motivation as student enthusiasm and commitment to academic tasks. Career integration is the extent to which a student believes that their education is in alignment with their employment goals (Beck & Davidson, 2016). All variables are continuous. There are no categorical variables. A limitation of the design is that results can only be generalized to the study population since students from only one school are involved in the study.

Research Question

RQ1: How accurately can GPA be predicted from the linear combination of persistence factors (institutional commitment, degree commitment, academic integration, social integration, advising effectiveness, collegiate stress, financial strain, scholastic consciousness, academic efficacy, career integration, and academic motivation) for Hispanic college students?

Hypothesis

The null hypothesis for this study is:

H₀1: There is no difference in GPA among Hispanic college students for any linear combination of persistence factors (institutional commitment, degree commitment, academic integration, social integration, advising effectiveness, collegiate stress, financial strain, scholastic consciousness, academic efficacy, career integration, and academic motivation) as measured by a college persistence and academic success survey.

Participants and Setting

This section includes a description of the population, the participants, the sampling technique, and the sample size that were used in the predictive correlation study. The section concludes with a description of the setting.

Population

The population for this study consisted of Hispanic students enrolled in a community college located in northern Arizona during the fall semester of the 2023-2024 school year. The community college has 3793 enrolled undergraduates of whom 26.1% identify as Hispanic (NCES, 2022).

Participants

The participants for this study were drawn from a convenience sample of Hispanic

students enrolled in a community college located in northern Arizona during the fall semester of the 2023-2024 school year. Questionnaires were emailed to all of the Hispanic students enrolled at the college during the 2023-2024 school year and all completed and returned questionnaires comprised the sample for this study. According to Gall et al. (2007), 66 students is the required minimum sample for a correlation study when assuming a medium effect size with a statistical power of .7 at the .05 alpha level. The study sample size of 87 exceeded the minimum sample size. Participant demographic information is detailed in Table 2.

Table 2

Demographic Information

Demographic		Frequency	Percentile
Age	18 - 24	35	40.3
	25 - 34	34	39.1
	35 - 44	13	14.9
	45 - 54	4	4.6
	55 - 64	1	1.1
Marital Status	Married	59	67.8
	Unmarried	28	32.2
Enrollment	Full-time	64	73.6
	Part-time	23	26.4
Employment	Employed	75	86.2
	Not Employed	12	13.8
Children	Yes	38	43.7
	No	49	56.3
FGCS Status	FGCS	71	81.6
	Not FGCS	16	18.4

Setting

The study setting was a two-year public community college serving a county with a population of 218,000 in Northern Arizona (United States Census Bureau, 2022). The community college consists of four campuses strategically located within the county (MCC, 2022). The community college offers Associate Degrees in Arts, Sciences, and Business and certificates in several vocational and technical fields (MCC, 2022). The community college offers programs and courses in both traditional classroom and online educational learning environments (MCC, 2022). Enrollment at the community college includes 3793 students of whom 67.2% of students are female and 32.8% are male (NCES, 2022). From a demographic perspective, 63% of students are white, 26.1% are Hispanic, and 10.9% are of other races and ethnicities (NCES, 2022). The study included all courses, programs, and educational learning environments at all campuses for which Hispanic students were enrolled during the 2023-2024 school year.

Instrumentation

This section identifies the instruments that were used in this study and the variables that each measured. A description of each instrument, its content, its origin, and its appropriateness is included. Peer-reviewed studies where each instrument was used are also included. Scales of measurement are discussed, including the number of questions and scoring information for each instrument. The composite and subscale for each instrument are included as are validity information and reliability statistics.

Demographic Survey

The purpose of this instrument was to collect demographic data regarding age, FGCS status, student classification, and cumulative GPA. Martin et al. (2017) stated that research

regarding GPA as an educational outcome is important in addressing racial and ethnic academic achievement inequities. The authors explained that GPA is often used in establishing academic standing, financial aid eligibility, admission criteria for courses of study, and graduate school, as well as post-graduation employment. Ortega (2021) stated that GPA is also used in determining athletic eligibility. Acee et al. (2018) maintained that GPA is a relevant indicator of community college student progress toward the attainment of an associate degree or sufficient credit for transfer to a four-year degree-granting university or college. The importance of GPA as a measure of educational outcome was emphasized by Jeffrey (2020) who indicated that first-year college GPA is a predictor of college graduation.

The demographic survey was based on the Student Health Behavior and Student Success survey used by Reuter and Forster (2021) and used the questions regarding age, FGCS status, student classification, and self-reported cumulative GPA. The survey was a hybrid of open and closed questions in which the respondent manually entered self-reported GPA, while the respondent selected responses of age range, yes or no for FGCS status, and yes or no for full-time enrollment. The estimated time for each respondent to complete the survey was 15 minutes. Surveys were screened for completeness and accuracy by the researcher during data collection. The scale for self-reported GPA was 0-4 in which a D has a value of 1, a C has a value of 2, a B has a value of 3, and an A has a value of 4. Demographic surveys have been used to collect self-reported GPA in numerous studies (e.g., Alghamdi et al. (2020); Hunt et al. (2017); Negru-Subtirica et al. (2020); Palacios and Alvarez (2016); Raskind et al., (2019); and Wood and Harris (2022). Approval was received from Dr. Peter Reuter to use elements of the demographic survey in Reuter and Forster (2021). See Appendix A for permission to use this instrument. Elements of the demographic survey were integrated with elements of the later described college persistence

questionnaire to form the college persistence and academic success survey in Appendix C that was used in this study.

The validity and reliability of self-reported GPA have been examined in several studies. Crede et al. (2005) conducted a meta-analysis of 37 studies involving 60,976 subjects of the correlation between self-reported grades and actual grades. The authors found that self-reported GPA validity was high with $N=56,265$, $k=29$, and $r=.84$. Crede et al. (2005) also observed that the self-reporting of college GPA was more accurate than high school GPA with $r=.90$ and $r=.82$, respectively. Caskie et al. (2014) compared the self-reported GPA to school records for 194 students at a private Northeastern university and reported a high correlation of self-reported GPA to record student GPA with an $r=.96$. Cassady (2000) observed comparable results during a study of 89 students at a Midwestern university and found a high correlation of self-reported GPA to record student GPA with an $r=.97$. Baker and Montalto (2019) similarly found a correlation of self-reported GPA to record student GPA with an $r=.97$ in their study of 90 students at another Midwestern university. These studies indicated that the use of self-reported GPA is an appropriate instrument for measuring student educational outcomes.

College Persistence Questionnaire

The purpose of this instrument was to measure the predictor variables of institutional commitment, degree commitment, academic integration, social integration, advising effectiveness, collegiate stress, financial strain, scholastic consciousness, academic efficacy, career integration, and academic motivation. Beck et al. (2009) developed and validated an instrument known as the College Persistence Questionnaire (CPQ) that measured student persistence factors of academic integration, social integration, supportive services satisfaction, degree commitment, institutional commitment, and academic conscientiousness. The CPQ was

later revised to include ten persistence factors of institutional commitment, degree commitment, academic integration, social integration, advising, collegiate stress, financial strain, scholastic consciousness, academic efficacy, and academic motivation in version 2.0 and a short form in version 3.0 (Pugh et al., 2018). CPQ versions 4 through 7 were exploratory in nature (Beck, H., Personal Communications, September 6-7, 2022.) The personal communications with Dr. Hall Beck can be found in Appendix D. Grit and career integration were added in CPQ version 8, however, only career integration has been validated at this time (Beck & Davidson, 2016). Consequently, questions regarding grit from the latest version of the CPQ, version 8, will not be used in this study. The CPQ was used in this study as it bounded the predictor variables of interest and the theoretical framework of Bronfenbrenner (1979), Tinto (1975), and Bean and Metzner (1985).

Bean and Metzner (1985) theorized that variables influencing the decisions by nontraditional students to withdraw from an academic institution included academic performance; psychological outcomes and formation of intent to withdraw; student background and academic objectives; and the social environment outside of the academic institution. Carales (2020) concluded that variables influencing the educational outcomes of Hispanic students included demographic variables, college experiences, and environmental pull factors. Casillas et al. (2020) reported that Hispanic students are likely to come from low-income families and financial aid may be the only option for them to attend college. However, Aguilar and Kim (2019) and Boatman et al. (2018) observed that a cultural tendency to be loan-averse may deter Hispanic students from using loan-based financial aid and influence decisions to withdraw from college. Abrica and Dorsten (2020) found that cultural familial context may further compel Hispanic students to work rather than continue their post-secondary education.

Carales and Nora (2020) reported that factors influencing Hispanic student sense of institutional belonging included financial issues, ethnic identity, racial discrimination, and social stress during campus interactions. Akinlade and Gavino (2021) observed that the perception of an adverse cultural climate can negatively influence Hispanic college student persistence and educational outcomes. Holloway-Friesen (2018) stated that the perception of barriers to potential employment opportunities can cause Hispanic college students to rashly set aside their future hopes and withdraw from their post-secondary educational institutions. The factors influencing Hispanic college student persistence identified by these researchers are bounded by the comprehensive persistence factors of institutional commitment, degree commitment, academic integration, social integration, advising effectiveness, collegiate stress, financial strain, scholastic consciousness, academic efficacy, career integration, and academic motivation utilized in the CPQ.

The CPQ has been adopted as an instrument to measure comprehensive persistence factors in studies involving traditional and nontraditional college students in various cultural contexts and educational settings. Pugh et al. (2018) used the CPQ in persistence studies involving Aboriginal college nursing school students in Australia. McNeilly et al. (2021) utilized the CPQ in persistence studies involving nursing school college students at a private university in North Carolina. Alsup and Depenhart (2020) utilized the CPQ in persistence studies involving dual-enrolled high school students at a technical college in Georgia. García-Ros et al. (2019) adapted the CPQ into Spanish for persistence studies of college students in Spain. Arbona (2016) used the CPQ in persistence studies involving Hispanic female college students at a public university in the Southwest region of the United States. Consequently, the CPQ was appropriate for this study involving Hispanic college students who may be considered traditional or

nontraditional college students.

The CPQ used for this study involved thirty-six questions that used a 5-point Likert scale in which responses range from Favorable to Unfavorable. Responses were as follows: Favorable = 2, Somewhat Favorable = 1, Neutral = 0, Somewhat Unfavorable = -1, and Unfavorable = -2. The mean score of responses to groups of questions related to each persistence factor will be determined and used as the score for each persistence factor. The estimated time for each respondent to complete the survey was 30 minutes. Surveys were screened for completeness and accuracy by the researcher and scores were recorded during data collection.

Beck et al. (2009) performed a validation of CPQ version 1 and estimated reliability through a Cronbach's alpha of .81 for academic integration, .82 for social integration, .74 for support services satisfaction, .70 for degree commitment, .78 for institutional commitment, and .63 for academic conscientiousness. CPQ version 2 was validated by Beck et al. (2015) with estimated reliability through a Cronbach's alpha of .83 for institutional commitment, .83 for academic integration, .85 for financial strain, .80 for social integration, .68 for scholastic conscientiousness, .75 for academic motivation, .70 for degree commitment, .79 for collegiate stress, .78 for advising, and .73 for academic efficacy. CPQ version 3 is a shorter form based on CPQ version 2 (Pugh et al., 2018). CPQ versions 4 through 7 were exploratory in nature. Grit and career integration were added in CPQ version 8, however, only career integration has been validated at this time. The inclusion of career integration into CPQ, version 8, was validated by Beck and Davidson (2016) with estimated reliability through a Cronbach's alpha of .90 for career integration. The CPQ has been used in several other studies (e.g., Arbona et al. (2018); Banyard et al. (2020); Betts et al. (2017); Menéndez et al. (2020); Muller et al. (2017); and Muwonge et al. (2017)). Approval was received from Dr. Hall Beck to use the CPQ in this study.

See Appendix B for permission to use this instrument.

Elements of the CPQ were merged with elements of the previously described demographic survey to form the college persistence and academic success survey in Appendix C that will be used in this study. The college persistence and academic success survey was converted into an online survey using SurveyMonkey®.

Procedures

This section contains the procedures that were used during this study. Procedures included information about securing IRB approval, eliciting participants for the study, conducting a pilot study, training, administration of the procedures, gathering data, recording procedures, and plans for data security.

Institutional Review Board Approval

1. Institutional Review Board (IRB) review and approval in accordance with Section 7.0 of the current version of the Liberty University School of Education Dissertation Handbook was made before the elicitation of study participants or collection of data was initiated.
2. IRB approval documentation was placed in Appendix E of this study. See Appendix E for IRB Approval.

Elicitation of Study Participants

Study participants were elicited as follows.

1. The elicitation of study participants, including steps 2-5 of this procedure, was only initiated after IRB approval had been received.
2. The participants for this study were all Hispanic students enrolled in a college located in northern Arizona during the fall semester of the 2023-2024 school year.

3. Coordination was made with the college-designated point of contact (POC) to establish a list of enrolled students that identify as Hispanic ethnicity and their email addresses.
4. A participant consent section was included in each questionnaire. A copy of the participant consent section was included on the questionnaire found in Appendix C of this study. See Appendix C for the participant consent form.
5. Questionnaires were emailed to all of the Hispanic students on the list.

Pilot Study

A pilot study was not conducted since questionnaires were based on the validated CPQ and only self-reported GPA was used.

Training

Personnel other than the primary researcher were not required for the conduct of this study. Consequently, no training was required for this study.

Administration of Procedures

The primary researcher adhered to the current version of the Liberty University School of Education Dissertation Handbook and the procedures described in this section during the conduct of the study.

Data Gathering

1. Completed questionnaires were received into an email account that the researcher had established exclusively for the receipt of questionnaires for this study.
2. Completed questionnaires were downloaded into a designated file on a password-protected computer for data screening and analysis.

Recording

1. Completed questionnaires were screened for completeness and accuracy.
2. Questionnaires with incomplete responses or self-reported GPA outside of the scale of 0-4 were not considered for this study.
3. Each questionnaire with complete responses and a self-reported GPA within the scale of 0-4 was assigned a unique identifying number.
4. Data from each questionnaire with complete responses and a self-reported GPA within the scale of 0-4 was entered into an Excel spreadsheet that was maintained on a password-protected computer. The Excel spreadsheet had columns for the unique identifying number of the questionnaire, the associated self-reported GPA, and the total scores and individual question scores for each of the ten persistence factors in the CPQ.

Data Security

At all stages of data collection, all information that could identify the participants was protected. Data was stored securely and only the researcher had access to records. Data was stored on a password-protected computer. The data will be retained for five years after the completion of this research study.

Data Analysis

This study used multiple linear regression analysis to determine the accuracy of predicting GPA from the linear combination of persistence factors for Hispanic college students. According to Gall et al. (2007), multiple linear regression analysis is utilized for the determination of correlations between criterion variables and two or more predictor variables when the hypothesis is that the correlations are linear. Since the hypothesis of this study is that there is a linear correlation between the criterion variable of GPA and predictor variables related

to the ten persistence factors of the CPQ, multiple linear regression analysis was appropriate for this study. IBM® SPSS® Statistics, version 27, was used as the data analysis platform for this study (IBM, 2022). Descriptive statistics were included for all continuous variables.

Data screening included visual screening for missing and inaccurate entries. The assumption of independence of observations was tested by using the Durbin-Watson statistic from the multiple linear regression analysis. The assumption of linear relationship between variables was tested using partial regression plots between GPA and each predictor variable. The assumption of homoscedasticity was tested by examining a scatterplot of residuals against predicted values. The assumption of no outliers was also confirmed by examination of the scatterplot of residuals against predicted values to identify standardized residuals greater than +/- 3 standard deviations. The assumption of absence of multicollinearity was tested by examining the Variance Inflation Factor (VIF) for each predictor variable. Values between 1 and 5 were considered acceptable. The assumption of normal distribution of residuals was tested using a P-P Plot. Cohen's f^2 was used as the convention to interpret effect size. The study's statistical analysis was conducted with an alpha of .05.

CHAPTER FOUR: FINDINGS

Overview

This chapter discusses the research question, hypothesis, descriptive statistics, and results of multiple linear regression analysis. Results include requisite testing for the assumption of independence of observations, linear relationship between variables, homoscedasticity, no outliers, absence of multicollinearity, and normal distribution of residuals.

Research Question

RQ1: How accurately can GPA be predicted from the linear combination of persistence factors (academic integration, academic motivation, academic efficacy, financial strain, social integration, collegiate stress, advising effectiveness, degree commitment, institutional commitment, scholastic consciousness, and career integration) for Hispanic college students?

Null Hypothesis

H₀1: There is no difference in GPA among Hispanic college students for any linear combination of persistence factors (academic integration, academic motivation, academic efficacy, financial strain, social integration, collegiate stress, advising effectiveness, degree commitment, institutional commitment, scholastic consciousness, and career integration) as measured by a college persistence and academic success survey.

Descriptive Statistics

Means and standard deviations for each variable are listed in Table 3.

Table 3

Means, Standard Deviations, and Number of Samples for each Variable

Variable	<i>M</i>	<i>SD</i>	<i>N</i>
GPA	3.4	.6	87
Academic Integration	1.0	.8	77
Academic Motivation	.6	.8	79
Academic Efficacy	.6	.7	79
Financial Strain	-.4	1.0	86
Social Integration	.2	.8	86
Collegiate Stress	-.3	.8	75
Advising Effectiveness	.5	.9	83
Degree Commitment	1.0	1.0	77
Institutional Commitment	.6	.9	77
Scholastic Consciousness	.7	1.1	82
Career Integration	.7	1.1	81

Results

Hypothesis

H₀₁: There is no difference in GPA among Hispanic college students for any linear combination of persistence factors (academic integration, academic motivation, academic efficacy, financial strain, social integration, collegiate stress, advising effectiveness, degree commitment, institutional commitment, scholastic consciousness, and career integration) as measured by a college persistence and academic success survey.

Assumption Tests

Data was visually screened for missing and inaccurate entries. 29 of 116 surveys were found to be incomplete and were removed from the dataset. Data screening of the remaining 87 surveys included testing for the assumption of independence of observations, linear relationship between variables, homoscedasticity of residuals, absence of multicollinearity, no significant outliers, and normal distribution of residuals.

The assumption of independence of observations was tested by using the Durbin-Watson statistic from the multiple linear regression analysis. The Durbin-Watson statistic for this analysis was 1.81. The assumption of linear relationship between variables was tested using partial regression plots between GPA and each predictor variable. A linear relationship was observed for each predictor variable, except for Academic Efficacy. Accordingly, the predictor variable of Academic Efficacy was removed from the dataset prior to multiple linear regression analysis. Plots of GPA with each predictor variable can be found in Appendix F.

A scatterplot of residuals against predicted values was used to determine that there was a linear relationship between GPA and predictor variables collectively. The assumption of homoscedasticity was also tested by examining the scatterplot of residuals against predicted

values. The assumption of no outliers was confirmed by examination of the scatterplot as no standardized residual was greater than ± 3 standard deviations. A scatterplot of residuals against predicted values can be found in Appendix G.

The assumption of absence of multicollinearity was tested by examining the Variance Inflation Factor (VIF) for each predictor variable. Collinearity statistics from multiple linear regression analysis indicated VIFs less than 5 for each predictor variable as listed in Table 4.

Table 4

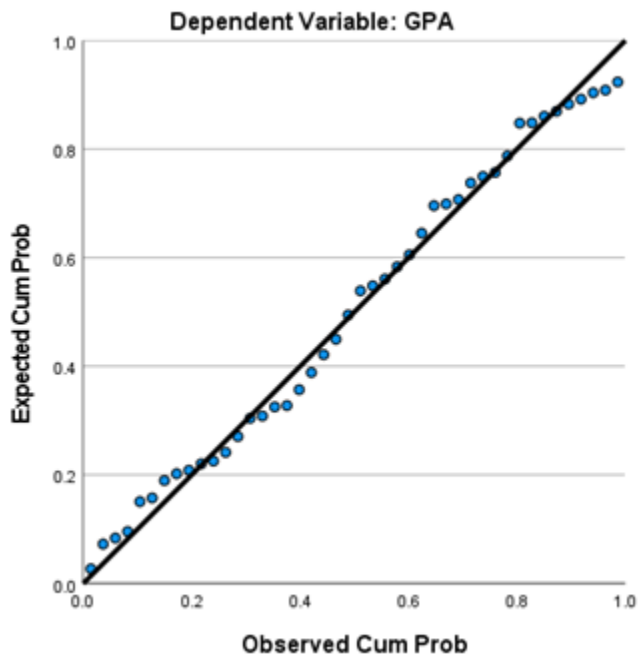
Variance Inflation Factors (VIFs)

Variable	VIF
Academic Integration	1.76
Academic Motivation	3.36
Financial Strain	2.21
Social Integration	1.80
Collegiate Stress	2.06
Advising Effectiveness	2.19
Degree Commitment	4.00
Institutional Commitment	2.25
Scholastic Conscientiousness	2.12
Career Integration	3.49

The assumption of normal distribution of residuals was tested by examination of a P-P plot of regression residuals. The P-P plot of regression residuals can be seen in Figure 1.

Figure 1

P-P Plot of Regression Residuals



Regression Analysis

A multiple linear regression analysis with $\alpha = .05$ was performed to test the hypothesis. The results of the multiple linear regression analysis are shown in Table 5. SPSS regression analysis output can be found in Appendix H.

Table 5

Regression Coefficients for Study Variables

Variable	<i>B</i>	95% <i>CI</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Academic Integration	.09	[-.10, .29]	.16	.98	.336
Motivation	-.43	[-.73, -.14]	-.63	-3.00	.005
Financial Strain	.02	[-.19, .22]	.03	.15	.880
Social Integration	.34	[.10, .59]	.48	2.85	.008
Stress	.35	[.11, .58]	.52	2.97	.006
Advising	.05	[-.16, .27]	.09	.51	.611
Degree Commitment	.21	[-.06, .47]	.41	1.60	.119
Institutional Commitment	-.04	[-.24, .16]	-.07	-.42	.675
Scholastic Consciousness	-.30	[-.50, -.10]	-.53	-2.99	.005
Career Integration	-.05	[-.29, .19]	-.10	-.41	.683

$$R_{adj}^2 = .33, F(1, 10) = 3.14, p = .006.$$

The effect size of the model was $f^2 = R_{adj}^2 / 1 - R_{adj}^2 = .49$ indicating a large effect size. According to Cohen (2013), an f^2 greater or equal to .35 indicates a large effect size. The model was statistically significant with $p = .006$. Consequently, the null hypothesis was rejected.

CHAPTER FIVE: CONCLUSIONS

Overview

This chapter consists of a discussion of study findings including observed correlations between GPA and persistence factors. The implications of the study and its effect on improving the socioeconomic status of the Hispanic population are also discussed. In addition, the limitations of the study are addressed. Finally, recommendations for future research are made to improve the generalizability of study findings.

Discussion

The purpose of this quantitative, predictive correlation study was to determine if there is a difference in grade point average (GPA) between Hispanic college students with various combinations of persistence factors. Accordingly, the research question was, “How accurately can GPA be predicted from the linear combination of persistence factors (academic integration, academic motivation, academic efficacy, financial strain, social integration, collegiate stress, advising effectiveness, degree commitment, institutional commitment, scholastic consciousness, and career integration) for Hispanic college students?”

Multiple linear regression analytical results in Table 8 indicated a correlation between GPA and various combinations of persistence factors. Regression coefficients associated with academic stress, social integration, academic motivation, and scholastic consciousness were observed as statistically significant. Furthermore, academic stress and social integration were found to have positive correlations with GPA, while academic motivation and scholastic consciousness were found to have negative correlations with GPA.

The observed correlation of academic stress and GPA supports studies of Hispanic college student stress and educational outcomes. Jones et al. (2021) observed that Hispanic

college students report feeling levels of stress greater than non-Hispanic college students. The authors stated that Hispanic college student stress can originate from interpersonal relationships, academic stress, financial strain, and racial discrimination. Arbona et al. (2018) further explained that Hispanic college students can undergo minority status stress from negative academic and social experiences within the educational institution that they perceive are the result of their ethnicity. The authors found that college stress and minority status stress are predictive of student depression, which in turn negatively influences Hispanic college student persistence. Jones et al. (2021) also found evidence of academic stress among Hispanic college students due to low self-efficacy, feelings of being scholastically overwhelmed, and negative experiences with faculty who are perceived as having low expectations of Hispanic college students.

The observed correlation between social integration and GPA supports studies of Hispanic college student sense of belonging and educational outcomes. Luciano-Wong and Crowe (2019) found a strong correlation between student sense of belonging and intention to persist in their study of Hispanic college students enrolled in four-year universities during academic years 2013-2014. The authors also found an association between sense of belonging and variables of satisfactory faculty interaction, satisfactory first-year courses, and satisfactory peer interaction. Furthermore, Carales and Nora (2020) observed that perceptions of racial discrimination, discussions about their ethnic identity, and interactions with college staff who are not Hispanic can also detract from the Hispanic college student sense of belonging. Elliott and Parks (2018) emphasized understanding the importance that a sense of belonging plays in the cultural context of Hispanic college students.

The observed correlation between academic motivation and GPA was negative, which is in contradiction to studies that found a positive correlation between academic motivation and

educational outcomes. Pina-Watson et al. (2018) found an association between student depression, satisfaction with life, and scholastic thoughts whereby greater satisfaction with life correlated with greater academic motivation. Conversely, the authors found that greater student depression correlated with greater academic skepticism. Pina-Watson et al. (2018) explained that Hispanic college students who are optimistic about their futures may become more motivated to perform academically, whereas Hispanic college students who feel hopeless may tend to lose interest in their education as they become skeptical of the utility of post-secondary education.

The observed correlation between scholastic consciousness and GPA was negative, which is in contradiction to studies that found a positive association of scholastic consciousness with educational outcomes. Elliott and Parks (2018) explained that Hispanic families often consist of extensive intergenerational associations of related individuals that provide mutual support for family members. According to Tello and Lonn (2017), the cooperative nature of family is a core Hispanic cultural value with an expectation that members prioritize family needs before their own. Elliott and Parks (2018) further explained that familial context may compel Hispanic college students to be more involved in family matters than academic and social interactions at their schools. Studies by Azmitia et al. (2019) indicated that Hispanic college students often reported family responsibilities for advocacy, language translations, financial arrangements, caring for family property, babysitting, income contributions, and advice. The authors explained that while family responsibilities serve to maintain Hispanic college student bonds with their families, the cultural prioritization of family before individual needs reduced the amount of time available for academic endeavors.

Implications

Carales (2020) observed that while research has focused on Hispanic student persistence, there have been few quantitative studies exclusively examining Hispanic student persistence and educational outcomes. The author indicated that factors influencing Hispanic college student persistence included enrollment intensity, academic integration, and financial aid, while factors predicting certificate or degree completion by a Hispanic college student included citizenship status, home language, family income, first-year GPA, and financial aid. The author did not include psychosocial factors, such as student sense of belonging, motivation, or institutional cultural climate, in the analysis, as specifications of those factors were not included in the sampled national database used in the study. Consequently, the author recommended that future research consider the inclusion of psychosocial factors with other persistence factors in order to address the gap in the literature regarding Hispanic college student persistence and educational outcomes in a comprehensive manner.

This study serves to address the gap in literature identified by Carales (2020) by examining the influence of comprehensive persistence factors on the educational outcomes of Hispanic college students. Multiple linear regression analytical results in Table 5 indicated a correlation between GPA and various combinations of persistence factors. Regression coefficients associated with academic stress, social integration, academic motivation, and scholastic consciousness were observed as statistically significant. In addition, this study extended the body of knowledge by including the psychosocial factors of sense of belonging, motivation, and institutional cultural climate.

Carales (2020) predicted that 65% of future employment opportunities will be requisite on the attainment of post-secondary education. Capers (2019) explained that the United States

economy is dependent upon the estimated 30.5 million Hispanic workers present in the workforce as of 2020. Consequently, the authors stressed the importance of addressing issues that may be barriers to successful educational outcomes of Hispanic students that will become necessary for the sustainment of the American economy in the modern global market.

Luciano-Wong and Crowe (2019) indicated that failure to address the low educational outcomes of Hispanic students could also result in income disparity with associated socioeconomic impacts on the Hispanic community and American society at large. Capers (2019) estimated that 31% of American adults between 25 and 34 years of age have attained a bachelor's degree while only 13% of young Hispanic adults have attained a bachelor's degree. The author explained that the low educational attainment of the Hispanic population hinders the economic and social advancement of the Hispanic community. Capers (2019) concluded that understanding the factors influencing Hispanic persistence and educational outcomes is necessary to improve the educational attainment of the Hispanic population. This study helps to improve the socio-economic conditions of the Hispanic population through the identification of factors that when addressed may increase the educational outcomes of Hispanic college students.

Limitations

Threats to the internal validity of this study include the language and construct of the survey. The survey used in this study was only made available to study participants in the English language. It is possible that survey questions could be misinterpreted by students for whom English is their second language. It is also plausible that one or more survey questions could be confusing and cause survey participants to select a response that does not accurately reflect their perspectives. These limitations of the study survey could result in erroneous

responses that may influence the values of calculated persistence factors and subsequent analysis.

Threats to the external validity of this study include sample bias and situation effect. This study only involved Hispanic students at a Northern Arizona community college. In addition, examination of Table 2 indicates that the majority of survey respondents were first-generation college students (FGCSs). Consequently, findings and conclusions from this study are not transferrable beyond Hispanic students from the specific study school.

Recommendations for Future Research

Additional studies should be conducted to improve the generalizability of this study. The following recommendations are made for future research.

1. Surveys with both English and Spanish translations should be made available to all study participants.
2. Study populations should include statistically valid samples of both Hispanic and non-Hispanic college students.
3. Study populations should include statistically valid samples of both FGCs and non-FGCS.

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Appendix A: Permission to use the Student Health Behavior and Student Success Survey



Laurel Mo <aerofeline@gmail.com>

Permission to adapt elements of the student health behavior and academic success survey into my dissertation

Laurel Mo [REDACTED]
To: [REDACTED]
Cc: [REDACTED]

Wed, Aug 31, 2022 at 1:09 PM

Hi, Dr. Reuter,


I am a doctoral candidate at Liberty University and am in the dissertation stage of a Doctorate in Education. My dissertation topic is the prediction of GPA from the linear combination of persistence factors for Hispanic college students. My plan is to use self-reported GPA as a criterion variable and persistence factors from Davidson and Beck's college persistence questionnaire as predictor variables in my research. Liberty University requires dissertations to use validated instruments. I would like to adapt questions regarding self-reported GPA, age, gender, FGCS status, and student classification from the Student Health Behavior and Academic Success Survey that you and Dr. Forser used in the article "Student Health Behavior and Academic Performance" that was published in PeerJ on April 16, 2021 into a demographic survey for my dissertation. To that effect I am, respectfully, requesting your permission to adapt the specified questions from your survey.


My academic transcript and dissertation prospectus are attached.

Thank you,

Laurel Mo
[REDACTED]

2 attachments

 **Mo_Laurel_Dissertation Prospectus.docx**
112K

 **transcript summer 2022.pdf**
670K



Laurel Mo <aerofeline@gmail.com>

Permission to adapt elements of the student health behavior and academic success survey into my dissertation

Reuter, Dr. Peter [REDACTED]
To: [REDACTED]
Cc: [REDACTED]

Wed, Aug 31, 2022 at 1:53 PM

Laurel,

Thanks a lot for your email and for your interest in and appreciation for our research. I'm happy to grant you permission to use parts of our survey and to make adjustments as needed. Please indicate on the survey and in any paper you write based on the data collected that the survey you used was based on the survey from our research article and that you were granted permission by the authors of the article.

Once you've collected the data, we could talk about whether or not it makes sense to maybe write an article comparing the results of your study population with ours. We kept collecting data throughout and after the pandemic.

Peter Reuter

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Florida has a very broad public records law. As a result, any written communication created or received by Florida Gulf Coast University employees is subject to disclosure to the public and the media, upon request, unless otherwise exempt. Under Florida law, e-mail addresses are public records. If you do not want your email address released in response to a public records request, do not send electronic mail to this entity. Instead, contact this office by phone or in writing.

Appendix B: Permission to use the Collegiate Persistence Questionnaire



Laurel Mo <aerofeline@gmail.com>

Permission to Use the College Persistence Questionnaire

7 messages

Hall Beck [REDACTED]
To: [REDACTED]

Sun, Aug 28, 2022 at 12:09 PM

Dear Ms. Mo,


You have permission to use the College Persistence Questionnaire Version 8 (see attachment) with the following stipulations.

1. This permission extends only to your dissertation and not to any other projects that you or others may engage in.
2. The College Persistence Questionnaire Version 8 is not to be reproduced verbatim in your dissertation manuscript stored in hardcopy or digitally in any site or location.
3. At the conclusion of your data collection, you agree to notify Hall Beck, PhD (beckhp@appstate.edu) of the number of students that you assessed and to pay \$3.00 per participant for the use of the College Persistence Questionnaire. Payment should be sent to Hall Beck, PhD, PO Box 734, Valle Crucis, NC 28691, USA.

Have a happy day and good luck with your dissertation,

Hall 'Skip' Beck, PhD

PS: It was a pleasure speaking with you this week. I have attached a copy of a validation article of the Career Integration scale we published several years ago. As I mentioned during our conversation, I am preparing to submit a more thorough validation study of the scale soon. I will notify you when that article is available digitally or in print. Also, you mentioned that you would be assessing community college students. We slightly revised the wording of a few questions for that population. However, we have not yet validated those few questions with a community college sample. It is, of course, your decision whether to use those or the original items.

2 attachments **CPQ V8 (39 Questions) With Ci, Grit, and JC Items.docx**
22K **CiValidation.pdf**
179K

Appendix C: College Persistence and Academic Success Survey

Dear Student:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Doctor of Education degree. The purpose of my research is to determine if grade point average (GPA) can be predicted from the linear combination of persistence factors for Hispanic college students, and I am writing to invite eligible participants to join my study.

Participants must be currently enrolled in a Northern Arizona college and of Hispanic ethnicity. Participants, if willing, will be asked to complete an anonymous online survey, which should take approximately 10 minutes to complete. Participation will be completely anonymous, and no personal, identifying information will be collected.

To participate, please click here (<https://www.surveymonkey.com/r/76RG39G>).

A consent document is provided as the first page of the survey. The consent document contains additional information about my research. After you have read the consent form, please click the link to proceed to the survey. Doing so will indicate that you have read the consent information and would like to take part in the survey.

Sincerely,

Laurel Mo
Doctoral Candidate



Consent

Title of the Project: The Prediction of Grade Point Average from the Linear Combination of Hispanic College Students

Principal Investigator: Laurel Mo, Doctoral Candidate, School of Education, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be a Northern Arizona college student who is of Hispanic ethnicity. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of this study is to address the lack of research regarding the impact of persistence factors on the educational outcomes of Hispanic college students.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to complete an anonymous online survey. Completing the survey will take approximately 10 minutes.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include insight into the educational outcomes resulting from the factors that influence the persistence of Hispanic students. This study is important in the formulation of policies to improve the educational outcomes of the Hispanic population.

What risks might you experience from being in this study?

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records.

Participant responses will be anonymous. Data will be stored on a password protected computer. After five years, all electronic records will be deleted.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Laurel Mo. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [REDACTED]. You may also contact the researcher's faculty sponsor, Dr. Treg Hopkins, at [REDACTED].

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the IRB. Our physical address is Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA, 24515; our phone number is 434-592-5530, and our email address is irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.

COLLEGE PERSISTENCE AND ACADEMIC SUCCESS
Online Survey

1. Are you of Hispanic ethnicity?

- Yes
- No

2. What is your age?

- Under 18
- 18 - 24
- 25 – 34
- 35 – 44
- 45 – 54
- 55 – 64
- 65+

3. What is your marital status?

- Unmarried
- Married

4. Are you a first generation college student?

- Yes
- No

5. Are you a full-time student

- Yes
- No

6. What is your current cumulative GPA? _____

7. What are your living arrangements?

- On-campus
- At home with parents
- Off campus not with parents

8. Do you work?

- Yes
- No

9. On average, how many hours do you work each week?

- Less than 5 hours
- 5-10 hours
- 11-20 hours
- 21-30 hours
- 31-40 hours
- Over 40 hours

10. Do you have children that you are responsible for?

- Yes
- No

11. How much do you think you have in common with other students here?

- very much
- much
- some
- little
- very little
- not applicable

12. How would you rate the quality of the instruction you are receiving here?

- excellent
- good
- fair
- poor
- very poor
- not applicable

13. How often do you worry about having enough money to meet your needs?

- very often
- somewhat often
- sometimes
- rarely
- very rarely
- not applicable

14. How confident are you that this is the right college or university for you?

- very confident
- somewhat confident
- neutral
- somewhat unconfident
- very unconfident
- not applicable

15. How much pressure do you feel when trying to meet deadlines for course assignments?

- extreme pressure
- much pressure
- some pressure
- a little pressure
- hardly any pressure at all
- not applicable

16. How satisfied are you with the academic advising you receive here?

- very satisfied
- somewhat satisfied
- neutral
- somewhat dissatisfied
- very dissatisfied
- not applicable

17. How confident are you that you can get the grades you want?

- very confident
- somewhat confident
- neutral
- somewhat unconfident
- very unconfident
- not applicable

18. How often do you miss class for reasons other than illness or participation in school-related activities?

- very often
- somewhat often
- sometimes
- rarely
- very rarely
- not applicable

19. Students vary widely in their view of what constitutes a good course, including the notion that the best course is one that asks students to do very little. In your own view, how much work would be asked of students in a really good course?

- very much
- much
- some
- little
- very little
- not applicable

20. There are so many things that can interfere with students making progress toward a degree, feelings of uncertainty about finishing are likely to occur along the way. At this moment in time, how certain are you that you will earn a college degree?

- very certain
- somewhat certain
- neutral
- somewhat uncertain
- very uncertain
- not applicable

21. How likely is it that the training you are receiving here will help you to get the job you want?

- very likely
- somewhat likely
- neutral
- somewhat unlikely
- very unlikely
- not applicable

22. How much have your interactions with other students had an impact on your personal growth, attitudes, and values?

- very much
- much
- some
- little
- very little
- not applicable

23. How much do the instructors and the courses make you feel like you can do the work successfully?

- very much
- much
- some
- little
- very little
- not applicable

24. How difficult is it for you or your family to be able to handle college costs?

- very difficult
- somewhat difficult
- neutral
- somewhat easy
- very easy
- not applicable

25. How likely is it you will earn a degree from here?

- very likely
- somewhat likely
- neutral
- somewhat unlikely
- very unlikely
- not applicable

26. Students differ quite a lot in how distressed they get over various aspect of college life. Overall, how much stress would you say that you experience while attending this institution?

- very much stress
- much stress
- some stress
- a little stress
- very little stress
- not applicable

27. How easy is it to get answers to your questions about things related to your education here?

- very easy
- somewhat easy
- neutral
- somewhat hard
- very hard
- not applicable

28. When you are waiting for a submitted assignment to be graded, how assured do you feel that the work you have done is acceptable?

- very assured
- somewhat assured
- neutral
- somewhat unassured
- very unassured
- not applicable

29. How often do you arrive late for classes, meetings, and other college events?

- very often
- somewhat often
- sometimes
- rarely
- very rarely
- not applicable

30. In general, how enthused are you about doing academic tasks?

- very enthusiastic
- somewhat enthusiastic
- neutral
- somewhat unenthusiastic
- very unenthusiastic
- not applicable

31. After beginning college, students sometimes discover that a college degree is not quite as important to them as it once was. How strong is your intention to persist in your pursuit of the degree, here or elsewhere?

- very strong
- somewhat strong
- neutral
- somewhat weak
- very weak
- not applicable

32. How confident are you that the training you are receiving here will lead to a good-paying job?

- very confident
- somewhat confident
- neutral
- somewhat unconfident
- very unconfident
- not applicable

33. How much have your interactions with other students had an impact on your intellectual growth and interest in ideas?

- very much
- much
- some
- little
- very little
- not applicable

34. In general, how satisfied are you with the quality of instruction you are receiving here?

- very satisfied
- somewhat satisfied
- neutral
- somewhat dissatisfied
- very dissatisfied
- not applicable

35. When considering the financial costs of being in college, how often do you feel unable to do things that other students here can afford to do?

- very often
- somewhat often
- sometimes
- rarely
- very rarely
- not applicable

36. How much thought have you given to stopping your education here (perhaps transferring to another college, going to work, or leaving for other reasons)?

- a lot of thought
- some thought
- neutral
- little thought
- very little thought
- not applicable

37. How often do you feel overwhelmed by the academic workload here?

- very often
- somewhat often
- sometimes
- rarely
- very rarely
- not applicable

38. How would you rate the academic advisement you receive here?

- excellent
- good
- fair
- poor
- very poor
- not applicable

39. How much doubt do you have about being able to make the grades you want?

- very much doubt
- much doubt
- some doubt
- little doubt
- very little doubt
- not applicable

40. How often do you turn in assignments past the due date?

- very often
- somewhat often
- sometimes
- rarely
- very rarely
- not applicable

41. Some courses seem to take a lot more time than others. How much extra time are you willing to devote to your studies in those courses?

- very much extra time
- much extra time
- some extra time
- a little extra time
- very little extra time
- not applicable

43. At this moment in time, how strong would you say your commitment is to earning a college degree, here or elsewhere?

- very strong
- somewhat strong
- neutral
- somewhat weak
- very weak
- not applicable

44. A goal of education is to teach you how to do what you will need to be able to do in order to succeed in your future job. How optimistic are you that the career training you receive here will give you the necessary skills?

- very optimistic
- somewhat optimistic
- neutral
- somewhat pessimistic
- very pessimistic
- not applicable

45. How much of a financial strain is it for you to purchase the essential resources you need for courses such as books and supplies?

- very large strain
- somewhat of a strain
- neutral
- a little strain
- hardly any strain at all
- not applicable

46. How certain are you that the training you are receiving here will lead to an enjoyable job?

- very certain
- somewhat certain
- neutral
- somewhat uncertain
- very uncertain
- not applicable

47. How likely is it that you will reenroll here next semester?

- very likely
- somewhat likely
- neutral
- somewhat unlikely
- very unlikely
- not applicable

Appendix D: Personal Communications with Dr Hall Beck



Laurel Mo <aerofeline@gmail.com>

Response to your question about versions 4,5,6, and 7

4 messages

Hall Beck

To: Laurel Mo

Tue, Sep 6, 2022 at 11:32 AM

Mo,

Does the following paragraph provide the information that you need?

CPQ-V3 consisted of ten scales each of which predicted retention at American colleges and universities. However, like all good psychometric instruments the CPQ is in a continual state of development. Detailed analyses of each item, their relationship to the Version 3 scales, and examination of recent literature led to multiple exploratory studies. We labeled these Versions 4, 5, 6, and 7. The result, Version 8, included two new predictive scales, Career Integration and GRIT, and the addition and subtraction of some items from the original ten scales.

Have a happy day,

Skip

Laurel Mo

To: Hall Beck

Tue, Sep 6, 2022 at 4:53 PM

Hi, Dr. Beck,

That explanation will work fine. I did have a question about validation of the grit scale. I didn't find one for grit though there was a good writeup in Davidson and Beck (2016) for career integration. Is grit one of those in the pending article that's in review? These are the journal articles I cited for CPQ validation,

- Davidson, W., Beck, H., & Milligan, M. (2009). The college persistence questionnaire: Development and validation of an instrument that predicts student attrition. *Journal of College Student Development*, 50(4), 373-390. https://www.researchgate.net/publication/236812753_The_College_Persistence_Questionnaire_Development_and_Validation_of_an_Instrument_That_Predicts_Student_Attrition
- Davidson, W., Beck, H., & Grisaffe, D. (2015). Increasing the institutional commitment of college students: Enhanced measurement and test of a nomological model. *Journal of College Student Retention: Research, Theory & Practice*, 17(2), 162-185. <https://doi:10.1177/1521025115578230>
- Davidson, W., & Beck, H. (2016). The development and validation of a measure of career integration in college students. *Psychology Research*, 6(6), 371-376. <https://doi:10.17265/2159-5542/2016.06.005>

For the time being I left the grit scale out and plan on using the other 11, including career integration. This is an extract from the discussion on the CPQ in Chapter 3 of my dissertation prospectus that I just wrote to incorporate the lineage of the CPQ.

"Davidson et al (2009) performed a validation of CPQ version 1 and estimated reliability through a Cronbach's alpha of .81 for academic integration, .82 for social integration, .74 for support services satisfaction, .70 for degree commitment, .78 for institutional commitment, and .63 for academic conscientiousness. CPQ version 2 was validated by Davidson et al. (2015) with estimated reliability through a Cronbach's alpha of .83 for institutional commitment, .83 for academic integration, .85 for financial strain, .80 for social integration, .68 for scholastic conscientiousness, .75 for academic motivation, .70 for degree commitment, .79 for collegiate stress, .78 for advising, and .73 for academic efficacy. CPQ version 3 is a shorter form based on CPQ version 2 (Pugh et al., 2018). CPQ versions 4 through 7 were exploratory in nature. Grit and career integration were added in CPQ version 8, however, only career integration has been validated at this time. The inclusion of career integration into CPQ, version 8, was validated by Davidson and Beck (2016) with estimated reliability through a Cronbach's alpha of .90 for career integration. The CPQ has been used in a number of

other studies (e.g., Arbona et al. (2018); Banyard et al. (2020); Betts et al. (2017); Menendez et al. (2020); Muller et al. (2017); and Muwonge et al. (2017). Approval has been received from Dr. Hall Beck to use the CPQ in this study. See Appendix B for permission to use this instrument. Elements of the CPQ have been merged with elements of the previously described demographic survey to form the college persistence and academic success survey in Appendix C that will be used in this study."

I merged the demographic survey for the dissertation with CPQ version 8 and produced a composite survey for my study that should alleviate concerns about unauthorized CPQ surveys making their way around the internet. In this manner, I should be able to administer the CPQ to study participants without the risk of leaving an electronic trail of CPQ version 8 in ether space. I've also left the scoring instructions out, as well. I'm hoping this conforms with the stipulations of use of the CPQ. The composite survey is attached for your review. I've also attached the latest version of my dissertation prospectus for context.

Hope this finds all is well. I am appreciative of your assistance.

Laurel

"

[Quoted text hidden]

2 attachments

 **Mo_Laurel_Dissertation Prospectus-2.docx**
668K

 **Persistence and Academic Success Questionnaire.docx**
31K

Hall Beck [REDACTED]
To: Laurel Mo <[REDACTED]>

Wed, Sep 7, 2022 at 6:34 AM

Good eye!! We assessed the GRIT scale in several unpublished studies. These found statistically significant bivariate correlations with retention. More importantly, the inclusion of GRIT produced statistically significant increments in the explained variance which could not be attributed to the other 11 scales. Thus, our data validated the use of the GRIT scale.

However, other scales (e.g., Institutional Commitment, Career Integration) are much better predictors of retention than GRIT. Bill and I discussed the matter and decided to retain GRIT because its inclusion did have some benefit and did not substantially increase the time required to complete the CPQ.

Hope this helps.

[Quoted text hidden]

Laurel Mo [REDACTED]
To: Hall Beck <[REDACTED]>

Wed, Sep 7, 2022 at 8:02 PM

Hi, Dr. Beck,

Thanks for the response. This helps a lot. I plan on continuing with the writeup similar to the excerpt I showed you and include your emails on validation in an Appendix in my dissertation.

Laurel

[Quoted text hidden]

Appendix E: Liberty University IRB Approval

LIBERTY UNIVERSITY

INSTITUTIONAL REVIEW BOARD

May 17, 2023

Laurel Mo
Treg Hopkins

Re: IRB Approval - IRB-FY22-23-1344 THE PREDICTION OF GRADE POINT AVERAGE FROM THE LINEAR COMBINATION OF PERSISTENCE FACTORS FOR HISPANIC COLLEGE STUDENTS

Dear Laurel Mo, Treg Hopkins,

We are pleased to inform you that your study has been approved by the Liberty University Institutional Review Board (IRB). This approval is extended to you for one year from the following date: May 17, 2023. If you need to make changes to the methodology as it pertains to human subjects, you must submit a modification to the IRB. Modifications can be completed through your Cayuse IRB account.

Your study falls under the expedited review category (45 CFR 46.110), which is applicable to specific, minimal risk studies and minor changes to approved studies for the following reason(s):

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

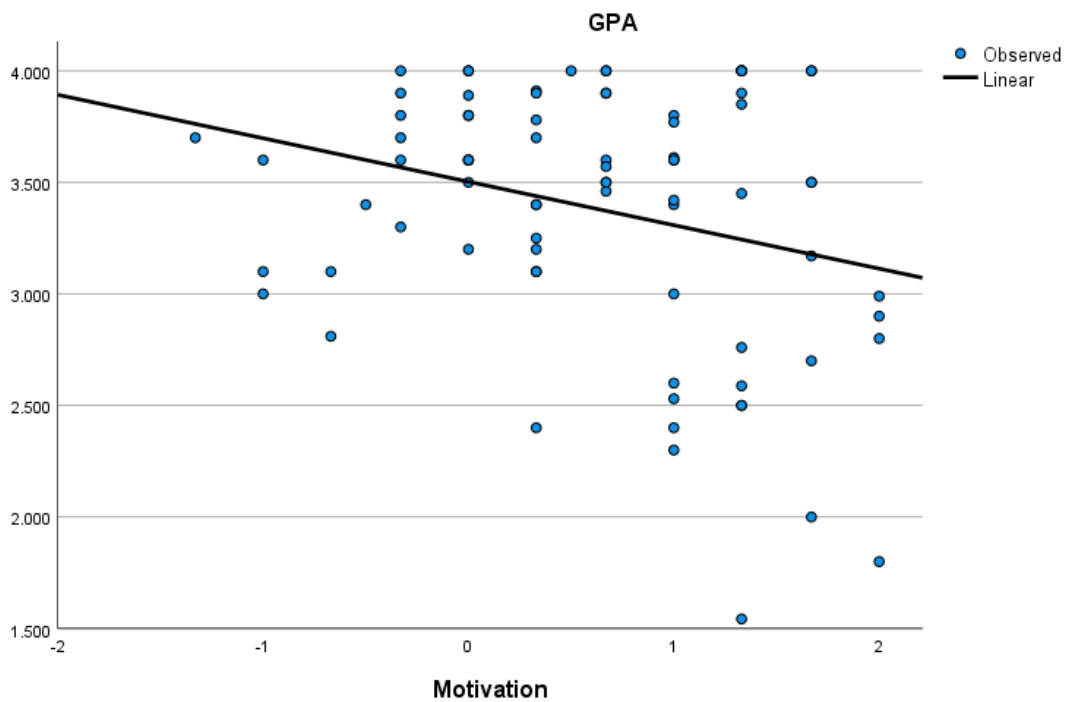
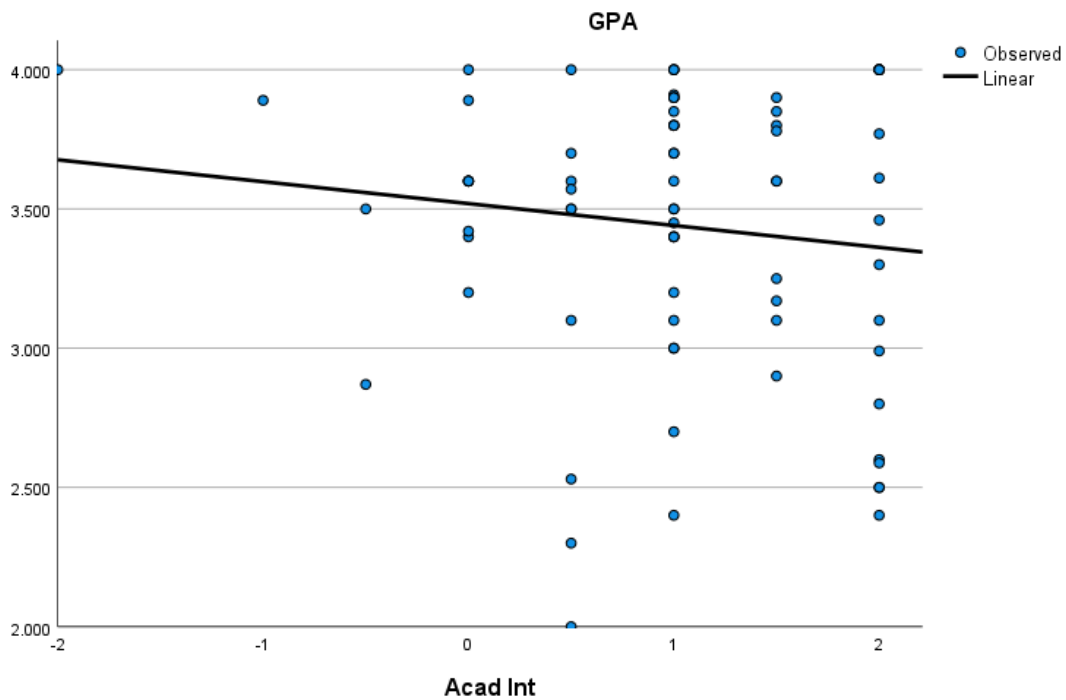
Your stamped consent form(s) and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

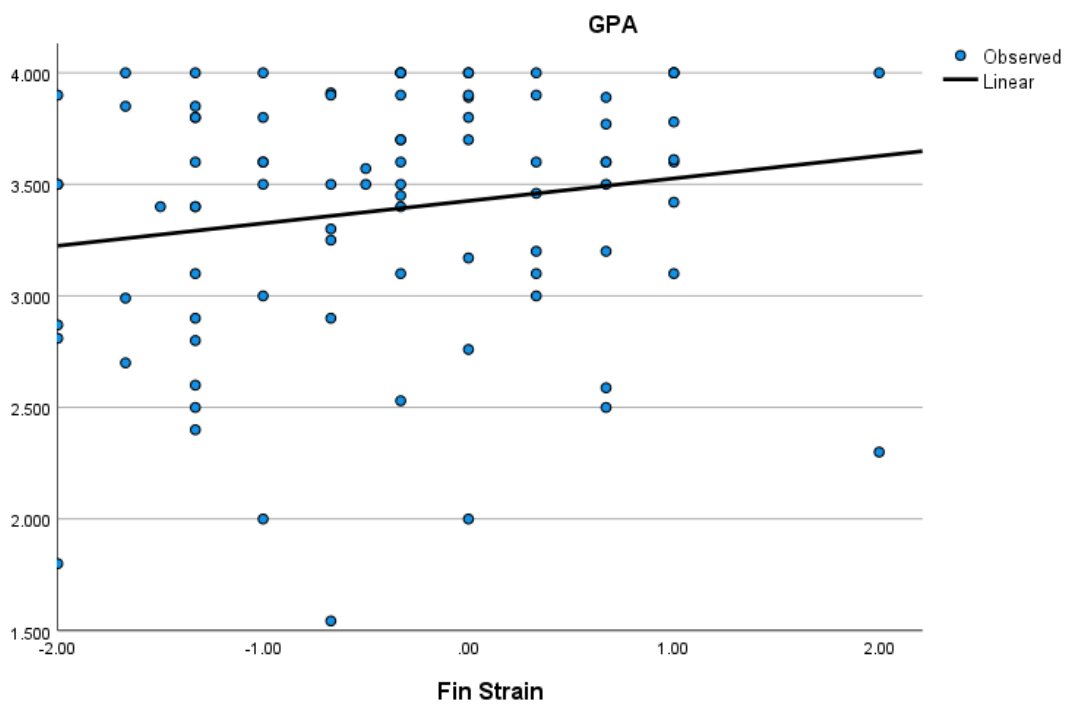
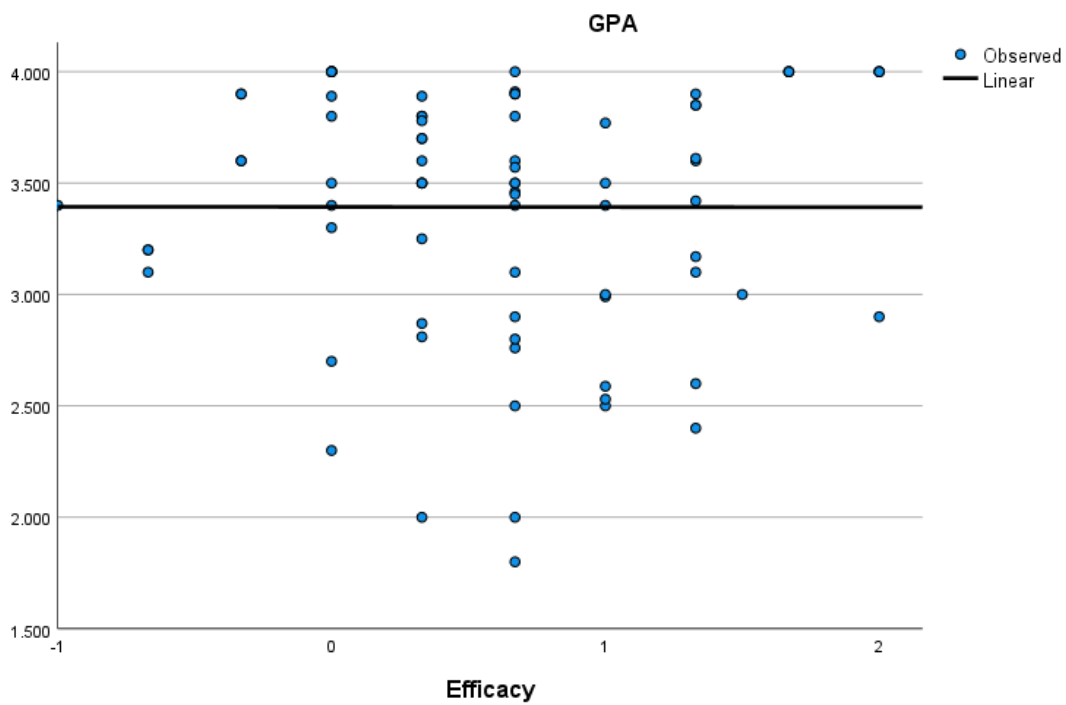
Thank you for your cooperation with the IRB, and we wish you well with your research project.

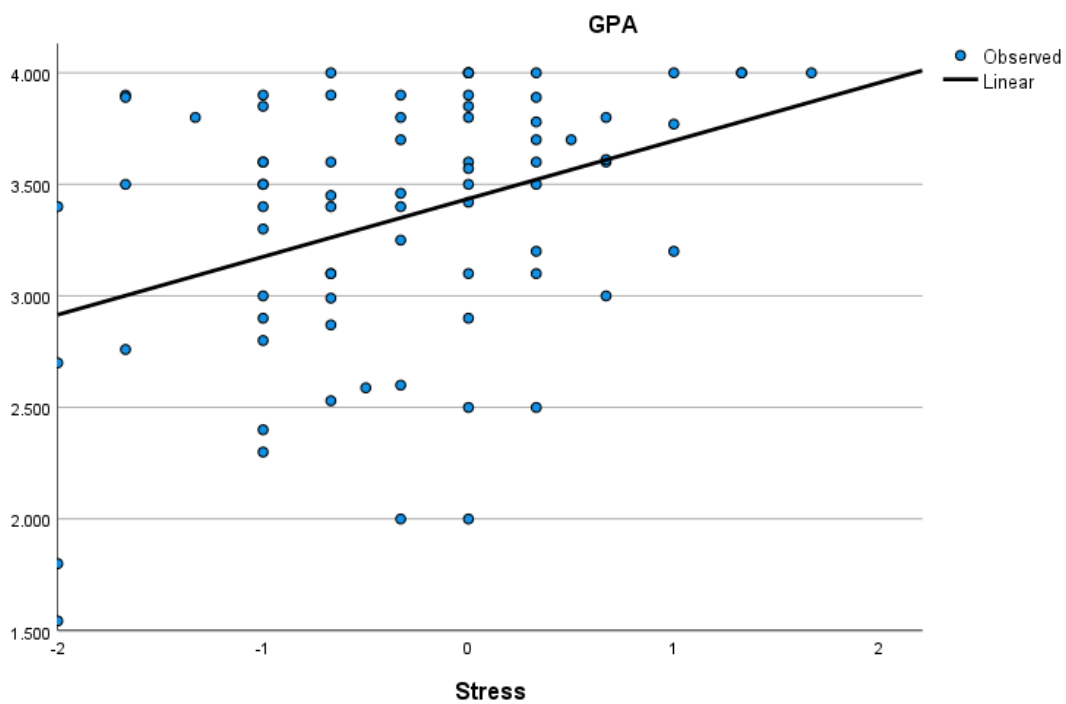
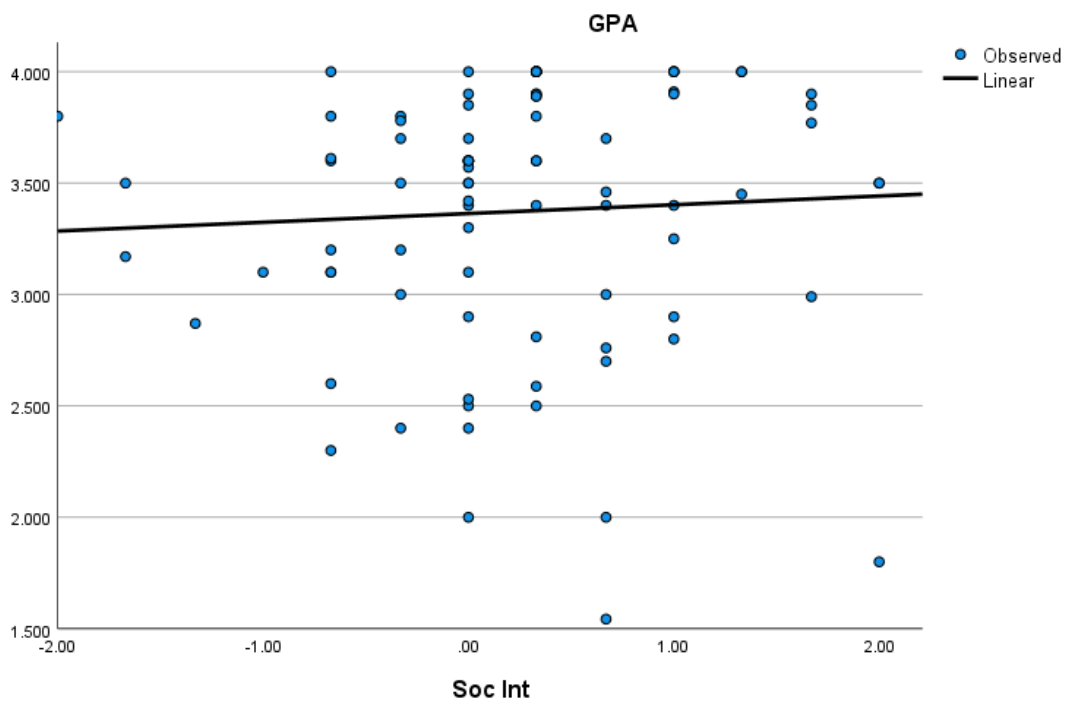
Sincerely,

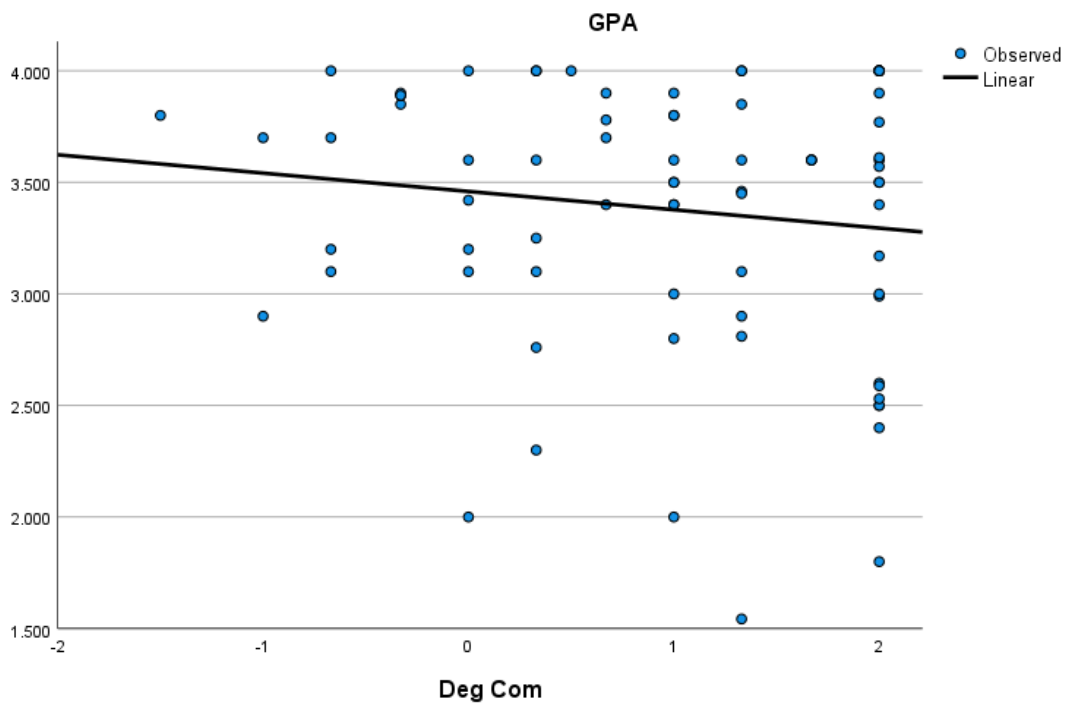
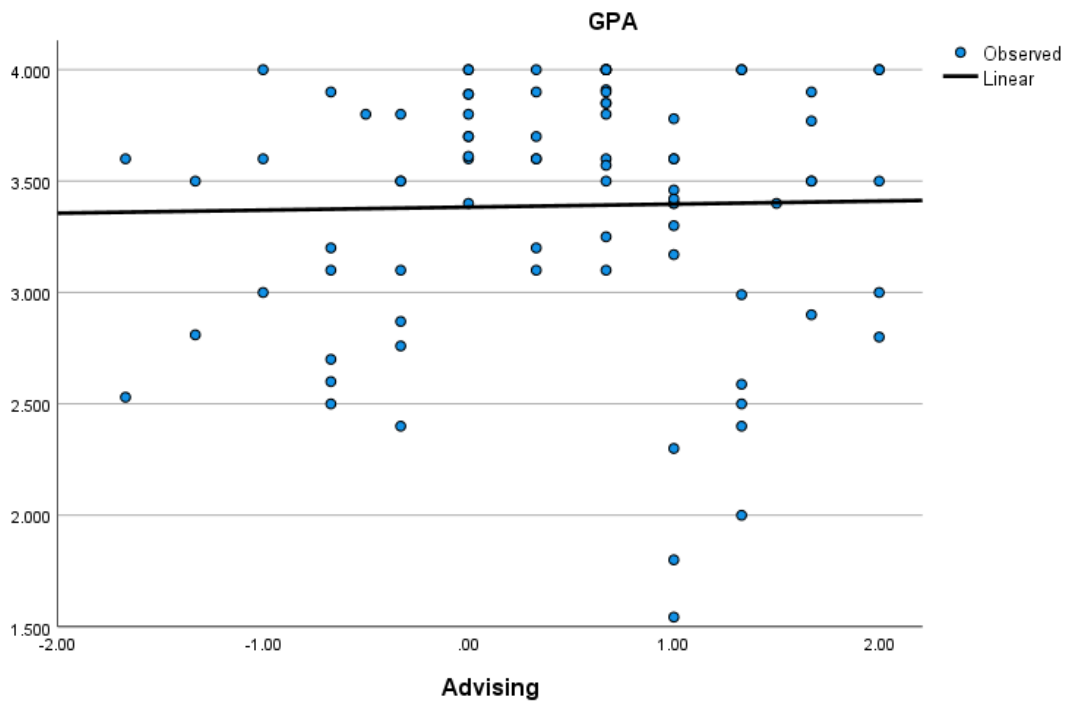
G. Michele Baker, PhD, CIP
Administrative Chair
Research Ethics Office

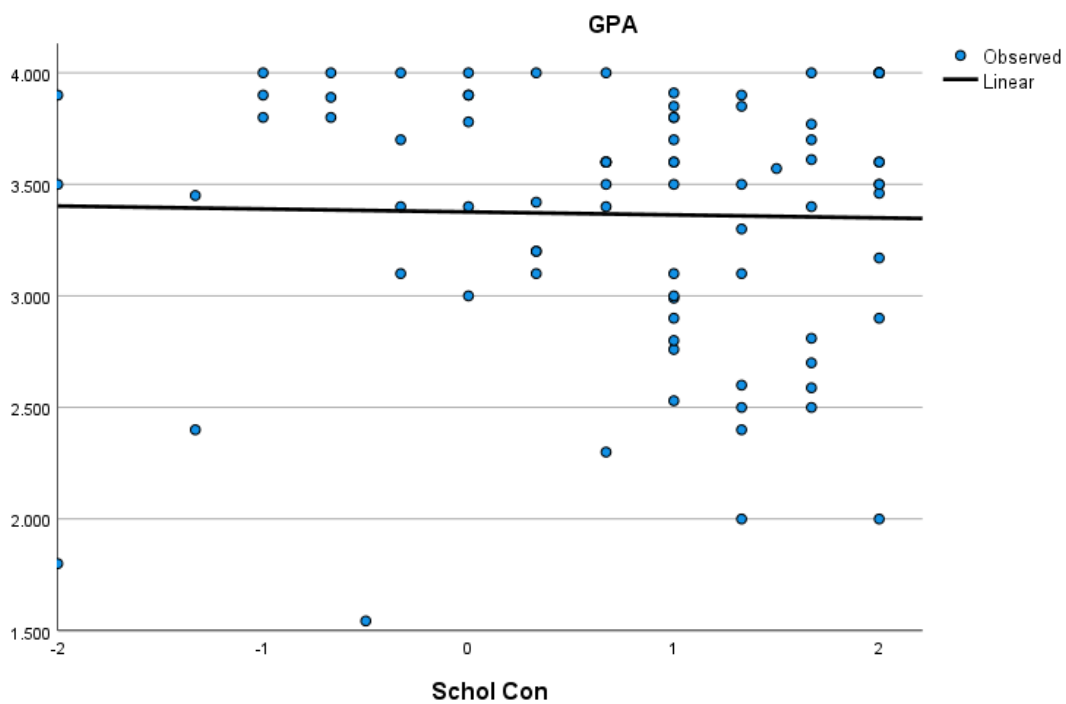
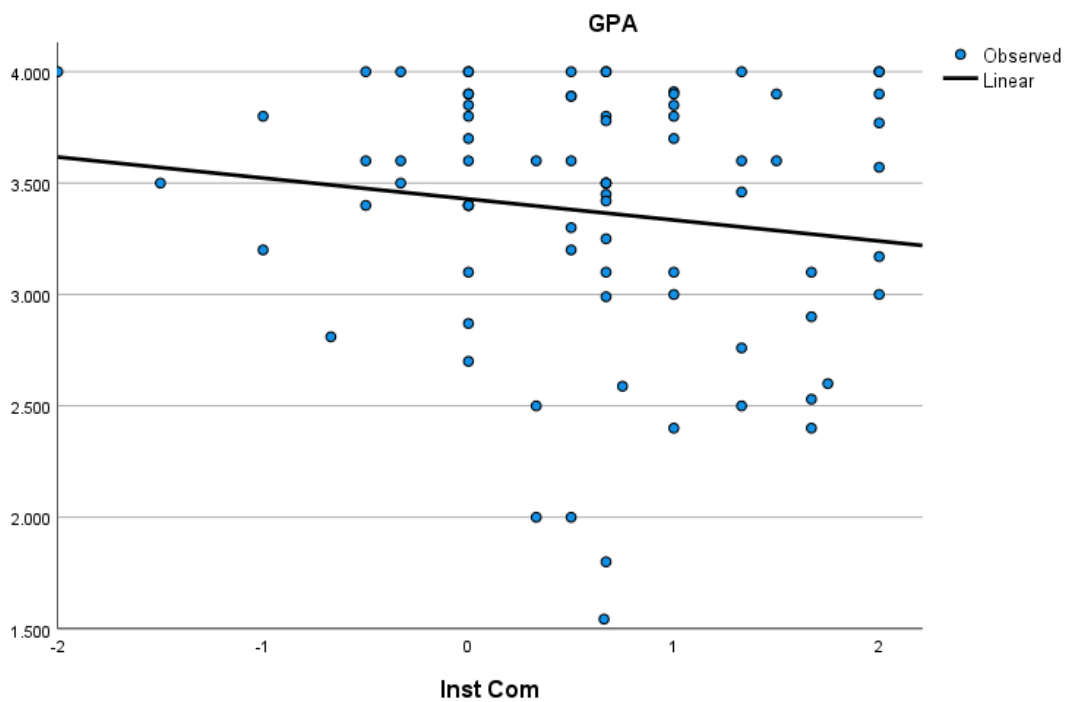
Appendix F: Scatter Plots of GPA with Predictor Variable

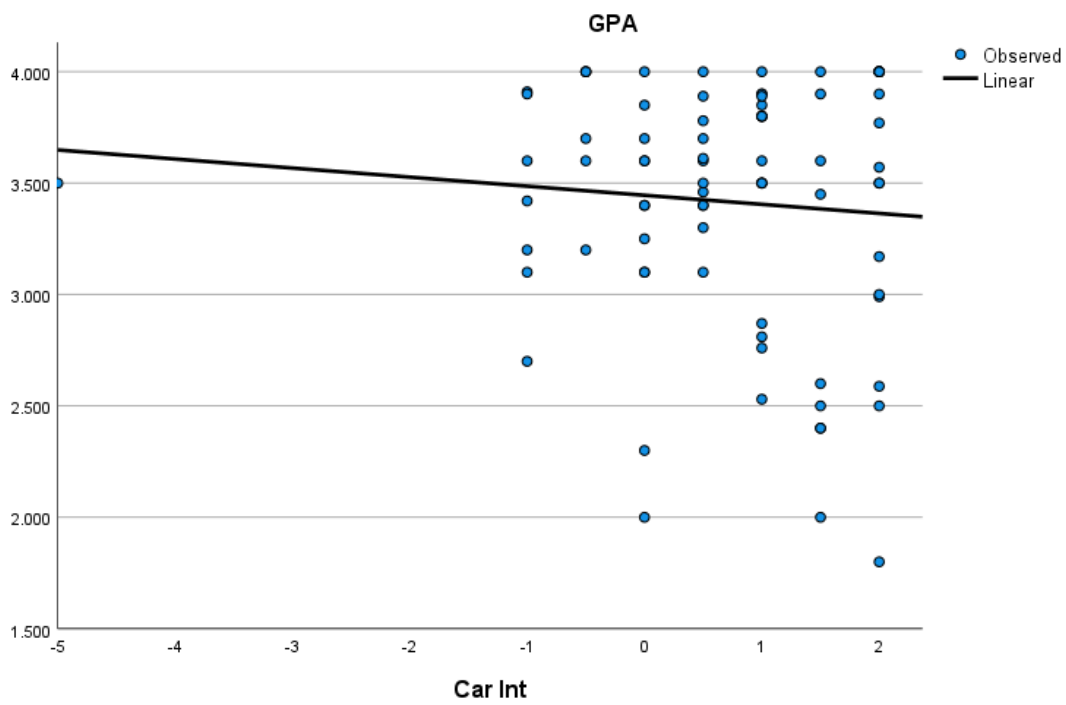




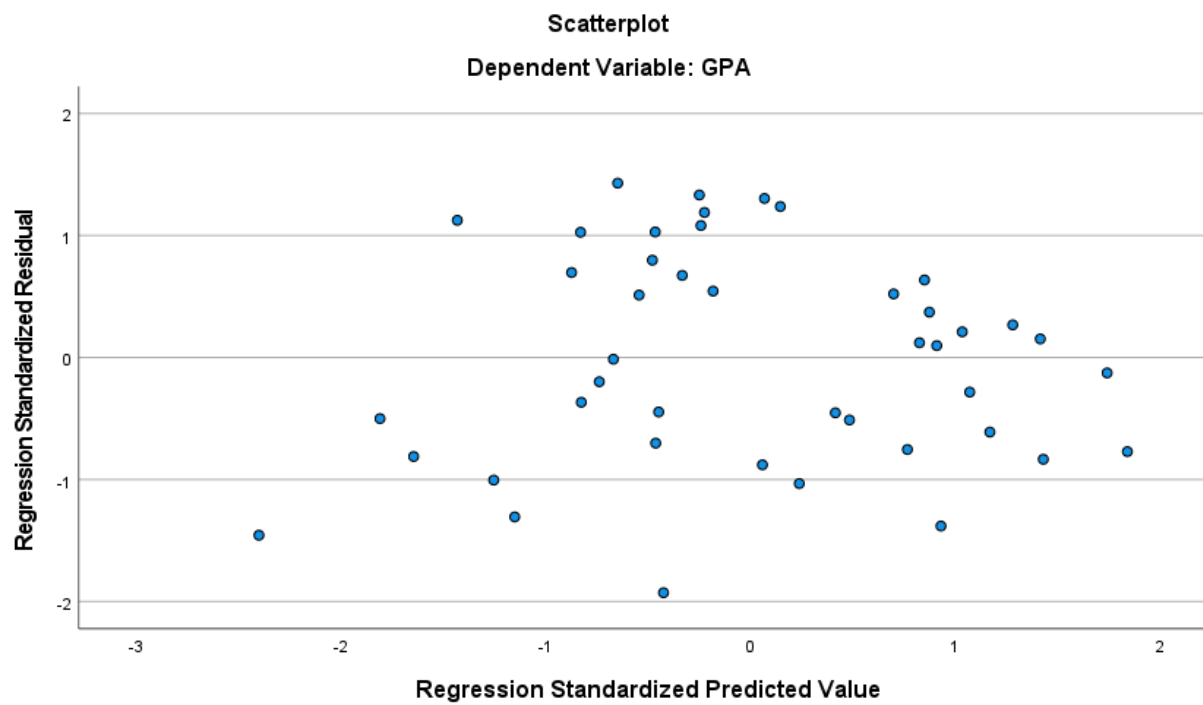








Appendix G: Scatter Plot of Residuals against Predicted Values



Appendix H: SPSS Regression Analysis Output

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.698 ^a	.488	.333	.410613	1.814

^a Predictors: (Constant), Car Int, Fin Strain, Soc Int, Schol Con, Acad Int, Stress, Inst Com, Advising, Motivation , Deg Com

^b Dependent Variable: GPA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.298	10	.530	3.142	.006 ^b
	Residual	5.564	33	.169		
	Total	10.862	43			

^a Dependent Variable: GPA

^b Predictors: (Constant), Car Int, Fin Strain, Soc Int, Schol Con, Acad Int, Stress, Inst Com, Advising, Motivation , Deg Com

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	3.574	.107		33.527	<.001	3.357	3.791		
	Acad Int	.094	.097	.163	.976	.336	-.103	.291	.554	1.806
	Motivation	-.432	.145	-.629	-2.981	.005	-.727	-.137	.348	2.873
	Fin Strain	.015	.100	.027	.152	.880	-.189	.219	.512	1.955
	Soc Int	.343	.120	.482	2.849	.008	.098	.587	.542	1.844
	Stress	.345	.116	.523	2.971	.006	.109	.582	.500	2.000
	Advising	.054	.104	.093	.513	.611	-.159	.266	.471	2.122
	Deg Com	.207	.129	.405	1.600	.119	-.056	.470	.242	4.129
	Inst Com	-.041	.097	-.074	-.423	.675	-.239	.157	.511	1.956
	Schol Con	-.297	.099	-.525	-2.991	.005	-.500	-.095	.505	1.982
	Car Int	-.048	.117	-.097	-.413	.683	-.286	.190	.282	3.547

^a Dependent Variable: GPA