THE EFFECT OF A STRUCTURED FRESHMAN YEAR ON LATINO STUDENT SUCCESS AT A HISPANIC SERVING INSTITUTION

A Dissertation

by

LETICIA E. DUNCAN-BROSNAN

Submitted to the Office of Graduate and Professional Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Chair of Committee,	Fred Bonner, II
Committee Members,	Fredrick Nafukho
	Kelli Peck-Parrot
	Chance Lewis
Head of Department,	Frederick Nafukho

May 2015

Major Subject: Educational Administration

ABSTRACT

The purpose of this study is to provide an analysis of the Academic Development Program (ADP) and its effect on persistence and graduation of Latino students at a four-year Hispanic Serving Institution (HSI) located in South Texas.

ADP is a comprehensive academic support program designed to provide provisionally-admitted students with the necessary support to succeed academically in the postsecondary setting. Students who were unable to meet university admissions standards are admitted on a provisional basis for the first year and must enroll in ADP.

The data used for this study included existing data available through the ADP database and data from the institution's student information system (Banner) which was used to establish the relationships among the dependent (ADP and non-ADP students) and independent variables (first year retention, first-year grade point average (GPA), sixth-year graduation, and sixth-year "overall" GPA). In addition, the relationship between first-year GPA for ADP and non-ADP students and between sixth-year GPA for ADP and non-ADP students were examined.

Major findings of the study include: (1) no statistical differences existed between the number of ADP (provisionally admitted) and non-ADP (regularly admitted) students who were retained after the first year and the number who were not retained and there was no difference in the first-year retention rate of ADP students as compared to non-ADP students; (2) a statistical significant difference existed between non-ADP students and ADP students when observing first-year GPA; (3) a statistical significant difference existed between the mean GPA for ADP and non-ADP students with regards to overall

GPA. That is, the relationship between sixth-year GPA for the ADP and non-ADP groups; and (4) no statistical differences existed between admission type (provisionally admitted or regularly admitted students) and sixth-year graduation rate. That is, both regularly admitted and provisionally admitted students equally graduate within 6 years.

Recommendations for policy, practice, and research are also provided for future researchers, student support staff, practitioners, and senior administrators. The recommendations are supported by the recent research on Latino student success and the models identified in the review of the literature.

DEDICATION

I would like to dedicate this dissertation to my husband Michael Brosnan and my children, Moira Ophelia and Sean Francis. Thank you all for your love and support, I could not have done this without you. You are what I live for, the best is yet to come; we have a wonderful future ahead. To my parents, the late Frank Guerra Duncan and Barbara Gonzalez Duncan, thank you for all your love and support thru my journey. To my Abuelas, Ophelia Guerra Duncan and Eva Juarez Gonzalez, who taught me to have faith in God.

ACKNOWLEDGEMENTS

I would like to thank my committee chair, Dr. Fred Bonner, II for his support and encouragement, and my committee members, Dr. Fredrick Nafukho, Dr. Kelli Peck-Parrot, and Dr. Chance Lewis, for their patience and support throughout the course of this research. A special thank you to, Dr. Candace Schaefer for her writing coaching.

Dr. Bonner accepted to take over as my Chair and got me through this process with great patience and support. I will always be sincerely grateful for your belief in me and your support and encouragement during the good and bad days. I also would like to thank Joyce Nelson, Graduate Academic Advisor, who assisted me in the official Defense of the Dissertation forms.

I also want to extend my gratitude to Dr. Stanley Carpenter and Dr. Bryan Cole for recruiting us to join the San Antonio TAMU Doctoral cohort. Thanks for taking a chance on and selecting me for the program.

A very special thanks, also goes to my friends and colleagues who were part of my San Antonio doctoral cohort: Bonita, Rosalind, Steve, Rebecca, and Michelle. Thanks for making this journey bearable and thanks for all your support throughout the years. To my Tomás Rivera Center Family, thanks for your continued support and believing in me. To my inspirations, Dr. Rosie Banda and Dr. Alonzo Flowers, two scholars of Color who will do great things in the field of Higher Education, thank you for your support!

I would also like to thank the educators who supported my path to the doctorate, Sisters Maureen Finnerty and Therese Cunningham. They saw a light in me and

supported my educational goals. To my career role-models, Mrs. Laura Thompson-Hernandez, Project: STAY Director and Dr. Maricela Oliva, UTSA Associate Professor.

Thanks to my husband, Michael for his love and support. You always supported all of my dreams and joined me for the most special moments of my life to include the birth of our two beautiful children. Thanks to my children who gave me such a true sense of purpose and brought such sheer joy to my everyday life. I want you to always go for your dreams and always give back to others and your community. I love you all so much.

Finally, to my parents the late Frank Guerra Duncan and Barbara Gonzalez Duncan; and my in-laws John and Ingrid Brosnan, thank you for all your love and support throughout the years, I could not have gotten this far without your constant encouragement.

NOMENCLATURE

ACT	Assessment College Test
ADP	Academic Development Program
AY	Academic Year
BEST	Building Engineering and Science Talent
GPA	Grade Point Average
HSI	Hispanic Serving Institution
SAT	Scholastic Aptitude Test
SES	Socio Economic Status
SI	Supplemental Instruction
SSS	Student Support Services
STEM	Science, Technology, Engineering, and Mathematics
TAMU	Texas A & M University
US	United States

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION TO THE STUDY

In spite of an increase in college enrollment among Latino[1] student populations, a recent study reported that these students trail all other groups in earning undergraduate degrees (Fry, 2011; Rooney, 2002). Only about one third of Latinos (32%) compared to 38% of Blacks, 44% of Whites, and 62% of Asians were enrolled in some type of postsecondary education (Fry, 2011). Although post-secondary enrollment among Latinos increased to 1.4 million students, the numbers demonstrate that Latinos are less likely than their White counterparts to obtain a four-year college degree (Fry, 2005). According to the 2010 United States (US) Census, Latinos represented 16% of the overall US population or 50.5 million persons (Passel, Cohn, & Lopez, 2011). While the Latino population has more than doubled, the number of Latinos attending post-secondary education has only grown by 5% (Hobbs & Stoops, 2002). The Latino participation rate is much less than the participation by Whites (14%) and African Americans (11%) (Harvey, 2003).

Many Latino students find themselves unprepared and underprepared for college because of their coursework selection during their matriculation in high school. In addition, Latinos have been considered to be the group that would not finish high school, would not attend college, and definitely would not graduate with a college degree (Chapa, 1991; Delgado Bernal, 1999; Gandara, 1994). A study by Swail, Cabrera, and

[1]The term Latino may be used interchangeably with Hispanic / Latina / Chicana / Chicano

Lee (2004) found that 59% of Latino students were identified as underprepared for college, as compared to White students at 41% and Asian American students at 32%. African American students were the only group that had a higher percentage of students (63%) who were as underprepared for college.

Student tracking studies have found that Latinos are more often placed into low academic tracks throughout their middle and high school years. Tracking affects Latinos' level of achievement and preparation for college admission (Aguirre & Martinez, 1993; Oakes, 2005). As a result, over half (51%) of Latino students attend the community college rather than a four-year institution, compared to 43% of all college students (American Association of Community Colleges, 2012). Latinos have been found to be overrepresented within academic risk areas, to include having a grade point average (GPA) of "C" (2.0) or lower, retained in school and frequently changing schools, (Swail et al., 2004). In addition, many Latino students are the first members in their families to attend college, many come from low-income homes where Spanish is often the only spoken language, and many are educationally underprepared and have feelings of isolation and alienation (Attinasi, 1989; Justiz & Rendon, 1989).

Due to Latinos' low education attainment levels, they are more than likely to be first-generation students, that is, the first member to attend college within their families (Gandara & Contreras, 2009; Hurtado, Saenz, Santos, & Cabrera, 2008). The research has also shown that first-generation students are less likely to be retained after the first year and graduate within six years (Nunez & Cuccaro-Alamin, 1998) with a four-year undergraduate degree. Therefore, students who are both Latino and first generation,

according to the research, are less likely to enter a four-year institution and obtain a four-year college degree.

Statement of the Problem

This study is designed to provide Academic and Student Affairs administrators with empirical data related to the persistence of Latino college students. The overall growth in the Latino population has led to increased college enrollment. However, post-secondary institutions must address the persistence issues impacting Latino students. Subsequently, institutions will be afforded critical data from which they can respond and offer effective intervention strategies. Across the country, many colleges and universities meeting federal guidelines have been identified as Hispanic Serving Institutions (HSIs). These are public and private two-year or four-year colleges and universities with a full-time student enrollment of Latino students at 25% of the total population (Dayton, Gonzalez-Vasquez, Martinez, & Plum, 2004).

HSIs represent 11% of all higher-education colleges and universities nationwide, but accounted for more than half (54%) of all Latino undergraduate enrollment in 2011-12 (Hispanic Association of Colleges and Universities (HACU), 2012). In 2012, the US had over 370 HSIs with 277 colleges and universities identified as "emerging" HSIs, or colleges with full-time equivalent Hispanic enrollments of 15 - 24% (Exceléncia in Education, 2012). HSIs will continue to play a role in the education of Latino college-bound students. It will continue to be necessary and an imperative to identify retention programs that are successful in retaining and graduating Latino college student populations.

Purpose of the Study

The purpose of this study was to provide an analysis of the Academic Development Program (ADP) and its effect on persistence and graduation of Latino students at a HSI located in the heart of South Texas. ADP is a comprehensive academic support program designed to provide provisionally admitted students with the necessary support to succeed academically in the postsecondary setting. Students who were unable to meet University admissions standards are admitted on a provisional basis (must complete 18 college hours within two consecutive semesters and maintain a minimum 2.0 GPA). This program provides provisionally admitted students with a head-start opportunity to adjust to college life and create a bonding experience with program faculty and staff. Participants in the program take 12-semester hours and are enrolled in a Developmental Learning Community which is inclusive of enrollment in a Freshman Seminar course taught by their academic advisor and program coordinator. Students are also introduced to, and encouraged to participate in, Supplemental Instruction (SI) and peer tutoring. The ADP model was based on the program of the same name at West Chester University in Pennsylvania. In order to accomplish this examination of the ADP, the following research questions were used to guide this study:

1. After controlling for SAT score and college major, what is the first-year retention rate for ADP students compared to the non-ADP students?
2. After controlling for SAT score and college major, what is the difference between first-year GPA for ADP and non-ADP students?

3. After controlling for SAT score and college major, what is the difference between sixth-year GPA for ADP and non-ADP students?
4. After controlling for SAT score and college major, what is the sixth-year graduation rate for the ADP students compared to the non-ADP students?

Assumptions and Limitations

Assumptions and limitations for this study are addressed below.

Assumptions

1. The data extracted from the HSI located in the heart of South Texas for use in this study are accurate. This includes data from both the ADP system and Banner Information system.
2. Self-reported data, such as race / ethnicity, are accurate.

Limitations

1. The findings for this study can only be generalized to the population from which the sample was drawn; namely the four-year HSI located in the heart of South Texas.
2. Data were only obtained from one HSI.
3. The analysis is limited to new freshman undergraduate students in the AY2004 cohort and graduated by 2010.
4. Some of the variables may not be reliable since they are based on self-reported data.
5. Environmental variables, such as campus climate, are not addressed in this study.

Operational Definitions / Definitions of Terminology

Academic Advising

Academic Advising is a process in where student goals are set and an educational plan is created which may also include course selection, registration, and degree audit (Gordon & Habley, 2000).

At-risk

At-risk students are defined as not prepared for college, students who work 30 or more hours per week, no family support, are first-generation college students, have "failure expectations," and have poor academic success (J. Roueche & S. Roueche, 1993, p.1).

Banner Student Information System

The university student information system that maintains all student records, such as registration history, transcripts, placement testing, admissions data, and financial aid data used in this study (Student Information System/Banner Manual, 2008).

Developmental Education

Coursework or student support services provided to under-prepared college students to help them attain their academic career goals (Boylan, 2002).

Freshman Seminar

Freshman Seminar is a course with uniform academic content on various topics such as professional or discipline-based, and basic study skills (Barefoot & Fidler, 1996).

Grade Point Average

The GPA is the overall number of grade equivalent points earned by a student divided by the total number of semester hours attempted. To calculate the GPA, credit hours of each course completed by a student are multiplied by the numerical equivalent value of the letter grade for each course taken by the student.

Hispanic Serving Institution

A HSI is defined as an eligible institution of higher education that has an undergraduate full-time equivalent enrollment of 25% Hispanic students at the end of the award year (HACU, 2012).

Learning Communities

Learning Communities are curricular approaches that link two or more courses, often around a theme and enroll a cohort of students (Smith, Macgregor, Matthews, & Gabelnick, 2004).

Supplemental Instruction

The supplemental instruction (SI) program targets difficult academic courses, with a percentage of 'D' and 'F' final course grades or withdrawals (DFW), and provides collaborative learning through peer-facilitated study sessions where students ask questions to understand course information (Martin & Arendale, 1994).

Underprepared

Underprepared students need to develop both their affective and cognitive abilities in order to succeed in a postsecondary setting (Boylan, 2002) and typically result from prior educational experiences.

Significance of the Study

This research is significant in that it provides empirical evidence regarding the impact of the ADP. This research will contribute to the body of knowledge on Latino student persistence in higher education and effective retention programs. Research on student persistence has taken on new importance and many institutions have provided support services to aid in retention; however, the persistence rate has changed little (Braxton, 2000). Tinto (1993) estimated that 15 - 25% of the students departing institutions do so for academic reasons.

In addition, this study is designed to provide both Academic Affairs and Student Affairs administrators with empirical data to make more informed decisions regarding staffing, and budgetary resources to support the changing academic support needs of Latino students across the higher education landscape. Even though the findings from this study are limited to only one four-year HSI and one academic year (AY) undergraduate freshman cohort, it will contribute to the use of research and best practices by providing retention program research for Latino students in an effort to help improve retention and graduation rates.

Organization of the Dissertation

This dissertation is presented in five chapters. The background information of this study to include the problem statement, research questions and purpose of the study are introduced in this Chapter. In addition, the significance of the study as well as operational definitions / definitions of terminology used, and delimitations / limitations

are discussed. Chapter II will provide a review of the literature to include student departure and retention theory, Latino models of student retention, and support programs proven to be effective in retaining students of color. Chapter III provides the methods used for this *ex post facto* study of first-year retention rates and six-year graduation rates for ADP participants (provisionally admitted students) compared to non-ADP students, or those regularly admitted. The research study analysis and results are presented in Chapter IV. Chapter V provides a summary of the findings and recommendations for policy, practice, and future research.

CHAPTER II

LITERATURE REVIEW

As of the 2010 US Census, there were 50.5 million Latinos in the United States (Passel et al., 2011) with those identifying as Mexican-American accounting for the largest sub-group among Latinos, which accounted for about 65% of all Latinos in the United States (Motel & Patten, 2012). For this study, which took place at a four-year HSI in South Texas, it is important to understand the Latino population of students being served; the majority of students identify as Mexican-American and the majority attend an HSI. However, while the number of Latinos attending college has increased, few actually graduate and obtain a college degree. Some of the reasons accounting for the difficulty among Latino graduation are language barriers, under-preparedness, academic and /or social adjustments, and lack of financial support (Hurtado & Ponjuan, 2005). As college enrollment increases among the Latino student population, so must their college attainment. Due to Latinos pre-college factors they are more than likely to be the first-generation to attend college (Gandara & Contreras, 2009) and many find themselves unprepared or underprepared for both college enrollment and attainment of a postsecondary degree.

Since the research findings are generally positive but remain inconclusive when it comes to academic support programs and institutional programs promoting retention of Latino students, more studies must be completed that can identify programs that can help retain and graduate Latino students at a higher rate or at least equivalent to their rates of participation in higher education. As a result, and for the purposes of this study,

the Academic Development Program (ADP) and its importance and relevance to Latino student success programming and retention are examined.

In order to situate this study, a review of the literature relating to student departure and persistence is examined. This review of the literature is divided into four sections. The first section provides a review of Student Departure Theory (why students leave). The second section presents a review of the most recently developed models of Latino student success and retention created by researchers in the field. The Latino student success and retention models are followed by a review of federal and institutional student support programs that have been shown by the research to promote Latino student success and the success of underserved minority student populations. Finally, a review of the most recent study conducted by the Pell Institute on provisional admission follows. The Pell Institute surveyed a large number of institutions of higher education who had provisional admission programs and used these programs to promote both access and success of their students of color. These sections of the literature review address both theories and best practices researched, as they relate to the study of the ADP.

Student Departure Theory

A subset of college student research known as "student success," "retention," or "persistence" research has examined why some students find success in higher education attainment and why vast differences exist in the outcomes among different student populations. This research focuses on student enrollment and degree attainment outcomes (Seidman, 2005). The literature continues to be limited even though college

student retention has been studied and investigated for over four decades. The research attempts to explain student persistence through various perspectives, such as through psychosocial, economic, policy, societal, and organizational perspectives and has been disseminated (Braxton, Sullivan, & Johnson, 1997). Three primary reasons for the lack of understanding of student success are (1) current conceptual models are too broad and / or incomplete, (2) the research has been focused on student behaviors, and (3) there has been a decline in the number of studies conducted (Smart, Feldman, & Ethington, 2006).

Student Departure Theory has been studied for over 100 years and consistently researched empirically for over 60 years (Braxton, 2000). This theory provides an explanation of why students leave college. Since Spady's work in 1970, the theoretical research conducted on student retention has been one based on sociological factors. This involved research seeking common behaviors that distinguish groups of students who stay in college from groups who leave. Psychological research did not develop until after 1980 and looked at how individuals judged themselves in an educational setting. During the 1990s, research began to show an increased interest in how economic and cultural factors affected retention, especially for students of color.

Spady's Sociological Model

The beginnings of retention theory are frequently traced back to the work of Spady (1970) who is known as the first researcher to develop an empirically-based model to explain student attrition. Spady (1970) recognized the social integration of students into higher education to normative congruence, that is a student's compatibility with the institutional environment; and friendship support, that is having close

on-campus relationships. He theorized that additional factors, such as family background, academic potential, grade performance, and intellectual development factors influenced social integration. He noted a relationship between grade performance and attrition. Spady's sociological model signifies the first attempt at the development of a theory to describe student attrition and this model has primarily served as the foundation for subsequent research conducted on student departure theory.

Tinto's Student Integration Model

Tinto (1975) expanded the work of Spady (1970) where the roots of retention theory are often traced. Tinto developed a longitudinal model of the attrition process by extending Spady's original work that only described the conditions that influenced attrition. Spady compared committing suicide with dropping out, where the person leaves a social system. Tinto built on Spady's model to develop the concepts of social and academic integration. Academic integration resulted from students sharing academic values while social integration resulted from the developing friendships with faculty and other students. Tinto (1975) posited that a student who does not integrate academically or socially is more likely leave college and drop out. Tinto theorized that the level of student commitment to attaining a degree and commitment to the institution facilitate incorporation into the academic and social systems of the institution. He acknowledged that familial background, individual attributes, and previous educational experiences influenced the development of student commitment toward the institution and toward degree completion. Tinto suggested that student interactions within these academic and social systems of the institution could reinforce or weaken student commitment to

degree completion, the institution, or both, and ultimately the decision to remain or depart. As part of Tinto's model, which became known as his "Departure Theory," he posited that students often weighed the benefit of continued enrollment against other competing activities, such as employment.

In 1987, Tinto refined his model, and later developed his Academic and Social Integration Model (Tinto, 1993) which is the model most cited by the student departure literature. In this model, he proposed a theory of student integration to the academic and social environments of the university or college setting. These environments included: the degree to which students are integrated, which impacts continued enrollment, graduation, and commitment to the institution; the various patterns of personal, family, and academic characteristics and goals students enter postsecondary institutions with; and, the college environment they enter, which is comprised of the university's mission, administration, staff, faculty, facilities, student support services, and quality of the student-instructor and student-student interactions. If a student is compatible to the institution, then the higher the probability the student will persist and graduate.

Astin's Theory of Input-Environment-Output (I-E-O)

Astin (1975) found that environmental factors of the institution, such as living on-campus, participation in extracurricular activities, or part-time employment on-campus all had a positive effect on retention. His theory of input-environment-output (I-E-O) was based on a longitudinal study of college dropouts (Astin, 1984) and is comprised of several parts: student inputs (I), the college environment (E), and student outputs (O), also known as outcomes (Figure 1).

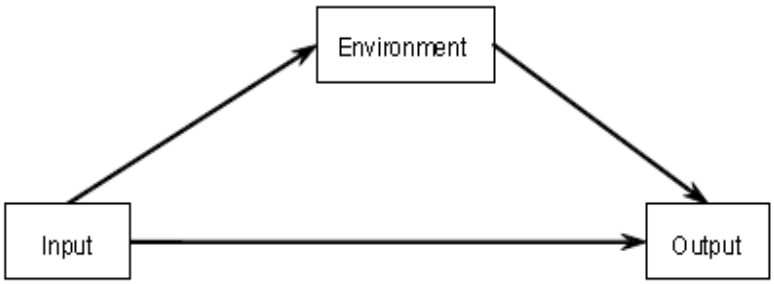


Figure 1. Astin's I-E-O Framework.

The inputs are the personal characteristics students possess when they enter college, such as gender, ethnicity, SAT score, and high school rank. The environmental factors are defined by what a student experiences while in college and include the policies, programs, and faculty / staff the student is exposed to and include specifically the following factors: college-entry, term credit hours attempted, course difficulty, residence, and student participation in supplemental instruction or first-year seminar course like the ADP. The outcomes are the outputs of the educational programs and examine both cognitive and non-cognitive outcomes and represent a broad range of institutional measures, such as retention or graduation rates. The perspective of involvement is distinct for each student and Astin offered recommendations for improved practice generalized from these findings. Astin suggested that because inputs are related to both environment and outcome variables, inputs can affect the relationship between the environment and the outcome. However, these recommendations may not fit

every student population at a specific institution of higher education. In this study, the outcome variable was defined as retention after the first year.

Bean's Turnover Model

Bean's Turnover Model (Bean, 1980) was a causal model based on Price's studies of employee turnover in work organizations. He noted that Tinto's Academic and Social Integration Model did not acknowledge the importance of external factors in developing a model of student departure and student intention, found to be a predictor of student retention. Therefore, Bean proposed five background variables to reflect students and families. These variables included:

1. Background, such as past educational performance
2. Organizational, such as grades or courses
3. Environmental, such as ability to pay or familial support
4. Intention to leave
5. Attitudinal, such as satisfaction, usefulness, or loyalty.

Bean suggested that these variables and the interaction between them influence a student's retention. His model contribution led to the development of a "customer satisfaction survey" to improve student programming. In addition, these environmental factors were incorporated into Tinto's revised model in 1993.

Braxton's Student Departure Puzzle

Building on Tinto's theory mentioned above, researchers like Braxton, Hirschy, and McClendon (2003) sought to understand the completion rate problem by reviewing findings of the empirical research on college student departure. Focusing on Tinto's

interactionalist theory, these researchers critiqued Tinto's theory to formulate new models and make recommendations for further research. They also looked beyond the research to date and into the practice of student retention and identified model programs. These exemplary programs demonstrated the use of research-based approaches to reduce the rate of student departure at their institutions.

Braxton et al (2003) continued the analysis of Tinto's model and proposed a new conceptual model of student departure for commuter colleges and universities. They proposed that the complexity of student departure requires a model that incorporates economic, organizational, psychological, and sociological approaches. These researchers also proposed that different conceptual models of student attrition be used for different types of institutions based on the differences in factors that influence student attrition in these different settings. These researchers suggested that (1) students have different entry characteristics including the ability to pay, motivation, parental education, and self-efficacy (i.e. the belief in capability to achieve) (2) the initial commitment to students' adjustment to the institution (3) student perceptions of the institution, (4) engagement with the social opportunities available that influences, (5) social integration, and (6) subsequent institutional commitment that directly impact persistence. They also formulated suggestions to form the foundation of this new theory and discussed the implications for racial and ethnic minority students at these particular institutions.

Seidman's Retention Formula

Seidman's (2005) retention formula suggested that a combination of identifying students who may be at-risk or have early college challenges, combined with intrusive interventions that are intensive and occur, are important to improving student retention, especially for students of color. Seidman's formula (2005, p. 296) builds on the work of Student Departure theorists (Astin, 1984; Tinto, 1993) and is as follows: "Retention = Early Identification + (Early + Intensive + Continuous) Intervention." The ADP is an example of this formula put into practice, as provisional students are identified early and provided with an intensive and intrusive intervention that is continuous throughout their first academic year.

Campus Climate and Departure

Focusing on climate issues affecting students of color, Hurtado and Carter (1997) examined student activities and how they may foster a sense of group cohesion and identification with the institutional environment. In another study, researchers (Hurtado, Milem, Clayton-Pederson, & Allen, 1999) provided information to guide the higher education community to improve the campus climate for racial and ethnic diversity. Their study focused on eight observations:

1. Conceptualizing the campus climate for diversity;
2. The history of exclusion;
3. The impact of diversity;
4. The psychology of the campus climate;
5. The behavioral institutional climate;

6. Linking the institutional climate with the general learning environment;
7. Design principle for improving the climate for diversity; and,
8. Examples of promising practices.

Latino students often experience isolation and feel alienated from the campus environment. Finding a large group of students who share the same cultural experiences greatly contributes to Latinos' campus socialization processes. If students feel marginalized, this will affect a student's sense of belonging and can influence their decision to persist in college. (Solorzano & Villalpando, 1998; Yosso, Smith, Ceja, & Solórzano, 2009). Hurtado (1994) cited that racial tension and the experience of discrimination are reported among Latinos at larger campuses and that it is possible students will not adjust academically or socially if the campus allows them to feel like outsiders. Hernandez's (2000) research on Latino student retention reported that finding a Latino community on a predominately white campus had a positive impact on student retention. Additionally, Mayo, Murguia, and Padilla (1995) reported that student involvement in campus student organizations played an important role in the academic success of Latino students. When students have a representative group to join they may feel less isolated and less alienated (Fuentes & Sedlacek, 1993; Hernandez, 2000).

Beyond the campus climate and looking at minority student persistence, Rendon, Jalomo, and Nora (2004) made recommendations to increase persistence of racial / ethnic minorities, which included: (a) achieve a critical mass of students retained and enrolled; (b) create a space for diversity; and (c) adopt Tierney's intervention model that affirms student's feelings and identities. Tierney's (2001) model is a blueprint for

interventions for at risk students, identified as low income, urban Black, and Latino students. Tierney studied local college preparation programs that were successful in recruiting and retaining students that were of color and considered at-risk. As a result of his work he identified the model of cultural integrity. He defined cultural integrity as those programs and strategies that focus on the student's racial and ethnic background in a positive way that influences the development of their learning activities. The student's background is considered an important ingredient for achieving success.

Latino Student Success Models

Studies of Latino Student Retention and those of students of color have been only recently researched and presented in the literature. This section presents the most recently presented models of Latino Student Retention and Success. These models help to identify commonalities in the research literature, gaps in the literature, and also best practices in Latino student success.

Swail's Geometric Model of Student Persistence and Achievement

Swail's Geometric Model of Student Persistence and Achievement (Swail, Redd, & Perna, 2003) places cognitive factors, social factors, and institutional factors on the sides of a triangle and places the student's experience in the center. The cognitive factors relate to the knowledge, intelligence, and ability a student brings to the college environment. These factors can be measured by variables such as course selection or high school completion. These factors are important because they relate to the student's ability to complete and comprehend the curriculum. The social factors include variables

such as peer support, career goal development, legacy, and the ability to manage socially.

This model is meant to facilitate a discussion of the role of the institution in the student's experience. Swail's Geometric Model of college student retention is relevant to Latino student retention and demonstrates the relationship between academic success and college persistence while focusing on support services and best practices and not on student behavior. There are five institutional factors in the framework:

1. Admissions;
3. Academic services;
4. Curriculum and instruction;
5. Financial aid; and
6. Student support programs.

This bottom side of the triangle relates to institutional factors, the ability of the college or university to provide social and academic support to students during their college years, and has a direct influence on a student's stability. The significance of placing the institutional factors on the same footing with the cognitive and social factors illustrates the importance of campus involvement and knowledge in both the social and academic development of students. In this model, these factors are set at the foundation of the triangle because it is the institution that forms the footing for college success. Swail's Geometric Model acknowledges that student success is dependent on the interaction of the institution and the student and how the institution reacts to the social and cognitive attributes of its students (Figure 2).

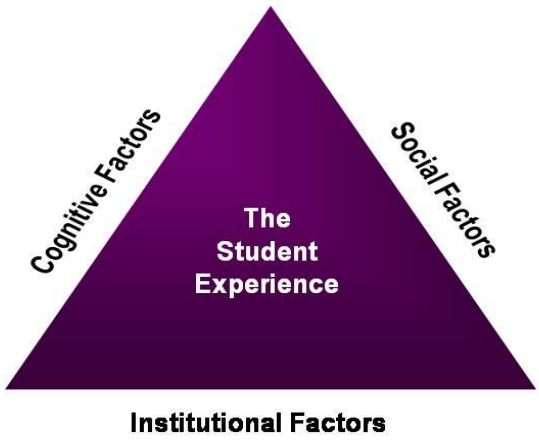


Figure 2. Swail's Geometric Model of Student Persistence and Achievement.

When developed, this framework was used as a guide to help understand why students of color succeeded or failed in college. The researchers found the central components of the model could improve the success for all students while knowing that students are diverse in many ways. The role of the institution is key to the student experience as identified by this model and especially in the first year as is the case with the ADP.

Student Institution Engagement Theoretical Model

Nora, Barlow, and Crisp's (2005) Student Institution Engagement Theoretical Model is a framework that explains how students can successfully transition in their first year of college and toward graduation and serves as a framework for college student retention. These researchers emphasized the concept of academic and social integration

as did Student Departure theorist, Vincent Tinto. Student persistence to graduation or an advanced degree is a central issue, not only to Latino success in higher education, but also to broadening the participation of Latinos in STEM. Retention is of critical importance to Hispanic access, participation, and success. Attrition from higher education denies access to graduate and professional schools and future participation in society for Latino students. The Student Engagement Model proposed six components for student retention: (1) precollege factors, (2) a sense of purpose and allegiance, (3) academic and social activities (4) cognitive and non-cognitive results (5) goal determination and (6) persistence.

The model also emphasized the importance of financial assistance on Latino persistence. Not only is a financial award important in retaining students, but the more intangible aspects associated with financial aid are indirectly influential through the perception that the institution cares enough to invest in the student. Equally as important is the encouragement and support the student receives from their family. What is difficult for families to provide that are unfamiliar with the processes, costs, time commitments and benefits associated with going to college. Financial assistance is crucial in the college recruitment, enrollment, and retention of students with low-income backgrounds (Nora, 2001). Financial assistance includes the resources required to pay for college and this assistance can include scholarships, grants, work-study jobs, and loans (Nunez, 2009a, 2009b). A major barrier for many Latino students is finding the financial funds for a college education (Nora, 1990). Roughly 80% of Latinos apply for financial aid and receive some form of aid. Few receive grant funds, which are

approximately $3,810 per year compared to $5,160 in student loans per year (Santiago & Cunningham, 2005). Sedlacek, Longerbeam, and Alatorre (2003) reported that Latino students were more likely to work while in school and to drop out for financial reasons than their non-Latino counterparts. Students who worked off campus spent less time on campus as result and thereby affected their ability to develop relationships with both faculty and staff at their institutions (Cabrera, Nora & Castaneda, 1993). However, research has revealed that part-time employment on-campus, in a position of academic interests, can positively affect student persistence and completion of a degree (Pascarella & Terenzini, 2005).

Interactive Model of Success for Underserved Students

Rendon's (2006) Interactive Model of Success for Underserved Students identified a gap in the literature and provided a model for underserved students. Her model is considered a holistic student success model where the interaction between student, institution, family, and the larger community is paramount. Among her recommendations for additional research is to provide a better explanation of student success through the use of qualitative research in the form of focus groups and identify and gather the student voices. According to Rendon, familial ties remain important all throughout the time that Latino students are enrolled in college. Educational aspirations and commitment to enroll and graduate from a specific institution provide the student with a sense of purpose to attaining a degree at that institution. Equally important are the academic and social experiences of students, the formal and informal interactions students have with faculty, a collaborative or competitive learning environment with

peers, a sense of tolerance and acceptance associated with the campus, positive mentoring experiences accompanied by a sense of acceptance of their intellectual contributions and, finally, validation as an individual in the classroom. These factors affect a student's academic experiences, perceived and actual intellectual gains and appreciation of art and intellectual endeavors, and an overall sense of self-esteem and efficacy, which ultimately will impact student retention and Latino student success. Rendon's model identified the important role of family and community that is often left out of the research literature and her model is a holistic approach that involves the validation of the student.

In support of Rendon's model, Hurtado, Carter, and Spuler (1996) reported that Latino college students felt that faculty were student-centered, also found more opportunities for faculty interaction and were more likely to transition to college and campus life. Students who have contact with faculty are likely to persist to graduation, demonstrate high levels of achievement, and to be satisfied with their colleges (Kuh, Schuh, Whitt, & Associates, 1991). An approach to fostering interaction between Latino students and faculty is that of personal and academic validation (Rendon, 1994: Rendon, Linares, & Munoz, 2011). This is described as faculty and university administrators reaching out to Latino students and getting to know them and encouraging them to be socially and academically integrated. In a study of Latino students, Anaya and Cole (2001) found the frequency of interaction and the relationships with faculty had a positive effect on Latino student GPAs. Hernandez (2000) found retention increased when faculty treated Latino students as individuals and truly showed they cared for

them. The role of faculty in the form of validation and student mentoring is essential to Latino student success.

The Expertise Model of Student Success (EMSS)

The final model discussed under Latino Student Success Models is Padilla's Model (Figure 3) – the Expertise Model of Student Success (EMSS) (Padilla, 2009). His model is based on Expert Systems Theory (Harmon & King, 1985) and proposes that student expertise is a combination of theoretical and heuristic knowledge. Theoretical knowledge being formal and academic knowledge, and heuristic knowledge is that gathered by peers, staff, and faculty. Students use this knowledge to maneuver through the institution to overcome barriers to student success. How students maneuver through determines if they will persist or drop out. The acquisition of both heuristic and academic knowledge is key to the success of Latino students and important to creating conditions that foster this knowledge acquisition.

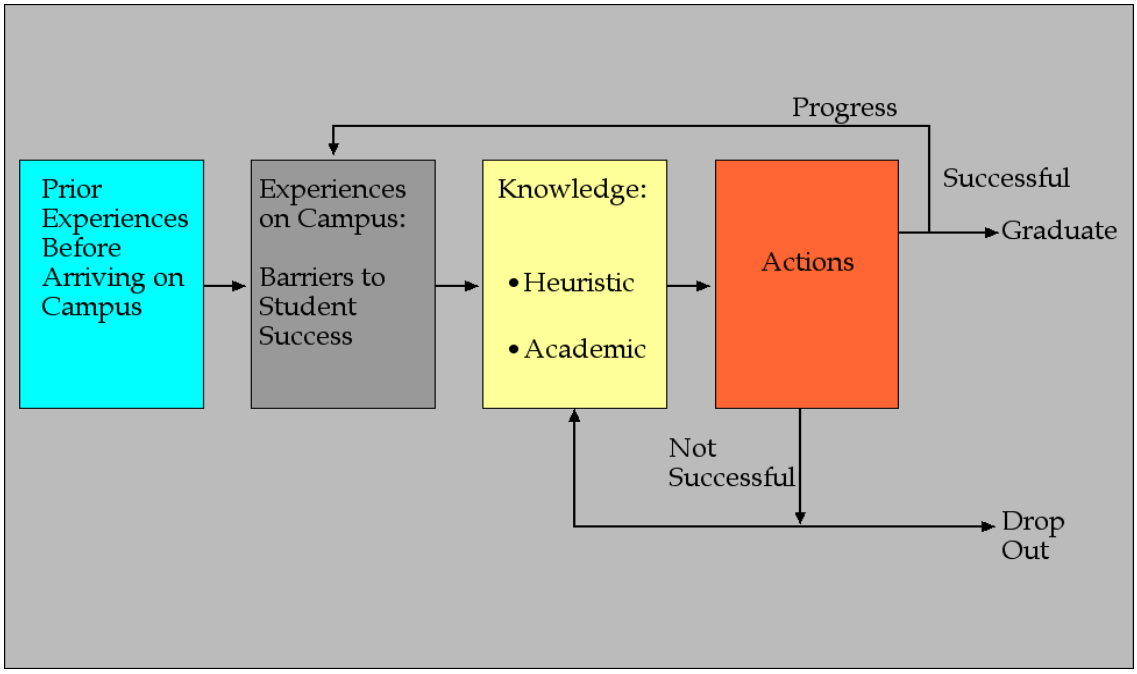


Figure 3. General Model of Student Success Based on EMSS.

The Latino Student Success models have identified that Latino students come into college with pre-college factors such as being unprepared and underprepared for college and once in college they have issues with the campus climate and financing their college education that affects their decision to drop out. What the research did find consistently is the importance of faculty in validating students and positively affecting their decisions to continue and persist. Also student participation in student support, campus activities, and on-campus employment promote academic and social integration. These areas have been identified in the literature as having the most impact on Latino student success at the college and university level. For this reason, it is relevant to have provided this review of the literature on Latino student success models as it applies to the research being conducted in this dissertation on the ADP model. The research also

shows promising practices in the form of academic support programs that promote Latino student persistence and graduation. In the next section best practices at the federal and institutional level that have been shown to improve retention and graduation of students of color are provided.

Federally and Grant Funded Academic Support Services for Latino Students

Numerous academic support programs have shown to be effective in the retention and graduation rate of students of color. In the review of the literature, several programs were found to be effective in retaining and graduating Latino students at a higher rate. The majority of these programs are funded through federal grants such as TRIO and Title V, and some are funded by the National Science Foundation (NSF) and other Federal agencies.

TRIO Student Support Services (SSS)

The Federally funded TRIO program under Title IV of the Higher Education Act of 1965 is an example of an SSS program. Federal TRIO SSS were designed to provide support to low-income and first-generation students to stay in college and graduate by offering students program services such as academic counseling and peer tutoring (Chaney, Muraskin, Cahalan, & Rak, 1997). Through grant competition, monies are awarded to post-secondary institutions to afford opportunities for student academic development, assist students with college requirements, and to encourage students to the successful completion of their education. The goal of TRIO SSS is to increase the retention and graduation rates of its college-level participants. The purpose of TRIO SSS is to help students overcome barriers to higher education such as academic, social,

class and cultural . Currently, TRIO SSS projects serve approximately 165,000 disadvantaged college students determined by family income and/or parents' educational status, or who are disabled and program participants are predominately female and minority. During a national evaluation of TRIO SSS programs, the researchers studied retention rates, grades, and hour credits of program participants against those of statistically matched comparison groups of students. The data included a survey of the participants and compared students over a 3-year period. The major factors to program and student success were services that addressed multiple student needs; programs that created a sense of community; including peer tutoring was the most effective program component; and the more students participated the more they benefited from the program and were academically successful.

Building Engineering and Science Talent (BEST)

Another national effort that was aimed at identifying evidence-based college programs to support underrepresented groups, such as Latinos, was reported by the National Science Foundation (2003), known as BEST programs. The report identified nearly 100 programs across the nation that supported minority student success in higher education. After the BEST programs were critically reviewed, only seven programs were identified as meeting the rigorous set of criteria and were awarded the BEST Exemplary Higher Education Programs status. A set of common features to enhance creation of future programs that would promote minority student success were identified. These common features were institutional leadership that promoted a climate of inclusiveness; targeted recruitment to attract the best student and faculty from

underrepresented groups; engaged faculty; personal attention in the form of advising and mentoring; peer support; a comprehensive financial aid package; research opportunities; a transition to the next level of education or workforce; and finally, and most importantly, continuous evaluation and improvement of the program.

Institutional Academic Support Programs

When Latino students arrive on campuses, academic support programs can play an important role in student success (Hurtado & Ponjuan, 2005). The experiences of students in college can affect their persistence and transition to college more than their academic backgrounds (Attinasi, 1989; Hurtado et al., 1996). In a review of college student success programs, Myers (2003) stated the college environment has an impact on student satisfaction and success in a college setting. He also noted that the institutions that were successful in student retention responded to the needs of their students, including their social, cultural, and academic needs. To improve student retention, academic support programs have been developed to include: academic advising, tutoring, study skills development, freshman orientation, faculty involvement and career services (Attinasi, 1989; Astin, 1993; Tinto, 1993). In addition, Williams and Nafukho (2007) found that knowing what services positively influence student outcomes for certain subpopulations of students can support program planning and service delivery. Swail, Redd, and Perna (2003) described factors that were key in establishing retention programs, and stated that institutions need to "rely on proven research, support institutional research in the monitoring of programs and students, and be sensitive to students needs and target the most needy student populations" (pp. 116 - 118).

As examples of student support programs that work, Engle, Bermeo, and O'Brien's (2006) study focused on groups with first-generation TRIO students in Texas. Their report identified critical steps successful in the transition of students to college. These steps raise aspirations, navigate the admission process, and ease the transition. The researchers advised educators to advertise college to students early, prepare students academically, and provide students with support programs once they were in college. Engle and O'Brien (2007) examined the conditions for improvement of graduation rates at large public institutions that worked with low-income students. They collected data at public four-year institutions with large numbers of Pell Grant recipients. Most of these schools showed higher graduation rates, while the others showed lower rates of graduation.

This research provides gaps for institutional programs aimed at enhancing retention to consider; namely, that students can work to overcome some of their disadvantages attributed to their backgrounds. Most institutions of higher education have institutional student support programs that promote student success for all students, but there are certain programs that have been identified in the research and the review of the literature to promote student persistence and graduation rates among students of color. This next section will review the following programs: Freshman Seminar program, Learning Communities program, Supplemental Instruction (SI), Peer Tutoring, Collaborative Learning, and Provisional Admission.

Freshman Seminar

Freshman Seminars have been defined as an orientation with academic content on various topics, and basic study skills (Barefoot & Fidler, 1996). Barefoot and Fidler (1996) completed an impact study of freshmen seminar courses from campuses across the United States. The researchers administered the National Survey on Freshman Seminars at over 1,000 two- and four-year institutions. They also surveyed key university administrators to include Provosts and Vice-Presidents at over 2,000 institutions. In their research, Barefoot and Fidler (1996) identified five types of freshmen seminars:

1. First-year experience seminars
2. Academic seminars with prescribed curriculum
3. Academic seminars on specified themes
4. Discipline-based seminars
5. Skills seminars.

Learning Communities

Learning Communities are defined as curricular approaches that link two or more courses around a theme and enroll a cohort of students (Smith et al., 2004). Students involved in college, gain more out of their college experience (Astin, 1993; Pascarelli & Terenzini, 2005; Tinto, 1999). Fortunately, a number of institutions have begun addressing the need for minority student involvement by reshaping their educational programs. Gablenich, MacGregor, Matthews, and Smith (1990) described five learning community models that were most prevalent during the late 1980s. Since then, the

number of colleges and universities with learning communities has grown dramatically, but the thinking about models has been condensed. They outline three basic models of learning communities: (1) student cohorts in larger classes, (2) paired or clustered classes, and (3) a team-taught program. According to the study done by Baker and Pomerantz (2000) there were significant differences between the learning community and non-learning community students. Learning community students had higher GPAs, earned more hours, and were more satisfied with their college experience. In support, Johnson & Romanoff (1999) studied a northeastern university that designed, implemented, and evaluated four retention programs over a two-year period. The research study demonstrated that the learning communities program retained students at a higher rate than the non-learning community programs.

Levine (1998) stated that the research literature supports the learning communities focus to actively involve students and faculty as partners in learning. In classrooms knowledge flows between students and faculty. In addition, Levine's editorial piece in the First Year Experience monograph stated that learning communities involve the intentional restructuring of curriculum to bring faculty, students, student affairs professionals, and academic administrators together to share common learning experiences.

According to Levine (1998), learning communities organize students and faculty into groups, and help students establish academic skills and networks of support. In addition, Saenz, Marcoulides, Junn, and Young (1999) identified a number of factors important in the success of minority students in higher education. These factors are

college variables like academic and social integration. The role of Learning Communities is to socially integrate first year under prepared students and thus improve their academic persistence.

Supplemental Instruction (SI)

Supplemental Instruction (SI) is a collaborative learning model developed at the University of Missouri-Kansas City's (UMKC). SI is a student support model created to help students enrolled in historically difficult classes. The goal of SI is to help student's master course content while at the same time helping them develop learning and study skills. The objectives of SI are to: (1) improve the students' grades in historically difficult courses; (2) reduce the withdrawal rate of students, and (3) increase graduation rates. Students with different ability levels and ethnicities are encouraged enrolled in these historically difficult courses are encouraged to participate in SI sessions. The goal is to remove the remedial stigma associated with SI since historically difficult courses are identified rather than students at-risk. Peer facilitated study groups are led by model students and the study groups are held in high "D, F and Withdrawal (DFW)" (grade distribution) classes in the core curriculum. The goals of SI are to improve learning strategies, test preparation, and process lecture notes and course materials. An SI Study completed by Dizinno and Crisp (2013) found that the more students attended the SI sessions, the higher the GPA and the higher the retention. SI was also a predictor to students' semester grades and the number of sessions attended positively correlated with grades.

Arendale and Martin (1997) provided an overview of the SI model as well as a review of the research at 270 institutions. They found that SI participants received average final course grades that were higher, had higher final course grades rates of "A" or "B", and lower mean percentages of DFW rates in comparison with non-participants. An important note is minority students participated in SI at rates equal to or higher than those of White students and received higher grades. They also found that at-risk students who attended SI obtained higher final course grades when compared to at-risk students who did not attend SI. The data from this review, suggest that participation in SI contributed to the majority of the difference in final course grades. Stone and Hayes' (2006) qualitative study examined perspectives of SI, indicating that SI is a beneficial program for many students. Some students voiced frustration with the principles of collaborative learning instead of being re-lectured or tutored.

Peer Tutoring and Collaborative Learning

Collaborative learning involves structured peer study groups; one of the best examples is the work of Dr. Uri Treisman of the University of Texas at Austin where he structured study groups in math courses for students of color, such as Latinos. These students worked together to solve math problems and completed homework. The results were that students had positive grade outcomes and improved learning outcomes that exceeded the performance of their White counterparts and increased their self-esteem in taking higher level math (Drew, 2012). Peer tutoring has also been found to be effective with Latino students (Torres, Reiser, Le Peau, Davis, & Ruder, 2006). Latino students are more likely to go to peers for assistance, and most tutors are paid through Federal

work-study programs increasing the likelihood that peer tutors may also be students of color and low-income.

Provisional Admission Programs

Provisional admission programs enable students to enroll in college under specific conditions of admission and students who are provisionally admitted to such institutions are provided with structured student support programs, such as the ADP, studied in this dissertation. A qualitative study completed by Nichols and Clinedinst (2013) for the Pell Institute found that provisional admission programs helped promote post-secondary access to four-year institutions, strengthened the academic skills of students, developed students' study skills and management of structured study time, built the self-esteem of students, and developed relationships between students, their peers, staff, and faculty. Nichols and Clinedinst (2013) discovered three distinct models at the institutions he surveyed. The first model was a cohort-based curricular instruction model, the second, a Summer Bridge model (program offered in the summer to help with the high school to college transition), and the third, a SI tutoring-based model. The ADP used in this study is an example of a cohort-based model with the addition of student support in the form of SI and Tutoring.

Summary

According to Tinto (1999), there are institutional conditions that stand out as supportive of retention: (1) information/advice, (2) support, (3) involvement, and (4) learning. These conditions have been shown to be predictors of student persistence. Tinto also asserts that if higher education institutions are to fulfill their civic

responsibilities, a number of predominantly White colleges and universities will have to make improvements in their enrollment, retention, and graduation rate of minority and low-income students. Many colleges identify the importance of increasing student retention, especially for first-year underprepared Latino students.

Kuh, Kinzie, Buckley, Bridges, and Hayek (2006) summarized theoretical findings from sociology, psychology, cultural/economic literature about factors that contribute to success of students. Their major findings included the following factors: (1) student's precollege experiences and background, (2) student activities (3) institutional conditions, and (4) outcomes of postsecondary and college gauges of success. Perna and Thomas (2006) developed a model of student success to help guide policy-makers, practitioners and researchers. They reviewed literature in economics, education, psychology and sociology over ten years that examined indicators of student success. The model recognizes that student success is a process; there are many approaches of theory; student success is shaped; different disciplinary areas provide understanding that student success varies; any method of research contributes; and student success processes vary between groups.

The literature review documented theories regarding student departure and retention. The review also documented the implementation of academic support programs and institutional programs promoting retention of Latino students, such as Learning Communities, SI, and structured student support programs, such as the ADP. In this chapter, the work of Tinto (1993) on the academic and social integration of students was reviewed. Seidman (2005) acknowledged the need to early identify at-risk

students and provide intensive support, while the work of Rendon (2006) reviewed the holistic needs of Latino students. The ADP examined at the four-year HSI used in this study is a hybrid of these models and includes placing students in a Learning Community that socially and academically integrates students. The ADP identifies at-risk students early in their pursuit of a post-secondary education by allowing students to be admitted provisionally as long as these students are also enrolled in the ADP while the Freshman Seminar course provides intensive support throughout the first year and provides the ADP students with transferable study skills. These provisionally-admitted students are also provided structured student support in the form of Supplemental Instruction and Tutoring.

The next chapter will study the relationship among regularly admitted (non-ADP) and provisionally admitted (ADP) students and retention, first-year GPA, graduation and overall GPA and the relationship between first-year GPA for regularly and provisionally admitted students.

CHAPTER III

METHODOLOGY

In this chapter, the methods used in this research to study the relationship among regularly admitted (non-ADP) and provisionally admitted (ADP) students and retention, first-year GPA, graduation and overall GPA and the relationship between first-year GPA for regularly and provisionally admitted students are explained.

The purpose of this *ex post facto* study was to explore first-year retention rates and sixth-year graduation rates of ADP participants, that is, those provisionally admitted to the four-year HSI used in this study, in comparison to non-ADP students or those regularly admitted. This chapter outlines the methodology used in this study, to address the purpose, and to answer the research questions listed below. The chapter is organized into five sections: (1) study design, (2) target population, (3) instrumentation, (4) data collection process, and (5) data analysis.

Study Design

To be able to answer the research questions and test the relationships among regularly admitted and provisionally admitted students and retention, first-year GPA, graduation and overall GPA and the relationship between first-year GPA for regularly and provisionally admitted students, this study employed a match-pair of freshman undergraduate students that entered a large four-year HSI in AY2004. Students were matched based on scores received on the SAT (SAT_Comp) and their college major, which in this case was "Undecided". Matching equated the groups on SAT scores and chosen major and removed any bias in comparing groups by equalizing of the

distributions, that is, 116 ADP participants versus 116 non-ADP participants who were matched on SAT score and college major.

Existing data available through the ADP database and the institution's student information system (Banner) were used to establish the relationships among the dependent (ADP and non-ADP or regularly admitted and provisionally admitted students) and the independent variables; retention, first-year GPA, graduation, and overall GPA.

In addition, the relationship between first-year GPA for ADP and non-ADP students and between sixth-year GPA for ADP and non-ADP students were examined. The following research questions were addressed in this study:

1. After controlling for SAT score and college major, what was the first-year retention rate for ADP students compared to the non-ADP students?
2. After controlling for SAT score and college major, what was the difference between first-year GPA for ADP and non-ADP students?
3. After controlling for SAT score and college major, what was the difference between sixth-year GPA for ADP and non-ADP students?
4. After controlling for SAT score and college major, what was the sixth-year graduation rate for the ADP students compared to the non-ADP students?

Target Population

The target population for this study consisted of 3,456 undergraduate freshman students from a large public four-year HSI located in South Texas who entered college in AY2004. Specifically, the students were all undergraduate freshman and were either

admitted on a regular (N = 3,003) or provisional (N = 453) basis in AY2004. A total of 24,183 undergraduate students were enrolled in this four-year HSI in AY2004.

Accessible Population

For this study, the researcher had access to the total AY2004 3,456 undergraduate freshman student cohort. However, this match-pairs study included 232 students taken from this AY2004 undergraduate freshman student cohort of which 50% participated in ADP and were provisionally admitted students (n = 116) and the other 50% were regularly admitted students (n = 116) who did not participate in ADP. Students who participated in ADP were matched to non-participants (non-ADP or regularly admitted) on two variables: (1) SAT Score and (2) College Major, which was "Undecided".

Sample Size and Sampling Techniques

Sample size is an important aspect of any research study. Agresti (2002) suggested that sample size should consider the power needed to detect the effect being studied. In-other-words, the ability to make inferences about the population from which the sample was selected. The central limit theorem states that a sampling distribution of the mean approaches a normal distribution with a mean (μ) and a variance σ^2 divided by N, as N (the sample size) increases, that is the sample size is large enough (Agresti, 2002). Generally, a sample size is considered large enough if the sample size is greater than 40.

For this study, the sample consisted of AY2004 undergraduate freshman students of which 50% participated in ADP and were provisionally admitted students (n = 116)

and the other 50% were regularly admitted students (n = 116) who did not participate in ADP. Since students were matched on SAT score and college major, only 232 students met this criteria and were used in the study. A total of 3,456 freshman undergraduate students were enrolled in AY2004 and 24,183 undergraduate students were enrolled in the same AY. In this case, the total sample for this study (N=232) was matched on 116 ADP students and 116 non-ADP students. Since a match-pairs design is a special case of a randomized block design, it can be used when the experiment has only two treatment conditions; and subjects can be grouped into pairs, based on blocking variables (Coolidge, 2000). For this study these variables included: SAT Score and College Major which was "Undecided". The sample comprised of 50.5% Hispanic (n = 117), 31.5% White non-Hispanic (n = 73), 13.4% Black non-Hispanic (n = 31), 4.3% Asian / Pacific Islander (n = 10), and 0.3% Other (n = 1).

Several factors were recognized early in this study that could have limited the degree to which the relationship between ADP program participation and an improvement in student attainment (performance) could be determined. These factors were addressed in this study to increase the internal validity since students could not be randomly assigned to either the ADP (experimental) or non-ADP (control) groups. Freshman students admitted on a provisional basis in AY2004 at the four-year HSI used in this study had to attend ADP as a matter of institutional policy. While random assignment to either the ADP or non-ADP group could have improved the experimental design, it would have done little to improve student attainment. Students in the experimental (ADP) and control (non-ADP) groups were as equal as possible at the

beginning of the research study, to compensate for the lack of randomness. That is, they were matched on variables (SAT score and college major "undecided"). Other variables to match on, such as race / ethnicity, were considered by the researcher, but further matching on variables would not have left a robust enough sample in order to conduct the analysis, that is not enough subjects would have remained had matching on three variables been accomplished.

Demographic factors of the total sample versus the population are discussed in Chapter IV. The data yielded from the study was generalized to the larger population under investigation (N = 3,456), that is the entire AY2004 undergraduate freshman class. Further implications to other populations or future populations are discussed in Chapter V.

Instrumentation and Data Collection

Extant data were used to answer the research questions in this study and were obtained from two existing institutional databases: the ADP Database and the Institutional Student Information System (Banner). The data retrieved from the databases were imported into an electronic data collection form set up in Microsoft Excel for analysis since the ADP database did not provide an output file that could be imported into the Statistical Package for the Social Sciences (SPSS), Version 22.0, for data analysis. The data were imported from Microsoft Excel as a tab delimited file into the SPSS in order to execute statistical analyses. The variables obtained from the ADP database and the Institutional Student Information System (Banner) are discussed below.

ADP Database

The first database used in this study was the ADP Database. Data was drawn from the ADP database maintained by the university being studied and transcribe into Microsoft Excel. The only variable extracted, named "program", from the database was used to determine ADP enrollment for provisionally admitted students, that is if a student was enrolled they were coded "2 = Yes" or "1 = no" in SPSS. Students enrolled were cross-referenced to the Institutional Student Information System (Banner) to extract additional variables used in this study to include: admission status, demographic variables, High School Performance, and environmental variables. These variables and their coding are discussed below. The institutional department that manages the ADP also oversees the major academic success programs at the institution used in this study, which include SI, tutoring, and first-year seminar courses.

Institutional Student Information System (Banner).

The second database used in this study consisted of the Institutional Student Information System (Banner). The Banner system holds institutional student records, such as admission, academic, demographic, and personal information for each student enrolled. This database comprised of four sets of variables used in this study, which include: admission status (provisionally or regularly admitted), demographic variables (Gender and Race / Ethnicity), High School Performance (SAT Score and Quartile Ranking), and environmental variables (enrolled, registered, graduated, institutional GPA). Value labels (codes) were given to variables to allow for clarity of interpretation of the SPSS output and are discussed below.

Admission Status

The first variable recoded in SPSS was the student admission variable; a dichotomous variable and coded to identify "admission status". All students (N = 232) who were admitted as freshman used in the match-pair design were coded. Those who were "regularly admitted" (variable = Reg Admit) received a code = 1 and those who were provisionally admitted (variable = Prov Admit) received a code = 2. It should be noted that in AY2004 all provisionally admitted students were required to attend ADP.

Demographic Variables

The second set of data / variables used in this study included the two demographic factors of gender and race / ethnicity. Gender is a dichotomous variable but was not recoded for this study since gender differences were not examined. The sample for this study included: White non-Hispanic, Black non-Hispanic, Hispanic, Asian / Pacific Islander, and Other (which included: American Indian or Alaskan Native students). Each of these groups were recoded into five categories to create the variable "ethnicity description" using the following methodology: White non-Hispanic (code = 1), Black non-Hispanic (code = 2), Hispanic (code = 3), Asian / Pacific Islander (code = 4), and Other (code = 5).

Data analyses were performed to examine whether significant differences existed between the sample population, match-pair samples (N = 232), and the overall first-year student population with respect to the demographic factors included in this study. The result of these analyses revealed no significant differences between student sample and the overall first-year student population (AY2004 cohort) based on race / ethnicity.

High-School Performance

The third variable used in this study included high-school performance and included standardized test scores and quartile ranking. The highest composite SAT score in Banner was used for the purposes of this study. American College Test (ACT) scores were not used. SAT score can be found by the variable "SAT_Comp". The lower two quartiles (high school graduation) were only examined, that is, the lower 50%.

Environmental Variables

The final set of variables used in this study included environmental variables: enrolled, registered, graduated, institutional GPA, and low-income, first-generation students. The only college degree choice investigated in this study were the "Undecided" majors, which was part of the match-pair design. Enrolled is a dichotomous variable and in this study indicates students were retained after 1 year (code = 1). Students who were no longer enrolled after 1 year did not make it to the Fall semester of the following AY (AY2005) were given a "code = 2". Students who registered for the following spring semester were labeled "Registered" and coded as follows: Yes = 1 and No = 2.

Students who graduated (Code 1 = Yes) within 6 years is another dichotomous variable. Students must graduate on or before 6 years from the time they were admitted or before fall 2010 since this sample was taken from the AY2004 cohort. Students who did not graduate or were no longer enrolled received a "Code 2 = No". Institutional GPA (Inst_GPA) is the cumulative GPA earned by students after 1 year. Low income for this study, as defined by Pell grant eligibility, is a dichotomous variable where

students who were eligible to receive a Pell grant received a "Code 1 = Yes" and those who were not eligible a "Code 2 = No". Pell Grant eligibility could not be used in this study as enough students did not meet these criteria in the regularly admitted sample (non-ADP) to be match-paired to provisionally admitted students (ADP). However, further implications are discussed in Chapter V for future research.

Data Analysis

The data gathered for this study were imported into the SPSS so that statistical analyses could be conducted. Data received through the Institutional Student Information System (Banner) and ADP Database were imported into SPSS from Microsoft Excel as a tab delimitated file. The demographic data were examined through the use of descriptive statistics (such as, percentages, means, etc.). To examine the relationship between first-year retention rates and sixth-year graduation rates for ADP students compared to non-ADP students, the nonparametric statistical test, Chi Square test, was used. To test how strong the relationship was between the independent variables (ADP and non-ADP Students) and dependent variables (first-year retention and sixth-year graduation rates), *Cramer's V* was used. Inferential statistics, namely the independent samples *t*-test, was used to test for differences and statistical significance between first-year GPA and sixth-year GPA (dependent variables) for ADP and non-ADP students (independent variables). In order to measure the magnitude or size of the effect, or the mean difference between the two groups (ADP and non-ADP students), *Cohen's d* and the correlation coefficient, *r*, were used.

Both the Chi Square test and independent samples *t*-test were performed using SPSS. All statistical tests were run at an alpha level of 0.05 for significance. Results of the study were reported using numerical and graphical techniques. Analysis and interpretation of the data followed quantitative research principles outlined in *Educational Research: An Introduction* (Gall, Borg & Gall, 1996).

The research questions, variables and associated measurement levels, and test and method of data analysis procedures used in this research study are displayed in Figure 4.

Research Question	Variables and Measurement Level(s)	Test / Method of Analysis
1. What is the first-year retention rate for ADP students compared to non-ADP students?	*Dependent Variable*: First-year retention rate *Measurement*: Interval *Independent Variable:* Student's group i.e., ADP or Non ADP Group *Measurement*: Categorical but coded as interval for analysis	1. Chi Square test 2. *Cramer's V* for strength of the relationship 3. Descriptive Statistics
2. What is the difference between first-year GPA for ADP and non-ADP students?	*Dependent Variable*: First-year GPA *Measurement*: Interval *Independent Variable:* Student's group i.e., ADP or Non ADP Group *Measurement*: Categorical but coded as interval for analysis	1. Independent samples *t*-test calculated to determine if there was a statistically significant difference between the two groups 2. *Cohen's d* and the correlation coefficient (*r*) for effect size
3. What is the difference between sixth-year GPA for ADP and Non-ADP students?	*Dependent Variable*: Sixth-year GPA *Measurement*: Interval *Independent Variable:* Student's group i.e., ADP or Non ADP Group *Measurement*: Categorical but coded as interval for analysis	1. Independent Samples *t*-test calculated to determine if there was a statistically significant difference between two groups 2. *Cohen's d* and the correlation coefficient (*r*) for effect size
4. What is the sixth-year graduation rate for ADP students compared to non-ADP students?	*Dependent Variable*: Sixth-year retention rate *Measurement*: Interval *Independent Variable:* Student's group i.e., ADP or Non ADP Group *Measurement*: Categorical but coded as interval for analysis	1. Chi Square test 2. *Cramer's V* for strength of the relationship 3. Descriptive Statistics

Figure 4. Research Question, Variables and Measurement Level, and Test/Method of Analysis Employed in this Research Study

Summary

For this study, SPSS Version 22.0 was used in the analysis of the student data. Data were sampled from the student population at large HSI in South Texas. The impact of first-year retention rates and sixth-year graduation rates (independent variable) of ADP participants (dependent variable) compared to non-ADP participants were examined using the nonparametric statistical test, Chi Square test, and descriptive statistics since these were deemed most appropriate for the dichotomous variables and categorical variables. To test for how strong the relationship was between the dependent and independent variables, *Cramer's V,* was used. The inferential statistics, independent samples *t*-test, was used to test for statistical significant differences for first-year GPA between ADP and non-ADP groups and sixth-year GPAs for ADP and non-ADP groups. In order to measure the magnitude or size of the effect, *Cohen's* d and the correlation coefficient, *r*, were used. The results of these analyses are presented in Chapter IV.

CHAPTER IV

RESULTS

The purpose of this study was to provide an analysis of the ADP and its effect on persistence and graduation of Latino students at a HSI located in the heart of South Texas. That is, to test the null hypothesis that there was no difference between the provisionally admitted students who participated in the ADP and the regularly admitted students (non-ADP) for whom they were matched via SAT score and College Major (Undecided). As mentioned previously in Chapter III, the differences between the ADP students compared to their non-ADP peers, first-year retention rates, first-year GPAs, sixth-year graduation rates, and overall GPAs, were examined. To be able to develop a profile of the ADP Students (provisionally admitted), selected demographic variables were examined. These variables included:

- Race / ethnicity
- First-generation status
- Percent of students in bottom quartiles (lower 50%) of high school ranking
- SAT means
- Percent of students enrolled in developmental education
- Percent of students eligible for Pell grant (indicating low income status).

Descriptive data for the AY2004 freshman undergraduate population by admission status (regularly admitted or provisionally admitted) are provided in Table 1.

Table 1. *Descriptive Data for Population (AY2004 Undergraduate Freshman Students) by Admission Status*

Demographic Variable	Admission Status			
	Reg Admit (N = 3,003)		Prov Admit (N = 453)	
	n	Percent	n	Percent
Race / Ethnicity				
White, Non-Hispanic	1,221	40.66%	127	28.03%
Black, Non-Hispanic	300	9.99%	72	15.89%
Hispanic	1,212	40.36%	222	49.00%
Asian	150	5.00%	23	5.01%
Other	120	3.99%	9	2.07%
First Generation	1,441	48.00%	267	58.94%
Lower Quartiles	781	26.01%	249	54.97%
Mean SAT Score	1,009	N/A*	792	N/A*
Remedial Course Enrollment	1,111	37.00%	403	88.96%
Pell Grant Eligible	390	13.00%	95	21%

*Note: Percent is not calculated for "Mean SAT Score"

It should be noted the institution studied was a four-year HSI and had a large minority population. Sixty percent of the student population was classified as a minority and 44.1% of the population self-identified as being Hispanic. Figure 5 shows that 49% of all provisionally admitted students (n = 59) were Hispanic compared to 28% for their White, non-Hispanic (n = 36) counterparts for the AY2004 undergraduate freshman cohort.

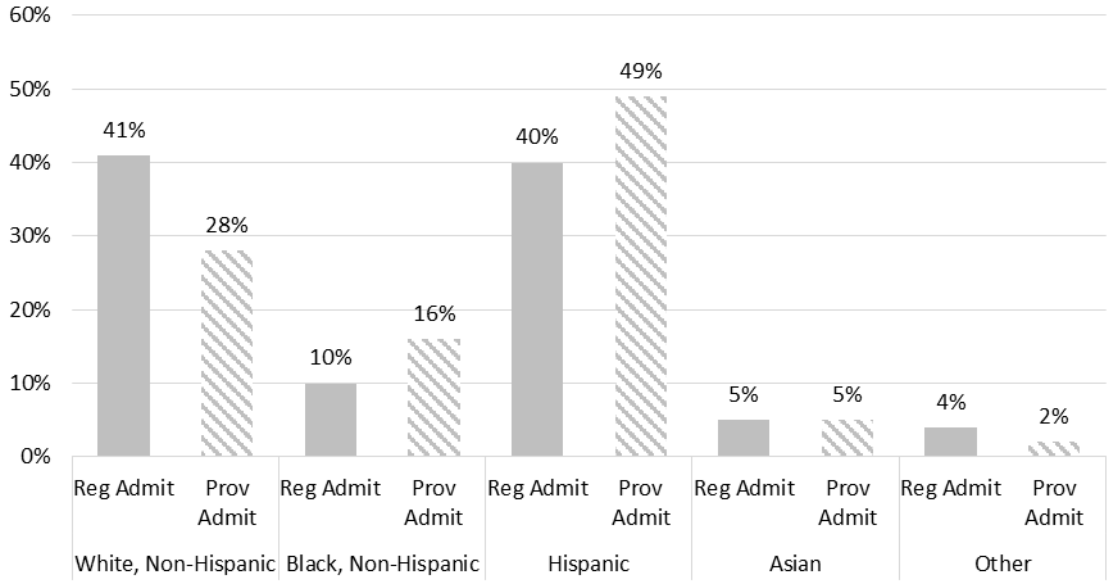


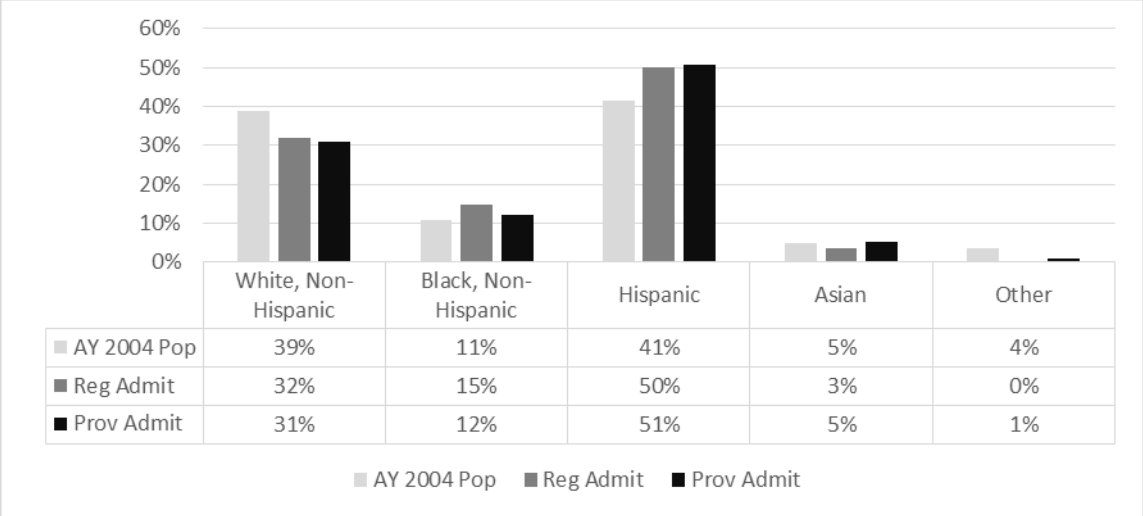
Figure 5. Race / Ethnicity Percentage for AY2004 Cohort by Admission Type.

The race / ethnicity data for the sample used in this study can be seen in Table 2. Since subjects were match-paired, the regular admitted student sample race / ethnicity distribution is similar to the race / ethnicity sample distribution for the provisionally admitted students.

Table 2. *Sample Race / Ethnicity Demographics by Admission Status*

	Admission Status			
Demographic Variable	Reg Admit (n = 116)		Prov Admit (n = 116)	
	n	Percent	n	Percent
Race / Ethnicity				
White, Non-Hispanic	37	31.90%	36	31.03%
Black, Non-Hispanic	17	14.66%	14	12.07%
Hispanic	58	50.00%	59	50.86%
Asian	4	3.44%	6	5.17%
Other	0	0.00%	1	0.87%

Furthermore, Figure 6 shows the sample by admission status is similar to the total AY2004 undergraduate freshman population. Forty-one percent of the AY2004 admitted freshman undergraduate students (n = 1,434) were Hispanic and 50% of the sample were Hispanic (n = 117). The only population that may appear to be underrepresented in the sample is the White, non-Hispanic group, which accounts for 39% of the AY2004 undergraduate freshman cohort (n = 1,348) compared to 31% of provisionally admitted students (n = 36) in the sample and 32% of those students (n = 37) who were regularly admitted in the sample.



	White, Non-Hispanic	Black, Non-Hispanic	Hispanic	Asian	Other
AY 2004 Pop	39%	11%	41%	5%	4%
Reg Admit	32%	15%	50%	3%	0%
Prov Admit	31%	12%	51%	5%	1%

Figure 6. Race / Ethnicity Percentage for AY2004 Cohort and Sample by Admission Type

First-generation students are less likely to be retained and graduate within 6 years and are an important part of this research since Latino students are more likely to be first generation due to the educational levels of their parents. Figure 7 shows 59% of

provisionally admitted students (n = 1,441) are considered first-generation in comparison to 48% of the regularly admitted students (n = 267).

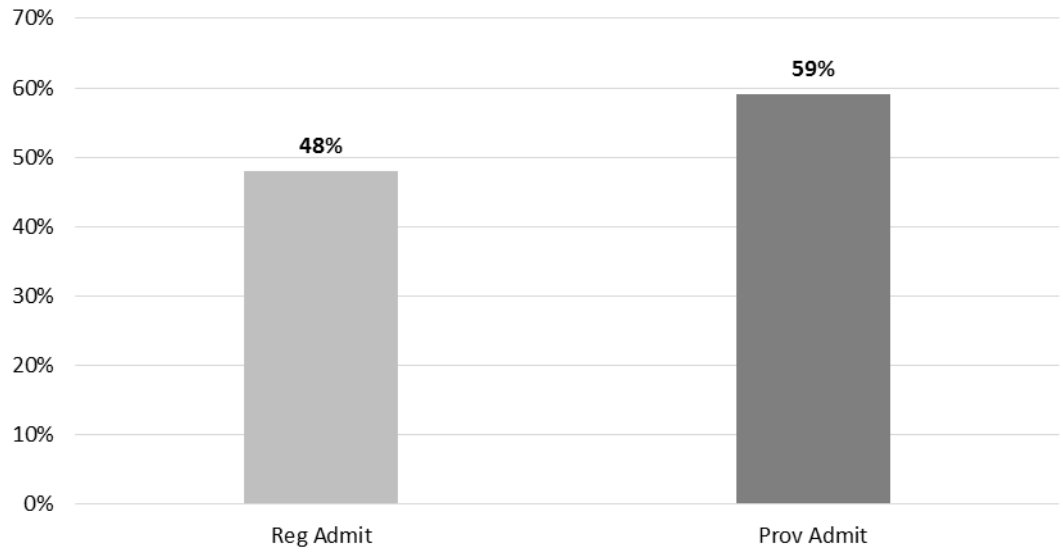


Figure 7. Percent of Students who are First-Generation Based on Admission Type

Table 3 shows that 267 of provisionally admitted students are in the first-generation status compared to 1,441 of the students who are regularly admitted.

Table 3. *AY2004 Undergraduate Freshman Students who are First-Generation by Admission Status*

	Admission Status			
	Reg Admit (N = 3,003)		Prov Admit (N = 453)	
	n	Percent	n	Percent
First-Generation	1,441	48.00%	267	58.94%

The research shows that first-generation college students and low socio-economic status students are especially at-risk for dropping out of college (Bowen, Chingos, & McPherson, 2009; Gandara & Contreras, 2009). First-generation students, regardless of race are also less likely to graduate within 6 years (Nunez & Cuccarro-Alamin, 1998). For this research study, students who were first-generation and of low socio-economic status as defined by Pell Grant eligibility could be used as enough students did not meet this criteria in the regularly admitted sample (non-ADP) to be match-paired to provisionally admitted students (ADP). However, further implications are discussed in Chapter V for future research.

Figure 8 demonstrates that 55% of all provisionally admitted students (n = 249) in the AY2004 cohort come from the lower quartiles with regards to high school ranking. Twenty-six percent of regularly admitted students (n = 781) come from the lower quartiles or lower 50%.

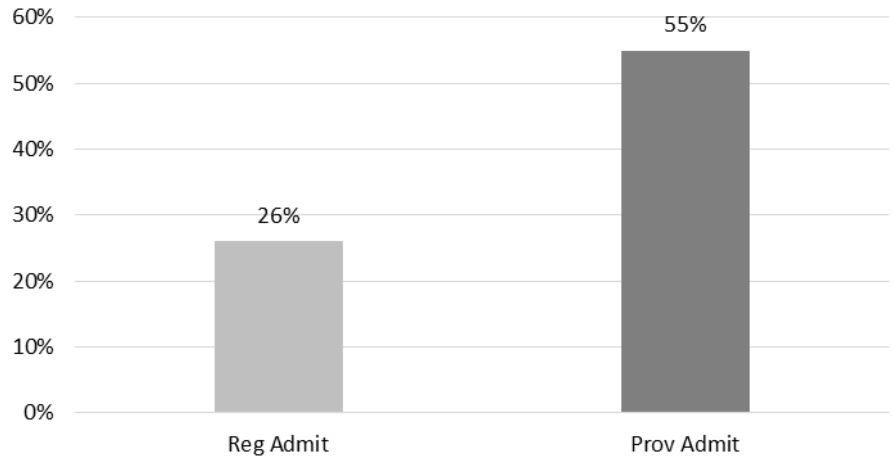


Figure 8. High School Rank (Lower Quartiles) for AY2004 Cohort

Table 4 shows the mean SAT score for provisionally admitted students in AY2004 is 792 compared to the regularly admitted students at 1009 mean SAT score at the four-year HSI being studied. The sample used for this research were match-paired (n=232) with 116 in each group (regularly admitted versus provisonally admitted) based on individual SAT score (highest individual SAT score was used). The mean SAT score for all admitted freshman undergraduate was 863, which is higher than the mean SAT score (792) for the provisionally admitted students in AY2004 cohort.

Table 4. *AY2004 Mean SAT Score by Admission Status*

		Admission Status	
	Total AY2004 (N = 3,456)	Reg Admit (N = 3,003)	Prov Admit (N = 453)
Mean SAT Score	863	1,009	792

Eighty-nine percent of all provisionally admitted students (n = 403) in the AY2004 cohort took some form of remedial coursework, such as developmental reading, developmental writing, or developmental math. Only 37% of all the regularly admitted students (n = 1,111) in the same cohort took developmental coursework (Figure 9). Provisionally admitted students in AY2004 also had to enroll in ADP which is a comprehensive academic support program designed to provide provisionally-admitted students with the necessary support to succeed academically in the postsecondary setting.

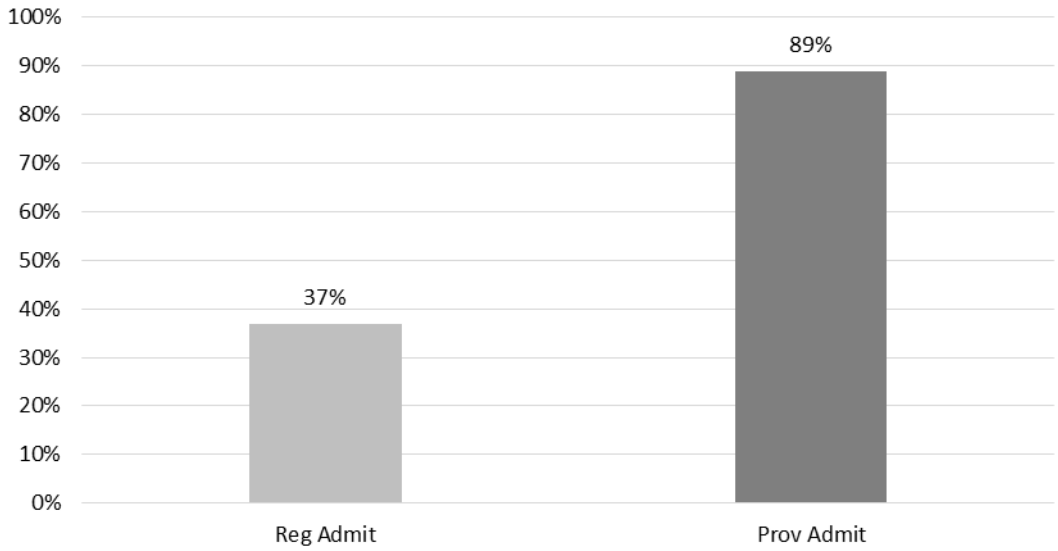


Figure 9. Percent of Students Enrolled in Remedial Courses (Based on Admission Status)

The final demographic factor examined was income status based on Pell Grant eligibility (Table 5). Those eligible for Pell Grant are classified in a low-income status as per Federal guidelines defined by the Financial Application for Federal Student Aid (FAFSA). Twenty-one percent of the provisionally admitted students (n = 95) received a full Pell Grant compared to only 390 (13%) of the regularly admitted students (Table 5) for the AY2004 cohort.

Table 5. *AY2004 Low Income Status Based On Pell Grant Eligibility by Admission Status*

	Admission Status			
	Reg Admit (N = 3,003)		Prov Admit (N = 453)	
	N	Percent	N	Percent
Pell Grant Eligible	390	13.00%	95	21.00%

Research Questions and Data Analysis

When the probability value is below a certain α-level, the effect is statistically significant and the null hypothesis is rejected. Throughout these analyses, the *p*-value was set at $p = 0.05$ for results to be considered statistically significant.

Research Question 1

The first research question sought to determine the association between the first-year retention rate for ADP students compared to their non-ADP peers during the year of investigation. College student first-year retention rate is defined as the percent of first-time in college, full-time students, pursuing a bachelor's degree from the previous fall semester and enrolled again in the current fall semester (National Center for Education Statistics, 2008).

The non-parametric test, Chi-Square, was performed on this data set to determine if a statistical difference existed between ADP (provisionally admitted) and non-ADP (regularly admitted) students. However, as seen in Table 6, no differences exist between the number who were retained after the first year (n = 68) and the number who were not retained (n = 48); $\chi^2 = 0.000$, $p = 1.0$. As such, the null hypothesis was retained, that is there is no difference in the first-year retention rate of the ADP students compared to the non-ADP students. To test how strong the relationship was between the independent variable (ADP and Non-ADP) and dependent variable (first-year retention), *Cramer's V* was used, which was $V = 0.00$ indicating there was no relationship between the variables.

Table 6. *Results of Chi-square Test and Descriptive Statistics for Admission Status by First-Year Retention*

	First-Year Retention	
Admission Status	Retained	Not Retained
ADP	68 (50%)	48 (50%)
Non-ADP	68 (50%)	48 (50%)

Note: $\chi^2 = 0.000$*, df = 1. Numbers in parentheses indicate column percentages.
*p > .05

For the AY2004 cohort, the first-year retention rate for all provisionally admitted students (N = 453) is 58% compared to 66% for all regularly admitted students (N = 3,003) as shown in Figure 10.

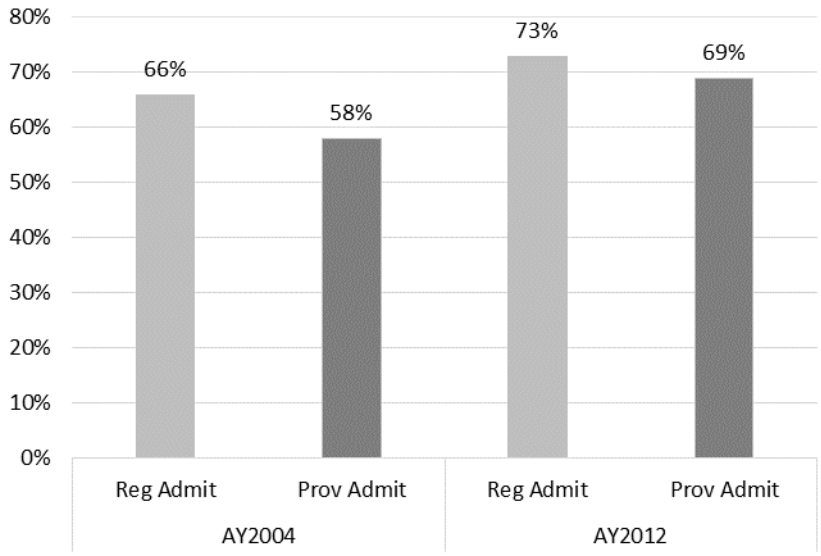


Figure 10. First Year Retention Rate by AY Cohort (2004 & 2012)

When looking to longitudinal data (AY2012), the first-year retention rates for both groups increases with a one-year retention rate of 69% for provisionally admitted students and a 73% first-year retention rate for regularly admitted students. As the findings suggest, second-year retention rates typically take a significant drop. This drop in retention rates in-turn affected the long-term graduation rates. For cohort AY2004, provisional students' second-year retention is 35% compared to 51% of the regular admitted students (Figure 11). As we look at longitudinal data (AY2012 cohort), provisionally admitted students are now being retained (54%) at close to the same rate as regularly admitted students (56%).

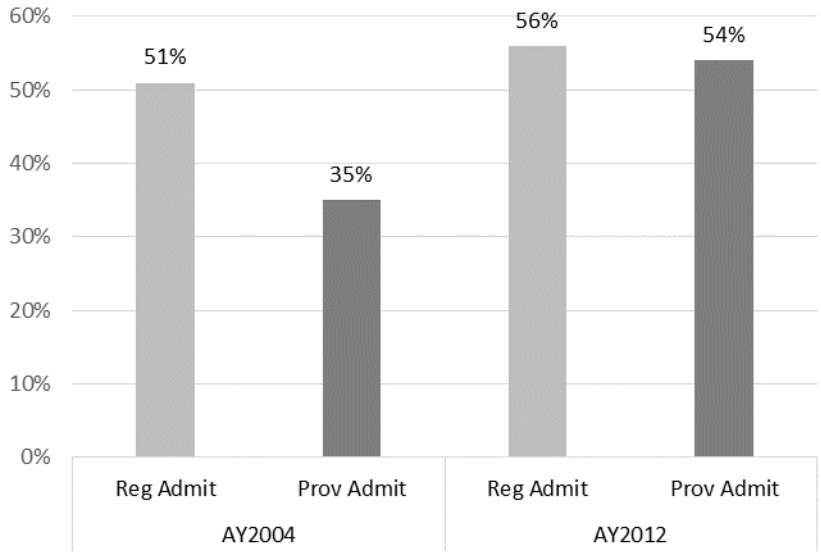


Figure 11. Second Year Retention Rate by Admission Status for AY2004 and AY2012 Cohorts

Research Question 2

Research question two sought to determine whether the two cohorts of students, provisionally admitted (ADP) and regularly admitted (non-ADP), differed in the academic achievement after the first year as measured by their GPA and whether this difference was statistically significant. To analyze the relationship between first-year GPA for ADP and non-ADP students, inferential statistics, namely the independent samples *t*-test, was employed in this study. The independent samples *t*-test evaluated the difference between the means of the dependent variable (first-year GPA) and independent variable (admission status). Assumptions underlying the independent samples *t*-test include:

1. The first-year GPA scores are independent of each other
2. The first-year GPA is normally distributed
3. The variances of first-year GPA are equal

As mentioned in Chapter III, the central limit theorem states that a sampling distribution of the mean approaches a normal distribution with a mean (μ) and a variance σ^2 divided by N, as N (the sample size) increases, that is the sample size is large enough (Agresti, 2002) and that generally, a sample size is considered large enough if the sample size is greater than 40. Since the size of each sample (n = 116) is sufficiently large enough, the *t* test for independent groups may be used.

The results of the independent samples *t*-test and descriptive statistics for first-Year GPA are shown in Table 7. The significance (2-Tailed) value is $p = 0.004$. There is a statistically significant mean difference in first-year GPA between regularly

admitted (non-ADP) students and provisionally admitted (ADP) students for the AY2004 cohort and these differences between the condition means are not likely due to chance. The results of the independent samples *t*-test were as follows: $t(230) = 2.92$, $p < 0.05$, $d = 0.39$. The 95% confidence interval for the first-year GPA mean ranged from 0.11 to 0.58. An examination of the group means indicated regularly admitted (non-ADP) students had statistically significantly higher first-year GPAs (2.05 ± 0.87) compared to the provisionally admitted (ADP) students (1.70 ± 0.93). The GPA was calculated on a scale of 0.0 to 4.0.

Table 7. *Results of t-test and Descriptive Statistics for First-Year GPA*

	Admission Status										
	Reg Admit			Prov Admit							
	M	SD	n	M	SD	n	95% CI for Mean Difference	t	df	d	r
1-Year GPA	2.05	0.87	116	1.70	0.93	116	0.11, 0.58	2.92*	230	0.39	0.19

*P = 0.004

Since there was a statistically significant difference between the mean first-year GPA for regularly admitted and provisionally admitted students, the effect size was calculated to determine the magnitude of this effect. Cohen's effect size value ($d = 0.39$) suggested a moderate practical significance (Table 7). In addition, the correlation coefficient, *r*, was calculated to determine the effect size. The correlation coefficient ($r = 0.19$) suggested a small effect size (Table 7).

A reviewing of longtitudinal data, starting with the AY2004 cohort of provisionally admitted students compared to the regularly admitted students, suggest the GPAs for the provisionally admitted students match and then begin to exceed those of the regularly admited students in AY2013 (Figure 12). It should be noted that provisionally admitted students for each AY from 2004 through 2013 were required to enroll in ADP. A review of the data helped generate the next research question, namely, did the two cohorts of students, provisionally admitted (ADP) and regularly admitted (non-ADP), differ in the academic achievement after 6 years as measured by their GPA and was this difference statistically significant?

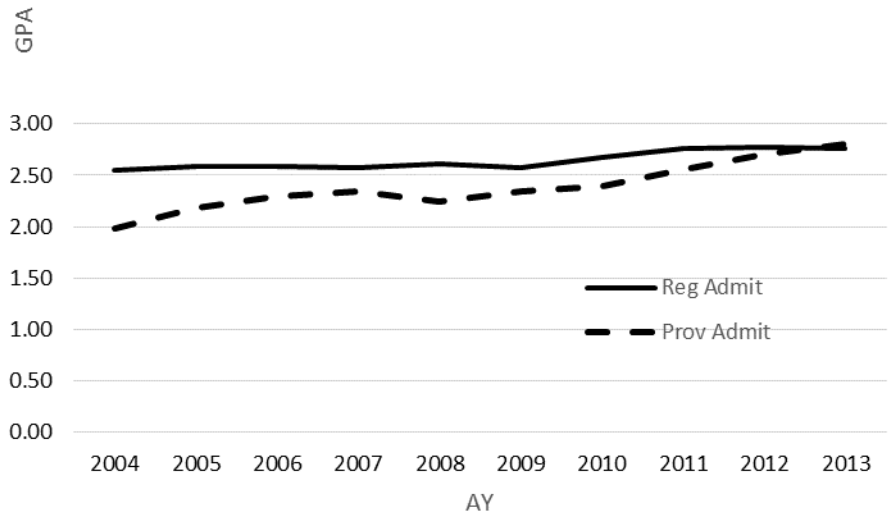


Figure 12. Mean First-Year GPA by AY (2004 thru' 2013)

Research Question 3

Research question three sought to determine whether the two cohorts of students, provisionally admitted (ADP) and regularly admitted (non-ADP), differed in the

academic achievement after 6 years as measured by their GPA and whether this difference was statistically significant. To study the relationship between the sixth-year GPA for the ADP and non-ADP students, an independent samples *t*-test for overall GPA (6-Year GPA) was conducted. The results are shown in Table 8.

The mean GPA for the non-ADP students was 2.09 and the mean for the ADP students was 1.74. The significance (2-Tailed) value is $p = 0.002$. There is a statistically significant mean difference in sixth-year GPAs between regularly admitted (non-ADP) students and provisionally admitted (ADP) students for the AY2004 cohort and these differences between the condition means are not likely due to chance. The results of the independent samples *t*-test were as follows: $t(229) = 3.086$, $p < 0.05$, $d = 0.41$. The 95% confidence interval for the sixth-year GPA mean ranged from 0.13 to 0.58. An examination of the group means indicate regularly admitted (non-ADP) students had statistically significantly higher sixth-year GPAs (2.05 ± 0.87) compared to the provisionally admitted (ADP) students (1.70 ± 0.93). The GPA was calculated on a scale of 0.0 to 4.0.

Table 8. *Results of t-test and Descriptive Statistics for Overall (6-Year) GPA*

	Admission Status										
	Reg Admit			Prov Admit							
	M	SD	n	M	SD	n	95% CI for Mean Difference	t	df	d	r
6-Year GPA	2.09	0.86	116	1.74	0.87	116	0.13, 0.58	3.09*	229	0.41	0.20

*P = 0.002

Since there was a statistical significant difference between the mean sixth-year GPA for regularly admitted (non-ADP) and provisionally admitted (ADP) students, the effect size was calculated to determine the magnitude of this effect. Cohen's effect size value ($d = 0.41$) suggested a moderate practical significance (Table 8). In addition, the correlation coefficient, *r*, was calculated to determine the effect size. The correlation coefficient ($r = 0.20$) suggested a small effect size (Table 8).

In conclusion, this research question implied that regularly admitted (non-ADP) students had significantly higher graduation GPAs (2.09 ± 0.86) compared to the provisionally admitted (ADP) students (1.74 ± 0.88), $t\ (229) = 3.086$, $p = 0.002$.

Research Question 4

The final research question sought the association between the sixth-year graduation rate for ADP students compared to the non-ADP students. To compare sixth-year graduation rates of the ADP and non-ADP students, a Chi-square test was conducted. Chi-square statistic (goodness-of-fit test) are designed to determine whether an observed number differs either from chance or from what was expected. Assumptions include: (1) score (graduation) are independent of each other, (2) there are a minimum of 5 participants (in this case n = 232), and (3) the dependent variable (ADP vs Non-ADP) is assumed to be a frequency or count. We can see in Table 9 that $\chi^2 = 1.46$, $p = 0.23$ which shows there is no statistically significant association between the dependent variable (admission type) and independent variable (graduation rate). That is, both regularly admitted and provisionally admitted students equally graduate within 6 years. To test the strength of the relationship between the independent variable (ADP

and Non-ADP) and dependent variable (sixth-year graduation), *Cramer's V* was used, which was $V = 0.079$ indicating there was a weak relationship between the variables.

Table 9. *Results of Chi-square Test and Descriptive Statistics for Admission Status by Six-Year Graduation Rate*

	Six-Year Graduation Rate	
Admission Status	Graduated	Not Graduated
ADP	17 (60.7%)	99 (48.5%)
Non-ADP	11 (39.3%)	105 (51.5%)

Note: Note: $\chi^2 = 1.46$*, df = 1. Numbers in parentheses indicate column percentages.
*p > .05

Figure 13 indicates that, over time, graduation rates for both the ADP and the non-ADP students increased. For the ADP students there was a 10% increase in graduation rates (from AY2004 to AY2007) and during this same time period the increase was only 3% for the Non-ADP or regularly admitted students.

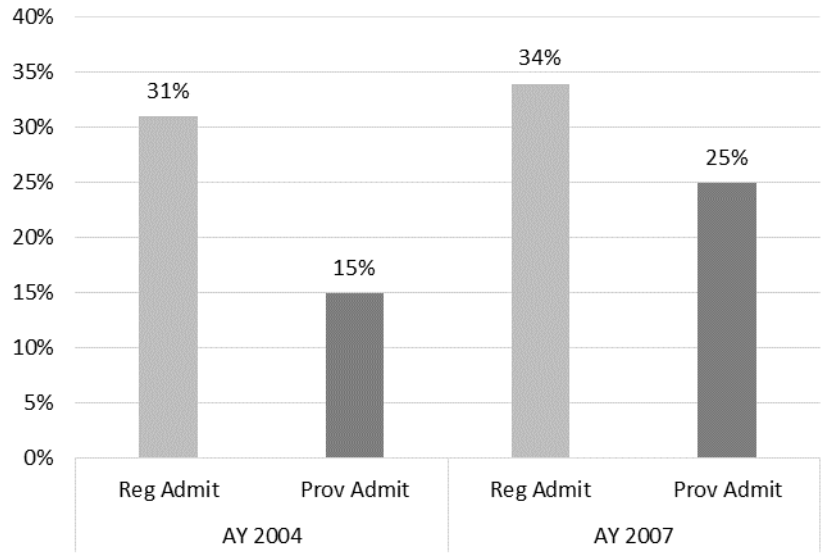


Figure 13. Sixth-Year Graduation Rate by AY Cohort (2004 & 2007)

Results of the analysis support the research findings in the literature. One study found that Latino and African American students lagged behind their White and Asian counterparts in regards to 6-year persistence (Radford, Berkner, Wheeless, & Shepherd, 2010). According to Astin & Oseguera (2003), Latino students have among the lowest college completion rates when compared to all other ethnic groups. However, as Figure 13 shows, the ADP graduation rates improved significantly in comparison to the non-ADP graduation rates.

Summary of Results

The Academic Development Program for provisional students seems to close the gaps between first-year retention and sixth-year graduation rates as compared to students who are regularly admitted and not enrolled into the Academic Development Program. It appears that Academic Development Program helped to equalize outcomes of retention, GPA, and graduation over the period of the program. Major findings of the study include:

- No statistical differences existed between the number of ADP (provisionally admitted) and non-ADP (regularly admitted) students who were retained after the first year and the number who were not retained and there was no difference in the first-year retention rate of ADP students as compared to non-ADP students.
- A statistical significant difference existed between the regularly admitted group (non-ADP students) and provisionally admitted group (ADP students) when observing first-year mean GPA.

- A statistical significant difference existed between the mean sixth-year GPA for regularly admitted and provisionally admitted students. That is, regularly admitted (non-ADP) students had statistically significantly higher graduation GPAs compared to the provisionally admitted (ADP) students.
- No statistical differences existed between admission type (provisionally admitted or regularly admitted students) and sixth-year graduation rate. That is, both regularly admitted and provisionally admitted students equally graduate within six years.

The results of the study support the recommendations of researchers like Nora and Crisp (2012), that there is a need for more match pair, quantitative, qualitative, and longitudinal studies of Latino student success programs and outcomes. Identifying programs that have been shown to directly and indirectly influence the success of Latino students can be replicated and provide the necessary outcomes of improved persistence and graduation (Hurtado & Ponjuan, 2005).

CHAPTER V

SUMMARY OF FINDINGS, RECOMMENDATIONS, AND CONCLUSIONS

As discussed in Chapter I of this study, many Latino students find themselves unprepared and underprepared for college due to their coursework selection and completion during their matriculation in high school. In addition, Latinos have typically been considered as the minority group that would not finish secondary education, would not attend college, and definitely would not graduate with a college degree (Chapa, 1991; Delgado Bernal, 1999; Gandara, 1994).

Due to Latinos' low education attainment levels, they are more likely to be first generation, that is, the first member to attend college within their families (Gandara & Contreras, 2009; Hurtado, Saenz, Santos, & Cabrera, 2008). The research shows that first-generation students are less likely to be retained after the first year and graduate within six years (Nunez & Cuccaro-Alamin, 1998). Students who are both Latino and first generation, according to the research, are less likely to enter a four-year institution and obtain a college credential.

Therefore, obtaining a college degree is highly valued and is seen as key to both personal and professional success for Latino students and their families. Higher education improves the quality of life of the Latino community by providing economic gains, better health, and increased civic participation. As a result, postsecondary access and success issues are of great importance for Latino students. The growing gaps in educational access and success of Latino students, based on their income level, and ethnicity, undermine the equity goal in the Higher Education Act of 1965 (Oliva, 2003).

HSIs will have an important role in the education of Latino students and student retention programs that are successful in retaining and graduating Latino college student populations must continue to be identified. For these reasons, research must continue to be conducted to measure the success outcomes of programs developed to support Latino students in both persistence and graduation at institutions of higher education, especially those that are designated as HSIs. This body of work adds to this research by providing administrators with empirical data related to the persistence of Latino college students. Chapter V summarizes and discusses the research findings of this study on the effect of a structure freshman year on Latino success and recommendations for both policy and practice, for future research, as well as conclusions.

Figure 14 displays the Latino Student Success Models identified in the literature review found in Chapter II of this study, provides a brief summary of the model, as well as the specific student academic support program(s) that can be associated with these models. This summarization of the Latino success models can be a useful tool for practitioners and researchers of Latino student access and success:

Summarization of Latino Student Success Models			
Latino Student Success Model	**Author(s)**	**Model Summary**	**Academic Support Program**
Swail's Geometric Model of Student Persistence and Achievement	Swail, Redd, and Perna (2003)	Model reconceives the relationship between academic success and college persistence and focuses on institutional support services and best practices	Supplemental Instruction, Peer Tutoring, and Collaborative Learning (Best practices, success with students of color)
Model of Student Engagement	Nora, Barlow, and Crisp (2005)	Framework that emphasizes the concept of academic and social integration (Tinto, 1993)	Learning Communities (social and academic engagement)
Expertise Model of Student Success (EMSS)	Padilla (2009)	Model proposes that student expertise is a combination of theoretical (academic) and heuristic knowledge (from others)	Freshman Seminar (students gain theoretical and heuristic knowledge)
Interactive Model of Success for Underserved Students	Rendon (2006)	Model describes a holistic student success model, where the interaction between student, institution, family, and the larger community	Learning Communities and Service Learning (Community engagement)

Figure 14. Summarization of Latino Student Success Models

Summary of Findings

The purpose of this study was to test the null hypothesis that there was no difference between the provisionally admitted students who participated in the ADP and the regularly admitted students for whom they were matched via SAT score and College Major (Undecided); that is, first-year retention rates and sixth-year graduation rates of ADP participants from the AY2004 undergraduate freshman cohort who were provisionally admitted to the four-year HSI located in South Texas used in this study.

ADP is a comprehensive academic support program designed to provide provisionally-admitted students with the necessary support to succeed academically in the postsecondary setting. Students who were unable to meet university admissions standards were admitted on a provisional basis for the first year and as a matter of institutional policy had to enroll in ADP.

Existing data available through the ADP database and the institution's student information system (Banner) were used to establish the relationships among the dependent (ADP and non-ADP or regularly admitted and provisionally admitted students) and independent (retention, first-year GPA, graduation, and overall GPA) variables. In addition, the relationship between first-year GPA for ADP and non-ADP students and between sixth-year GPA for ADP and non-ADP students were examined.

To be able to answer the research questions and test the relationships among regularly admitted and provisionally admitted students and retention, first-year GPA, graduation and overall GPA and the relationship between first-year GPA for regularly and provisionally admitted students, this study employed a match-pair of freshman

undergraduate students that entered a large four-year HSI in AY2004. Students were matched based on scores received on the SAT and their college major, which in this study was "Undecided". Matching equated the groups on SAT scores and chosen major and removed bias in the comparison of groups by ensuring equality of the distributions. Matching, as a result, controlled the effect of covariates and controlled for confounding or eliminated bias. The following research questions and hypotheses were addressed in this study:

1. After controlling for SAT score and college major, what is the first-year retention rate for ADP students compared to the non-ADP students?

H_1: After controlling for SAT score and college major, the first-year retention rate between ADP students (provisionally admitted) was different than non-ADP students (regularly admitted).

2. After controlling for SAT score and college major, what is the difference between first-year GPA for ADP and non-ADP students?

H_2: After controlling for SAT score and college major, ADP students (provisionally admitted) average first-year GPA do not differ from non-ADP (regularly admitted) student's average first-year GPA.

3. After controlling for SAT score and college major, what is the difference between sixth-year GPA for ADP and non-ADP students?

H_3: After controlling for SAT score and college major, ADP students (provisionally admitted) average sixth-year GPA do not differ from non-ADP (regularly admitted) student's average sixth-year GPA.

4. After controlling for SAT score and college major, what is the sixth-year graduation rate for the ADP students compared to the non-ADP students?

H₄: After controlling for SAT score and college major , the sixth-year graduation rate between ADP students (provisionally admitted) was different than non-ADP students (regularly admitted).

To test the impact of first-year retention rates and sixth-year graduation rates of ADP participants compared to non-ADP participants, the nonparametric statistical test, Chi Square test, and descriptive statistics were used since these were deemed most appropriate for the dichotomous variables and categorical variables used in this study. To test for how strong the relationship was between the dependent and independent variables, *Cramer's V,* was used. The inferential statistics, independent samples *t*-test, was used to test for statistical significant differences for first-year GPA between ADP and non-ADP participants and sixth-year GPAs for ADP and non-ADP participants. In order to measure the magnitude or size of the effect, *Cohen's* d and the correlation coefficient, *r*, were used. The major findings of the study include:

- No statistical differences existed between the number of ADP (provisionally admitted) and non-ADP (regularly admitted) students who were retained after the first year (n = 68) and the number who were not retained (n = 48); $\chi^2 = 0.000$, $p = 1.0$. The null hypothesis was retained because no difference in the first-year retention rate of ADP students as compared to non-ADP students was found. To test how strong the relationship was between the independent variable (ADP and

Non-ADP) and dependent variable (first-year retention), *Cramer's V* was used, which was $V = 0.00$ indicating there was no relationship between the variables.

- A statistical significant difference existed between the regularly admitted group (non-ADP students) and provisionally admitted group (ADP students) when observing first-year mean GPA. The significance (2-Tailed) value was $p = 0.004$. The results of the independent samples *t*-test were as follows: $t(230) = 2.92$, $p < 0.05$, $d = 0.39$. The 95% confidence interval for the first-year GPA mean ranged from 0.11 to 0.58. An examination of the group means indicated regularly admitted (non-ADP) students had statistically significantly higher first-year GPAs (2.05 ± 0.87) compared to the provisionally admitted (ADP) students (1.70 ± 0.93). Since there was a statistical significant difference between the mean first-year GPA for regularly admitted and provisionally admitted students, the effect size was calculated to determine the magnitude of this effect. *Cohen's d* = 0.39, suggesting a moderate significance, and $r = 0.19$ suggesting a small effect size.
- A statistical significant difference existed between the mean sixth-year GPA for regularly admitted and provisionally admitted students. That is, regularly admitted (non-ADP) students had statistically significantly higher graduation GPAs compared to the provisionally admitted (ADP) students. The results of the independent samples *t*-test were as follows: $t(229) = 3.086$, $p < 0.05$, $d = 0.41$. The 95% confidence interval for the sixth-year GPA mean ranged from 0.13 to 0.58. An examination of the group means indicated regularly admitted

(non-ADP) students had statistically significantly higher sixth-year GPAs (2.05 ± 0.87) compared to the provisionally admitted (ADP) students (1.70 ± 0.93). Since there was a statistical significant difference between the mean sixth-year GPA for regularly admitted (non-ADP) and provisionally admitted (ADP) students, the effect size was calculated to determine the magnitude of this effect. *Cohen's d* = 0.41, suggesting a moderate significance, and $r = 0.20$ suggesting a small effect size.

- No statistical differences existed between admission type (provisionally admitted or regularly admitted students) and sixth-year graduation rate. That is, both regularly admitted and provisionally admitted students equally graduate within six years; $\chi^2 = 1.46$, $p = 0.23$ which showed there was no statistically significant association between the dependent variable (admission type) and independent variable (graduation rate). Both regularly admitted and provisionally admitted students equally graduated within 6 years. To test the strength of the relationship between the independent variable (ADP and Non-ADP) and dependent variable (sixth-year graduation), *Cramer's V* was used, which was $V = 0.079$ indicating there was a weak relationship between the variables.

Implications for Policy

Drawing from the review of literature research on student persistence and success, Tinto & Pusser (2006) concluded that leaders and policy-makers should consider strategies when developing policies that enhance postsecondary student access, persistence, and success. Here are a few recommendations for policy considerations:

1. Use disaggregated data to understand how Latino and non- Latino student performance to help guide decisions and program initiatives aimed at promoting persistence and graduation (Exceléncia in Education, 2012).
2. Increase and continue support of comprehensive college prepatory programs, such as Gear Up, TRIO, and ENLACE by Federal and State governments. The limitation to these programs is that they are usually funded for 5 years and serve a small numbers of students. Title V funding (US Department of Education, 2013) has been used by HSIs to improve student success programming at the college and university level targeting Latino student populations.
3. Train faculty, especially those employed by HSIs, on how to create learning communities; mentor and guide students, and how to employ validation theory as a way to support, encourage and affirm students as capable and validated members of the academy (Rendon, 1994).
4. Develop student support programs that utilize the strengths of Latino students, instead of deficits, and therefore allow students to reach their full potential (Gonzalez, Moll, & Amanti, 2005, Nunez, 2009a; Yosso et al. 2009). Program staff need to recognize that Latino students bring assets and knowledge that can be used to build their skills.

Recommendations for Practice

For institutions that want to provide access and success for Latino students at their institutions of higher education, especially those that are designated as HSIs, it

would be strategic to implement programs like the ADP. Some recommendations are based on the study and go beyond the first year:

1. Enroll Latino students in developmental Learning Communities that allow for students in certain developmental areas to study and work together in a cohort collaborative learning. This cohort collaborative learning would allow for improved outcomes and mastery of learning, creating a stronger academic foundation for each student in the developmental Learning Community (Drew, 2012).
2. Require mandatory academic support in the form of Peer Tutoring and / or SI. Per the research (Dizinno & Crisp, 2013), these two programs had great impacts in retention and graduation of students of color. That is, the more students attended the SI sessions the higher the GPA and the higher the retention. SI also predicted students' semester grades; number of sessions attended positively correlated with grades.
3. Create second-year retention programming for students since many institutions tend to focus on the First Year Experience. This could improve graduation rates, as the second year is where the largest number of students drop out. This study found the first-year retention rates for both groups (ADP and non-ADP) increased with a one-year retention rate of 69% for provisionally admitted students and a 73% first-year retention rate for regularly admitted students. As the findings suggest, second-year retention rates typically take a significant drop and this drop in retention rates in-turn

affected the long-term graduation rates. By providing special sophomore programming to help students stay engaged with their institution and academic department may well lead to higher retention and graduation rates.

4. Develop research mentoring opportunities for students that involve Latino faculty as students need role models in the academy and involve students in research presentations at professional conferences. According to the work by Rendon (1994), faculty validation of students and demonstrating to them that they belong in the academic setting encourages them to feel validated and increases the likelihood of their persistence.
5. Offer students opportunities to work on campus in areas of their desired research or major academic interest. This may decrease the need for outside employment and could encourage student persistence and affiliation with their academic department. As research has revealed, part-time employment on-campus, in a position of academic interest, can affect persistence and degree completion positively (Pascarella & Terenzini, 2005).
6. Create paid summer internship opportunities involved with research for undergraduate Latino students at campuses. This would allow students to explore graduate and professional school opportunities and could create a pipeline for future Latino faculty. Research showed that students who have contact with faculty are likely to persist, demonstrate high levels of achievement, and to be satisfied with their colleges (Kuh, Schuh, Whitt & Associates, 1991)

7. Connect students with alumni in their academic discipline in shadowing or enrolling in career (private industry) internship opportunities. This would allow students to learn the necessary workforce expectations in a safe environment and prepare them for their future career success.
8. Involve administrators, faculty, and staff, as retention agents with each one accepting to support Latino students in being successful through persistence and graduation. Total institutional support could add to the success of all students. An approach to fostering interaction between Latino students and faculty is that of personal and academic validation (Rendon, 1994: Rendon, Linares, & Munoz, 2011). This is described as faculty and university administrators reaching out to Latino students and getting to know them and encourage them to be socially and academically integrated.

Recommendations for Future Research

As a practitioner and doctoral student researcher, I have come to the conclusion there is more research to be done on Latino student success at the postsecondary education level. This study only adds to the body of research already conducted and published. As a result, the following recommendations are submitted for consideration to future researchers on Latino student access and success issues:

1. Replicate the study and analyze first-year retention rates of provisionally admitted students and regularly admitted students to see if any differences exist across gender. This study was a match-pairs on the variables SAT score and college major (Undecided). Other variables to match on, such as race / ethnicity,

were considered by the researcher, but further matching on variables in this study would not have left a robust enough sample in order to conduct meaningful analysis. That is not enough subjects would have remained had matching on three variables been accomplished. Therefore subsequent studies using larger sample sizes should be considered to allow for examination of differences across gender. According to the work of Saenz and Ponjuan (2009), only a small number of males of color attending college graduate.

2. Replicate the study and analyze first-year retention rates of provisionally admitted students and regularly admitted students to see if any differences exist across Low income students, as defined by Pell grant eligibility. Pell Grant eligibility could be not used in this study as enough students did not meet this criteria in the regularly admitted sample (non-ADP) to be match-paired to provisionally admitted students (ADP). That is not enough subjects would have remained had matching on this variable also been accomplished.
3. Analyze first-year retention rates of provisionally admitted students and regularly admitted students across several AY cohorts or additional AY cohorts to see if differences exist between the number of students who were retained after the first year and the number who were not retained. Are there any statistical differences and what are the effects of these differences, since the results of this study showed there was no difference in the first-year retention rate for the AY2004 cohort?

4. Compliment the match-pair study by the completion of a qualitative study that would allow for student input on their program experience and perceived outcomes through interviews, focus groups, and surveys.
5. Perform longitudinal studies that look at the long term outcomes, such as over a 6- or 10-year period, to allow for the assessment of graduation rates at the 4-year, 5-year, and 6-year points since this study only focused on one academic cohort, the AY2004 undergraduate freshman cohort. As discussed in Chapter IV, a review of longtitudinal data, starting with the AY2004 cohort of provisionally admitted students compared to the regularly admitted students, suggest the GPAs for the provisionally admitted students match and then began to exceed those of the regularly admited students in AY2013 (Figure 12).

These recommendations would also inform the research and would allow Latino college students to tell, through interviews, focus groups, or surveys, about their own experiences and recommendations for improving retention and graduation rates at postsecondary institutions, especially those designated as a HSI.

Summary

This study found that the ADP did retain and graduate students at the same level as the regularly admitted students. Differences were found in the first-year and sixth-year GPAs. The GPAs of the regularly admitted students groups were significantly higher than the ADP group. Replication of the ADP program would be recommended as it demonstrates that, over time, the program was able to close the gaps between provisionally admitted (at-risk) students and those admitted on regular admission status.

Recommendations were also provided for policy makers, practitioners, and researchers. It is important to note that according to Nichols and Clinedinst (2013), there are several models of provisional admission programs and it would be important to match the needs of the students with the correct model. Major researchers in Latino student success, also noted the importance and role of faculty in Latino student persistence and graduation and so it would urge institutions to educate faculty about their Latino student population by providing professional development opportunities on Validation theory (Rendon, 1994).

It appears that a structured first year program like the ADP can be key to Latino student success but recommendations also provided above would be to continue programming to the second year and provide students with opportunities for research and mentoring by faculty in their area of academic interest. In addition, it would be important for students to actively engage in student support programs that have been proven to improve grades, improve persistence, and improve graduation rates of Latino students.

This study provided a glimpse into the success outcomes of programs developed to support Latino students in both persistence and graduation at institutions of higher education, especially those that are designated as HSIs. Additional research needs to be accomplished to analyze what programs work for Latino student success and it would be important for future researchers to compliment the study by completing qualitative studies. These studies would allow for students in the program to provide their feedback through interviews, focus groups, and surveys about the program's effectiveness and

their recommendations for program improvements. Lastly, completing a longitudinal study of these programs could reveal more information on the program's success over time.

REFERENCES

Agresti, A. (2002). *Categorical data analysis*. New York: Wiley-Interscience.

Aguirre, A. Jr. and R. O. Martinez (1993). *Chicanos in Higher Education: Issues and Dilemmas for the 21st Century.* ASHE-ERIC Higher Education Report No. 3. Washington, D.C.: The George Washington University School of Education and Human Development.

American Association of Community Colleges (AACC). (2012). *Community college fast facts*. Retrieved from: www.aaxx.nche.edu/AboutCC/Documents/FactSheet2012.pdf.

Anaya, G., & Cole, D. (2001). Latina/Latino student achievement: Exploring the influence of student-faculty interactions on college grades. *Journal of College Student Development*, 42, 3-14.

Arendale, D., & Martin, D. C. (1997). Review of research concerning the effectiveness of Supplemental Instruction from the University of Missouri-Kansas City and other institutions. Kansas City, MO: The University of Missouri-Kansas City. (ERIC Document Reproduction Service No. ED 370 502)

Astin, A. W. (1975). *What matters in college: Four critical years*. San Francisco:Jossey-Bass.

Astin, A.W. (1984). *Student involvement: A developmental theory for higher education.* Journal of College Student Personnel, 1984, 25 (4), 297-308.

Astin, A.W. (1993). *What matters in college? Four critical years revisited.* San Francisco: Jossey-Bass.

Astin, A.W., & Oseguerra, L. (2003). Degree attainment among Latino undergraduates: Rethinking time to degree. Berkley: California Policy Research Institute. UC Latino Policy Institute.

Attinasi, L. (1989). Getting in: Mexican Americans' perceptions of university attendance and the implications for freshman year persistence. *Journal of Higher Education, 60(3), 247-277.*

Baker, S., & Pomerantz, N. (2000). Impact of learning communities on retention at a Metropolitan university. *Journal of College Student Retention, 2,* 115-126.

Barefoot, B.O., & Fidler, P.P. (1996). *The 1994 national survey of freshman seminar programs: Continuing innovations in the collegiate curriculum.* Columbia: University of South Carolina National Research Center for the Freshman Year Experience and Students in Transition.

Bean, J. P. (1980). *Dropouts and Turnover: The Synthesis and test of a causal model of student attrition.* Research in Higher Education. Vol. 12, No. 2.

Bowen, W., Chingos, M., & McPherson, M. (2009). *Crossing the Finish Line: Completing College at America's Public Universities*. Princeton: Princeton University Press.

Boylan, H. R. (2002). *What works: Research-based Best Practices in Developmental Education.* Boone, NC: Continuous Quality Improvement Network / National Center for Developmental Education.

Braxton, J. (2000). *Reworking the Student Departure Puzzle.* Vanderbilt University Press.

Braxton, J.M., Hirschy, A.S., McClendon, S.A. (2003). *Understanding and reducing college student departure.* San Francisco: Jossey-Bass.

Braxton, J., Sullivan, A., & Johnson, R. (1997). Appraising Tinto's theory of college student departure. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 12, pp. 107-164). New York: Agathon

Building Engineering and Science Talent. (2003). *Gateways of higher education into America's scientific and technological workforce. National Science Foundation (NSF).* San Diego, CA. Retrieved from www.bestworforce.org.

Cabrera, A.F., Nora, A., & Castaneda, M.B. (1993). College Persistence: Structural equation modeling test of an integrated model of student retention. *Journal of Higher Education,* 64, 123-139.

Chaney, B., Muraskin, L., Cahalan, M., & Rak, R. (1997). *National Study of Student Support Services. Third Year Longitudinal Study Results and Program Implementation Study Update.* U.S. Department of Education, February 1997.

Chapa, J. (1991). Special focus: Hispanic demographic and educational trends. In D.J. Carter and R. Wilson (Eds.), *Minorities in higher education: Ninth annual status report.* Washington, DC: American Council on Education.

Coolidge, F. L. (2000). Statistics: A Gentle Introduction. Sage Publications, Thousand Oaks, CA.

Dayton, B., N. Gonzalez-Vasquez, C.R. Martinez, and C. Plum (2004). Hispanic-Serving Institutions Through the Eyes of Students and Administrators. *New Directions for Student Services* 105:29:40.

Delgado Bernal, D. (1999). Chicana/o education from the Civil Rights Era to the present. In J.F. Moreno (ed.), *The elusive quest for equality: 150 years of Chicano/Chicana education.* Cambridge, MA: Harvard Educational Review.

Dizinno, G., & Crisp, G. (2013). *Evaluating SI Participation: Theoretical and methodological considerations.* Association for Institutional Research. Long Beach, CA.

Drew, D. (2012). *STEM the tide: Reforming science, technology, engineering, and math education in America.* Baltimore, MD: John Hopkins University Press.

Engle, J., Bermeo, A., & O'Brien, C. (2006). *Straight from the Source: What Works for First Generation College Students.* Washington, DC:

Engle, J., & O'Brien, C. (2007). *Demography Is Not Destiny: Increasing the Graduation Rates of Low-Income College Students at Large Public Universities*.

Exceléncia in Education. (2012). *Examples of Exceléncia: What works for Latino students in higher education: 2012 compendium*. Washington, DC: Exceléncia in Education.

Fry, R. (2005). *Recent Changes in the Entry of Hispanic and White Youth into College.* Washington, DC: Pew Hispanic Center.

Fry, R. (2011) *Hispanic enrollment spikes, narrowing gaps with other groups*. Washington, DC; Pew Hispanic Center.

Fuentes, J.N., & Sedlaceck, W.E. (1993). Barriers to the leadership development of Hispanics in higher education. *NASPA Journal,* 30, 277-283.

Gablenick, F., MacGregor, J., Matthews, R., & Smith, B.L. (1990). Learning Communities: Creating Connections Among Students, Faculty and Disciplines," *New Directions for Teaching and Learning,* no. 41. San Francisco: Jossey-Bass Publishers.

Gall, M.D., Borg, W.R., & Gall, J.P. (1996). *Educational research: An introduction.* White Plains, NY: Longman.

Gandara, P. (1994). Choosing higher education: Educationally ambitious Chicanos and the path to social mobility. *Education Policy Analysis Archives, 2 (8).*

Gandara, P. & Contreras, F. (2009). *The Latino Education Crisis: The Consequences of Failed Social Policies*. Cambridge: Harvard University Press.

Gonzalez, N., Moll, L., & Amanti, C. (Eds). (2005). *Funds of knowledge: Theorizing practices in households, communities, and classrooms.* Mahwah. NJ: Erlbaum.

Gordon, V.N. , Habley, W.R., & Associates. (2000). *Academic advising: A comprehensive handbook*. San Francisco: Jossey-Bass.

Harmon, P. & King, D. (1985) *Expert Systems: Artificial Intelligence in Business*, Wiley.

Harvey, W. B. (2003). *Minorities in Higher Education: 2002-2003. Twentieth Annual Status Report.* Washington, DC: American Council on Education.

Hernandez, J.C. (2000). Understanding the retention of Latino college students. *Journal of Student Development,* 41, 575-588.

Hispanic Association of Colleges and Universities (HACU). (2012). *17th annual national capitol forum on Hispanic higher education agenda.* Washington, DC.

Hobbs, F. and Stoops, N. (2002). *Demographic trends in the 20th century: Census 2000 special reports.* Washington, DC: U.S. Census Bureau.

Hurtado, S. (1994). The Institutional Climate for Talented Latino Students. *Research in Higher Education,* 35 (1): 21-41.

Hurtado, S., and Carter, D. F. (1997). *Effects of College Transition and Perceptions of the Campus Racial Climate on Latino College Students' Sense of Belonging*. *Sociology of Education, 70*(4), 324–345.

Hurtado, S., Carter, D.F., & Spuler, A. (1996). Latino student transition to college: Assessing difficulties and factors in successful college adjustment. *Research in Higher Education,* 37, 135-157.

Hurtado, S., Milem. J. F., Clayton-Pedersen, A. R., & Allen, W. R. (1999). Enacting diverse learning environments: Improving the climate for racial/ethnic diversity in higher education. *ASHE/ERIC Higher Education Report 26(8)*. Washington, DC: George Washington University.

Hurtado, S. & Ponjuan, L. (2005). Latino educational outcomes and the campus climate. *Journal of Hispanic Higher Education, 4(3), 1-18.*

Hurtado, S., Saenz, V.B., Santos, J.L., & Cabrera, N. L., (2008). *Advancing in higher education: A portrait of Latina/o freshmen at four-year institutions: 1975-2006.* Los Angeles: Higher Education Research Institute, UCLA.

Johnson, J. L., & Romanoff, S. J. (1999). Higher education residential learning

communities: What are the implications for student success? *College Student Journal, 33,* 385-399.

Justiz, M.J., & Rendon, L.I. (1989). Hispanic students. In M.L. Upcraft, J.N. Gardner, & Associates, *The freshman year experience: Helping students survive and succeed in college (pp261-276).* San Francisco: Jossey-Bass.

Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). *What Matters to Student Success: A Review of the Literature.* Washington, DC: National Postsecondary Education Cooperative.

Kuh, G.D., Schuh, J., Whitt, E., & Associates. (1991). *Involving colleges: successful approaches to fostering student learning and development outside the classroom.* San Francisco: Jossey-Bass.

Levine, J.H. (1998). *Building Learning Communities for Faculty*. About Campus 2(6) (January-February1998): 22-24

Martin, D.C., & Arendale, D.R. (1994). Supplemental Instruction: Increasing achievement and retention. *New Directions for Teaching and Learning,* Vol. 60, Winter. San Francisco: Jossey-Bass.

Mayo, J.R., Murguia, E., & Padilla, R.V. (1995). Social integration and academic performance among minority university students. *Journal of College Student Development,* 36, 542-552.

Motel, S., & Patten, E. (2012). *The 10 largest Hispanic origin groups: Characteristics, rankings, top counties.* Washington, DC: Pew Hispanic Center.

Myers, R.D. (2003). *College Success Programs: Executive Summary*. Washington, D.C. : Pathways to College Network.

National Center for Education Statistics. (2001) *The Condition of Education.*

National Center for Education Statistics. The Integrated Postsecondary Education Data System (IPEDS). 2008. *Glossary of Terms.* Washington, DC. Retrieved May 30, 2008 from http://nces.ed.gov/ipeds/Glossary/.

Nichols, A. & Clinedinst, M. (2013). Provisional Admission Practices: Blending Access and Support to Facilitate Student Success. Washington, DC. Pell Institute for the Study of Opportunity in Education.

Nora, A. (1990). Campus-based Aid Programs as Determinants of Retention among Hispanic Community College Students. *The Journal of Higher Education* 61 (3): 312-331.

Nora, A. (2001). How minority students finance their higher education. *ERIC Clearinghouse on Urban Education*, EDO UD-01-0.

Nora, A., Barlow, L., & Crisp, G. (2005). An assessment of Hispanic students in four-year institutions of higher education. In J. Castellanos, A. M. Gloria, & M. Kamimura (Eds.), *The Latina/o pathway to the Ph.D*. Sterling, VA: Stylus, LLC.

Nora, A. & Crisp, G. (2012). *Future research on Hispanic students: What have we yet to learn? And What new and diverse perspectives are needed to examine Latino success in higher education?* White paper prepared for the Hispanic Association of Colleges and Universities.

Nunez, A.M. (2009a). Latino students' transitions to college: Social and intercultural capital perspective. *Harvard Educational Review, 79 (1), 22-48.*

Nunez, A. M. (2009b). Modeling the effects of diversity experience and multiple capitals on Latina/o college students' academic self-confidence. *Journal of Hispanic Higher Education, 8 (2), 179-196.*

Nunez, A. M., & Cuccaro-Alamin, S. (1998). *First-genreation students: Undergraduates whose parents never enrolled in postsecondary education* (NCES Report 98-082). Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Oakes, J. (2005). *Keeping Track: How Schools Structure Inequality*. 2nd Edition. New Haven, CT: Yale University Press.

Oliva, M. (2003) *Issues of Access and Equity in Times of Financial Restraints.* Presentation to Summer Seminar in Academic Administration at Texas A&M University, College Station, Texas.

Padilla, R. V. (2009). Student Success Modeling: Elementary to College. Sterling, VA. Stylus (212 pp).

Pascarella, E.T. & Terenzini, P.T. (2005). *How college affects students: A third decade of research*. San Francisco: Jossey-Bass.

Passel, J., Cohn, D., & Lopez, M. H. (2011). *Hispanics Account for more than half of nation's growth in past decade.* Washington, DC: Pew Hispanic Center.

Perna, L. W., & Thomas, S. L. (2006). *A Framework for Reducing the College Success Gap and Promoting Success for All.* Washington, DC: National Postsecondary Education Cooperative.

Radford, A. W., Berkner, L., Wheeless, B., & Shepherd, B. (2010). *Persistence and attainment of 2003-4 beginning postsecondary students: After 6 years* (NCES 2011-151). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Rendon, L. I., (1994). Validating culturally diverse students: Toward a new model of learning and student development. *Innovative Higher Education, 19 (1), 33-51.*

Rendon, L. I. (2006). *Reconceptualizing success for underserved students in Higher Education.* National Postsecondary Education Cooperative. Iowa State University.

Rendon, L. I., Jalomo, R. E., & Nora, A. (2000). Theoretical considerations in the study of minority retention. In J. M. Braxton (Ed.), *Reworking the Student Departure Puzzle* (pp. 127-56). Nashville, TN: Vanderbilt University Press.

Rendon Linares, L. I., & Munoz, S. M. (2011). Revisiting validation theory: Theoretical foundations, applications, and extensions. *Enrollment Management Journal, 5 (2), 12-33.*

Rooney, M. (2002). Report on Latino-American students notes high college enrollment rate, lower graduation rate. Retrieved February 1, 2008 from http://chronicle.com/daily/2002/092002090604.htm

Roueche, J. E. & Roueche, S.D. (1993). *Between a rock and a hard place: The at-risk student in the open-door college*. Washington, DC: The Community College Press.

Saenz, T., Marcoulides, G., Junn, E., & Young, R. (1999). The Relationship Between

College Experience and Academic Performance Among Minority Students. *The International Journal of Educational Management*. Vol. 13, No. 4 (1999). pp. 199-207.

Saenz, V.B., & Ponjuan, L. (2009). The vanishing Latino male in higher education. *Journal of Hispanic Higher Education, 8(1), 54-89.*

Santiago, D.A. and A.F. Cunningham (2005). *How Latino Students Pay for College: Patterns of Financial Aid in 2003-04.* Washington, DC: Exceléncia in Education and the Institute for Higher Education Policy.

Sedlaceck, W.E., Longerbeam, S.L., & Alatorre, H.A. (2003). *In their own voices: What do the data on Latino students mean to them?* (Research Report # 5-02). College Park, MD: University of Maryland Counseling Center.

Seidman, A. (2005). Minority Student Retention: Resources for practitioners in minority retention : What works? Ed. G.H. Gaither, 7-24. San Francisco, CA. Jossey-Bass.

Smart, J. C., Feldman, K. A., & Ethington, C. A. (2006). Holland's theory and patterns of college student success. *Commissioned Report for the National Symposium on Postsecondary Student Success: Spearheading a Dialog on Student Success* Retrieved May 30, 2012, from http://nces.ed.gov/npec/pdf/Smart_Team_Report.pdf

Smith, B.L., MacGregor, J., Matthews, R.S., & Gabelnick, F. (2004). *Learning Communities: Reforming undergraduate education.* San Francisco: Jossey-Bass.

Solorzano, D., & Villalpando, O. (1998). Critical Race Theory, marginality, and the experience of students of color in higher education. In C.A. Torres & T. R. Mitchell (Eds.), *Sociology of education: Emerging perspectives (pp. 211-224).* Albany: State University of New York Press.

Spady, W. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange, 1*, 64-85.

Stone, M. E., Jacobs, G., & Hayes, H. (2006). Supplemental Instruction: Student perspectives in the 21st century. In D. B. Lundell, J. L. Higbee, I. M., Duranczyk & E. Goff (Eds.), *Student standpoints about academic access programs in higher education* (pp. 129-141). Minneapolis: The Center for Research on Developmental Education and Urban Literacy.

Student Information System, Banner Manual (2008). University of Texas as San Antonio, San Antonio, TX.

Swail, W.S., Cabrera, A.F, and Lee, C. (2004). *Latino Youth and the Pathway to College.* Washington, DC: Pew Hispanic Center.

Swail, W.S., Redd, K.E., & Perna, L.W. (2003). Retaining Minority Students in Higher Education. ASHE-ERIC Higher Education Report, Vol. 30 (2).

Tierney, W., & Jun, A. (2001). A University helps prepare low income youths for college: tracking school success. *The Journal of Higher Education*, Vol. 72, No. 2. Pp. 205-225.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89-125.

Tinto, V. (1987). *Leaving college : Rethinking the causes and cures of student attrition*. Chicago: University of Chicago Press

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago: The University of Chicago Press.

Tinto, V., & Pusser, B. (2006). *Moving From Theory to Action: Building a Model of Institutional Action for Student Success*. Washington, DC: National Postsecondary Education Cooperative.

Torres, V., Reiser, A., Le Peau, L., Davis, L., & Ruder, J. (2006). A model of first-generation Latino/a college students' approach to seeking academic information. *NACADA Journal,* 26(2), 65-70.

Williams, A. S. & Nafukho, F. M. (2007). Determining the relationship between student support services, academic performance, and retention rates. *International Journal of Vocational Education and Training,* 15, 93-108.

Yosso, T. J., Smith, W. A., Ceja, M., & Solorzano, D. G. (2009). Critical race theory, racial micro-aggressions, and campus racial climate for Latina/o undergraduates. *Harvard Educational Review, 79(4), 659-690.*