The Effect of Participation in a Title V Program on Latinx Student Success at a Community College

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The Effect of Participation in a Title V Program on Latinx Student Success at a Community College

by

Sara N. Lacagnino

Submitted in partial fulfillment of the requirements for the degree

Doctor of Philosophy

Department of Education Leadership, Management and Policy

Seton Hall University

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SETON HALL UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN SERVICES
OFFICE OF GRADUATE STUDIES

APPROVAL FOR SUCCESSFUL DEFENSE

Sara N. Lacagnino has successfully defended and made the required modifications to
the text of the doctoral dissertation for the Ph.D. during this Spring Semester 2019.

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and date this document only when revisions have been completed. Please return this
form to the Office of Graduate Studies, where it will be placed in the candidate’s file and
submit a copy with your final dissertation to be bound as page number two.
Abstract

Historically, the low degree attainment of Latinx students has been an issue of concern. The Title V Developing Hispanic-Serving Institutions Program was implemented to address this issue. This quantitative study examines the effect of participation in a Title V program’s accelerated developmental English and English as a Second Languages paths on Latinx student success measured by academic performance, persistence and fall to fall retention at a comprehensive community college. By applying propensity score matching and the conceptual model in this study, the effect of participation in the Title V program on Latinx student success was measured without the influence of the covariates. This study found that students who participated in the Title V program’s accelerated developmental English and ESL paths had higher academic standing, cumulative GPAs, success rate, completion rate, and persistence compared to students who did not participate in the program.

Keywords: Title V program, Latinx, community college, Hispanic-Serving Institution, HSI, student success, academic performance, persistence, fall to fall retention, propensity score matching
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To the Latinx and other community college students in this study - your perseverance and strength inspire me each day. Keep focused on pursuing your educational and career goals, and, you will see, that there are no limits to all that you can accomplish!

Lastly, to my grandparents, Anna Acanfora and Salvatore Lacagnino and Noelia Aviles and Adolfo Molinary – I dedicate this accomplishment to you. Ever since I was a child, you always spoke to me about the value and importance of pursuing an education. Although you can’t be here with me, I know that you are together watching over me. You are always in my heart!
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CHAPTER I

Introduction

The issue of low degree attainment for Latinx students in higher education has been a topic of discussion for decades. In the early 1980s, policymakers brought the disproportionate enrollment of Latinx students in a small subset of institutions to the public’s attention. They noted that these institutions experienced a unique set of challenges due to the diverse needs of its Latinx students. The inception and advocacy work of the Hispanic Association of the Colleges and Universities (HACU) spearheaded the conversation around the challenges that these “Hispanic-serving” institutions faced in closing the achievement gap. In 1992, under the reauthorization of the Higher Education Act (HEA) of 1965, the recognition and definition of Hispanic-Serving Institution became law. As defined, a Hispanic-Serving Institution is an institution that has an enrollment of full-time, undergraduate equivalent students with at least 25 percent of the student population of Hispanic and/or Latinx descent (Excelencia in Education, 2017). As a result, in 1995, $12M was appropriated under Title III of the HEA to the “Strengthening Institutions Program” for HSIs, and, later, in 1998, funding for HSIs was moved to the new Title V “Developing Hispanic-Serving Institutions Program” (Santiago, 2008).

The mission of the U.S. Department of Education’s (ED) Developing Hispanic-Serving Institutions Program is to provide grant funding to eligible HSIs with the goal of improving Latinx student success in higher education. In particular, the program focuses on “strengthening institutional programs, facilities, and services to expand the educational opportunities for Hispanic Americans and other underrepresented populations” (Mission, 2019). Through the Title V Developing Hispanic-Serving Institutions (DHSIs)
Program, eligible institutions can apply for grant funding to implement a five-year project to support one or more of the program’s focus areas. However, as the number of HSIs increases, the opportunity to secure grant funding becomes more limited.

According to the 2017-2018 IPEDS data, 523 institutions in the United States were designated as HSIs enrolling 2,066,468 Latinx students and comprising of 17% of all higher education institutions in the U.S. (Excelencia in Education, 2019a). In addition, HSIs enrolled over 4M of all undergraduate students (HACU, 2019a) and 66% of Latinx undergraduate students (Excelencia in Education, 2018). Of the 523 institutions, 222 (42%) were public, two-year institutions and 133 (25%) were public, four-year institutions. In addition, 22 institutions (4%) were private, two-year colleges and 146 (28%) were private, four-year colleges and universities (Excelencia in Education, 2019a). The HSIs were geographically concentrated in 27 states, and Puerto Rico and D.C. (Excelencia in Education, 2018).

Table 1. Hispanic-Serving Institutions Data

<table>
<thead>
<tr>
<th>Institution Type</th>
<th># of HSIs</th>
<th>% of HSIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-year, Public</td>
<td>222</td>
<td>42%</td>
</tr>
<tr>
<td>Two-year, Private</td>
<td>22</td>
<td>4%</td>
</tr>
<tr>
<td>Four-year, Public</td>
<td>133</td>
<td>25%</td>
</tr>
<tr>
<td>Four-year, Private</td>
<td>146</td>
<td>28%</td>
</tr>
</tbody>
</table>


As a result of the increasingly growing Latinx student population in higher education, an additional 328 institutions were identified as “Emerging HSIs” enrolling an undergraduate, full-time equivalent of Hispanic and/or Latinx students between 15-24.9% (Excelencia in Education, 2019a).
Of the 328 institutions, 99 (30%) were public, two-year colleges and 88 (27%) were public, four-year colleges and universities (Excelencia in Education, 2019b). Another 7 (2%) institutions were private, two-year colleges and 134 (41%) were private, four-year institutions. These institutions represented 35 states and the District of Columbia (Excelencia in Education, 2019b). Overall, the growth of HSIs has increased by 98% over the last ten years (Excelencia in Education, 2018).

Table 2. Emerging Hispanic-Serving Institutions Data

<table>
<thead>
<tr>
<th>Institution Type</th>
<th># of EHSIs</th>
<th>% of EHSIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-year, Public</td>
<td>103</td>
<td>31%</td>
</tr>
<tr>
<td>Two-year, Private</td>
<td>8</td>
<td>2%</td>
</tr>
<tr>
<td>Four-year, Public</td>
<td>74</td>
<td>22%</td>
</tr>
<tr>
<td>Four-year, Private</td>
<td>148</td>
<td>45%</td>
</tr>
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</table>


In 2016, 18.8% of Latinx students were enrolled in colleges or universities; an increase of 12.8 percentage points from 1990 (U.S. Census, 2016). Although HSIs represent only 17% of all higher education institutions in the United States, nearly 66% of all Latinx undergraduate students were enrolled at an HSI (Excelencia in Education, 2018). Furthermore, since 46% of HSIs are two-year institutions, the number of Latinx students enrolled in community colleges is disproportionately greater than their counterparts (Excelencia in Education, 2019a). Despite the fact that only 34% of all undergraduate students attended a two-year institution, the number of Latinx undergraduate students attending the same institutions is much higher at 44% (Community College FAQs, 2019).
Background

Although Latinxs are enrolling at two-year HSIs at a high rate, they lag behind their counterparts in degree attainment (Carnevale & Fasules, 2017). According to the U.S. Census Bureau 2017 Annual Social and Economic Supplement, only 25% of Latinxs (25 years and over) earned an associate degree or higher in comparison to Asians (61%), Whites (45%) and African Americans (34%). There are many factors that contribute to this issue including lack of academic preparedness, placement in developmental coursework, lack of institutional fit, limited access to social and cultural capital, financial need, and lack of familial support (Bloom, 2008; Carnevale & Fasules, 2017; Nora & Crisp, 2009; Padilla 2007; Rendón, Nora, Cabrales, Ranero, & Vasquez, 2008; Swail, Cabrera, Lee, & Williams, 2005; Venegas, 2007).

HSIs, by definition, should be equipped to facilitate Latinx student success. However, common trends in HSIs suggest that these institutions often struggle to improve Latinx student success (Laden, 2004; Malcom, Bensimon, & Dávila, 2010). HSI mission identity is not often at the forefront of the institution’s mission statement, institutional priorities and policies and procedures. Therefore, they lack the necessary academic and support services needed for Latinx students to overcome the barriers to successful degree completion (Laden, 2004). Unlike Historically Black Colleges and Universities (HBCUs), the designation for HSIs was established based on Latinx institutional enrollment rather than the institution’s mission-driven focus on Latinx /a student success (Laden, 2004). “As a result, the Hispanic-serving institution designation can be seen to be an acquired identity- that is, one that results from demographic changes that happened to an institution and not necessarily purposeful action by the institution” (Malcom et al., 2010, p. 2). For many HSIs, reflecting the “acquired identity” within the mission of the institution continues to be a challenge.
Contreras, Malcom, and Bensimon’s (2008) exploratory study on Hispanic-Serving Institutions analyzed ten (two-year and four-year) Hispanic-Serving Institutions’ mission statements, websites, and documents to explore if and how their HSI identity was integrated into the fabric of the institution. Additionally, they assessed the equity level in educational outcomes between Latinx and White students through the use of enrollment, major and degree attainment data. Based on their findings, none of the institutions reflected their HSI identity in their institutional mission and websites (Contreras et al., 2008; Corral et al., 2015). At best, acknowledgment of the HSI identity was limited to program descriptions, and, when applicable, initiatives funded under the Title V grant program. Regarding the assessment of access and educational outcomes, the Equity Index Method (EIM) confirmed that these HSIs provided equal access opportunities for Latinx students. However, the findings also demonstrated unequal educational outcomes in degree attainment for Latinxs compared to Whites, especially in majors that typically lead to high-income careers (Contreras et al., 2008).

In a similar study, Corral et al. (2015) examined Latinx initiatives and culture at ten existing and Emerging Hispanic-Serving Institutions selected from five geographically different regions. The study explored in what ways, if any, these institutions directly serve Latinx students. Corral et al. (2015) reviewed the Title V proposal abstracts for the existing HSIs who received grant funding to identify and examine the specific initiatives for which they sought financial assistance. In addition, all existing and emerging HSIs’ websites were reviewed for transparent initiatives such as academic and support services and cultural programs aimed at directly supporting Latinx students.

The findings of this study further support the existing trends that HSIs tend to lack an identity as an HSI in their mission statements and fail to deliver academic and support services
that support Latinx student success. Although two of the HSIs who received Title V grant funding established partnerships to provide Latinx students with vocational training and experiential learning opportunities, these grant projects were also open to all other student populations providing no direct outreach or intentionality designed to specifically target and support Latinx students. The weak project design by these Title V grant recipients adds to the limited evidence available on the overall impact of HSIs and the Title V grant program in promoting Latinx student success. Moreover, all existing and Emerging HSIs in their study provided little to no evidence from the websites and institutional data to demonstrate that the institutions offered cultural and support services for Latinx students. While these existing and Emerging HSIs provided Latinx students with access to postsecondary education, the institutions seem to fail to provide initiatives that facilitated student success.

On the other hand, several current and Emerging HSIs have attempted to revisit their institutional practices to support Latinx student success (Santiago & Andrade, 2010). Santiago and Andrade (2010) examined the institutional efforts to serve Latinx students in a case study of four Emerging Hispanic Institutions from diverse geographical locations, size, and student population. Data was collected and analyzed from public institutional databases, interviews and focus groups, pertinent documents, and an online survey to understand the perspectives of faculty, staff, administrators and students on how the Emerging HSIs directly supported academic success for Latinx students. The research team sought to document the promising practices that the institutions were undertaking as examples to share how HSIs and Emerging HSIs can move beyond higher education access points to a more mission-driven focus in serving Latinx students.
Although the findings indicated similar challenges to the aforementioned studies (Contreras et al., 2008; Corral et al., 2015), this study shed light on the potential that Emerging HSIs have in improving educational outcomes for Latinx students. In reviewing their perspectives and institutional characteristics, the institutions demonstrated a focus on how they can better serve Latinx students. These Emerging HSIs included Latinx students at the forefront of their mission statements; administration, staff and faculty reiterated a consistent message of and commitment to Latinx student success; leadership appeared to be a collaborative effort among all constituents; research and pilot practices were encouraged; and the institutions’ high level of awareness fostered higher levels of community engagement (Santiago & Andrade, 2010). However, the study also indicated that the college communities’ awareness was limited to recognition of the high percentage of Latinx enrollment and the broad institutional outreach efforts focused on this student population.

Overall, the trends among current and Emerging HSIs in these studies seems to lean towards more of a focus on “Hispanic-enrolling” institutions than Hispanic-Serving Institutions. The minor successes discussed have not reflected direct correlation or impact from the Title V Developing Hispanic-Serving Institutions program in improving Latinx student success. Additionally, the successes shared in these studies were not documented by the institutions nor were sustainable efforts to maintain the projects beyond the life of the grant.

**Title V Developing Hispanic-Serving Institutions Program**

In order to address the issue regarding Latinx student success, the Title V grant program was implemented in 1998. This provided HSIs with the opportunity to apply for a competitive five-year grant to develop and execute a project that would address a challenge at their institution to improve Latinx student success. Many of the best practices at HSIs are primarily funded under
these five-year Title V grants. Therefore, they are considered by the institutions to be short-term, “boutique” or pilot programs rather than programs and initiatives that will be sustained at the end of the grant cycle. Due to the high number of HSIs in specific regions of the country, the funding awards over the years have been primarily concentrated in California, Texas, and Puerto Rico (Excelencia in Education, 2019a). From FY 1995 to FY 2014, the total appropriations for the Title V Developing Hispanic-Serving Institutions has increased by 725% from $12M to $99M (Santiago, Taylor, & Calderon Galdeano, 2016). As of FY 2014, the growth of HSIs outpaced the number of HSIs receiving the Title V grant (Santiago et al., 2016).

Statement of the Problem

Despite a rise in Latinx college enrollment, degree attainments of this student population have not reflected proportionate increases. Only 56% of Latinx students attend a four-year institution, a highly selective college, and enroll full-time compared with 72% of whites (Fry & Taylor, 2013). In addition, they enroll in community colleges at higher percentages than all other ethnic and racial groups. In 2014, 50% of Latinx students attended a public, community college in comparison to 30% of whites, 32% of Asians, and 36% of blacks (Krogstad, 2016). Although Latinx students tend to enroll in community colleges for open access and affordability issues, research has indicated that attending a community college negatively impacts successful transfer to a four-year institution and degree attainment (Laden, 2004; Nunez, Sparks, & Hernandez, 2011; Perrakis & Hagedorn, 2010; Shapiro, Dundar, Huie, Wakhungu, Yuan, Nathan, & Bhimdiwal, 2017).

The mission of the Title V grant program is aimed at improving Latinx student success at HSIs. Research has indicated that such programs demonstrate or show limited effectiveness in improving student success and “lack methodological soundness and rigor” (Nora & Crisp, 2009,
p. 343). To date, the U.S. Department of Education has not required Title V grant recipients to provide evidence on the grant projects’ effectiveness. Therefore, the Title V grant program has not been able to demonstrate the impact of the program on Latinx student success.

Currently, the grant annual performance report includes project data which demonstrates grant outputs vs. grant outcomes. The requested quantitative data is focused on three areas related to the grant activities: academic quality, student services, and fiscal stability. This section of the report requires grantees to respond to questions by recording a number for the starting point for the given year, end point and the original goal included in the grant application. For each section, no data analysis is requested to assess the effectiveness of the project in achieving the measurable outcomes outlined in the grant application for the respective grant year. Regarding the qualitative data section, this consists of open-ended questions including an executive summary of the project’s activities, an overview of new initiatives, and a discussion of the project’s challenges.

In addition, feedback is not provided to the grant recipient by the designated Program Officer at the U.S. Department of Education on alternative ways to improve the methodology and rigor of the project’s student success outcomes for the subsequent year. The U.S. Department of Education has recognized that the annual performance report does not provide grant recipients with the opportunity to include qualitative data on student success stories as well as the ability to provide an analysis of the quantitative data.

**Definition of Terms**

The following definitions provide context for key terms used throughout this study:

1) *Latinx*: is a gender-neutral term used for Latino/a (Salinas & Lozano, 2017). In this study, as defined by the U.S. Census Bureau, Latinx or Hispanic is “a person of Cuban,
Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race” (Hispanic Origin, 2018).

2) *Academic performance*: is measured by: a) cumulative GPA, b) success rate in developmental English and ESL courses (percentage of first attempt grades of C or better in the developmental English and ESL courses), and c) completion rate in developmental English and ESL courses (percentage of first attempt grades of D or better in the developmental English and ESL courses).

3) *Persistence*: is defined as enrollment in and successful completion of each course in the developmental English or ESL course sequence.

4) *Fall to fall retention*: is the percentage of cohort students enrolled in the fall semester of the reporting year at an institution who re-enroll in the fall semester of the next academic year at the same institution (First-Year Persistence, 2018).

5) *Student success*: is a holistic term to describe positive student outcomes indicated by academic performance, retention, persistence, and educational attainment. For the purpose of this study, the focus is on academic performance (cumulative GPA, success rate in developmental English and ESL courses, and completion rate in developmental English and ESL courses), persistence, and fall to fall retention.

6) *Spring Community College (SCC)*: is a pseudonym for the community college in this study.

7) *Project Accel*: is a pseudonym for the Title V program at Spring Community College.

8) *Familismo*: is a term that refers to Latinxs’ sense of responsibility to one’s family and extended family members, placing individual responsibilities and interests secondary to the needs of their family (Gallardo & Paoliello, 2008).
**Purpose of the Study**

The purpose of the study is to examine the effects of participation in a Title V program’s accelerated developmental English and English as a Second Language (ESL) paths on Latinx student success at a comprehensive community college in the mid-Atlantic region. The existing literature focuses primarily on four-year institutions and provides limited evidence on the benefit of the Title V program in facilitating student success for Latinx students. In particular, using a propensity score matching, this study will examine how participation in a Title V grant program’s accelerated developmental English and ESL paths benefits Latinx students’ academic success measured by cumulative GPA, success rate in the developmental English and ESL courses, completion rate in the developmental English and ESL courses, persistence and fall to fall retention compared with Latinx students who did not participate in the Title V program.

The overarching question that guides this study is:

What is the effect of a Title V program’s accelerated developmental English and ESL paths on students’ academic success at a community college?

More specifically, this study intends to answer the following main and sub-questions:

**Main questions:**

1. What is the effect of participation in the Title V accelerated developmental English and ESL paths on students’ academic performance measured by cumulative GPA, success rate in developmental English and ESL courses (percentage of first attempt grades of C or better in the developmental English and ESL courses), and completion rate (percentage of first attempt grades of D or better in the developmental English and ESL courses) in comparison to students in the English and ESL baselines?
2. What is the effect of participation in the Title V accelerated developmental English and ESL paths on students’ fall to fall retention in comparison to students in the English and ESL baselines?

3. What is the effect of participation in the Title V accelerated developmental English and ESL paths on students’ persistence in comparison to students in the English and ESL baselines?

Sub-question:

1a. What is the effect of participation in the Title V accelerated developmental English and ESL paths on Latinx students’ academic performance measured by cumulative GPA, success rate in developmental English and ESL courses (percentage of first attempt grades of C or better in the developmental English and ESL courses), and completion rate (percentage of first attempt grades of D or better in the developmental English and ESL courses) in comparison to Latinx students in the English and ESL baselines?

2a. What is the effect of participation in the Title V accelerated developmental English and ESL paths on Latinx students’ fall to fall retention in comparison to Latinx students in the English and ESL baselines?

3a. What is the effect of participation in the Title V accelerated developmental English and ESL paths on Latinx students’ persistence in comparison to Latinx students in the English and ESL baselines?

Significance of the Study

Currently, the limited literature on the empirical evidence of federal programs indicates that these programs “lack methodological soundness and rigor” (Nora & Crisp, 2009, p. 343). Thus far, emphasis in program effectiveness has been placed on short-term effects, providing
little evidence to address the “issue of how effective these programs are in affecting student achievement and success” (Nora & Crisp, 2009, p. 343). One methodological approach that can to address this issue of lack of rigor is to employ propensity score matching. This statistical method can be used to control for selection bias and other covariates to examine the actual effects of the intervention quasi-experimental studies (Rosenbaum & Rubin, 1983). Therefore, propensity score matching minimizes the variation between the control group in comparison to the group that received the intervention to determine the short-term and long-term effects of the treatment.

This study intends to fill the gap in the existing literature using a propensity score matching methodological approach to examine the effect of a Title V grant program. By analyzing student success indicators for a Title V student cohort in comparison to a non-Title V student cohort, this study will address the shortcomings of past studies by investigating the short-term effects and the long-term effects of this Title V program on Latinx student success in a community college. Specifically, the study will contribute to existing literature by expanding the focus on more than one academic success measure including: cumulative GPA; success rate in developmental English and ESL courses (percentage of first attempt grades of C or better in the developmental English and ESL courses); completion rate (percentage of first attempt grades of D or better in the developmental English and ESL courses); fall to fall retention (percentage of cohort students enrolled in the fall semester of the reporting year at Spring Community College (SCC) who re-enroll in the fall semester of the next academic year at SCC); and persistence (enrollment in and successful completion of each course in the developmental English or ESL course sequence).
The findings and future recommendations will provide insight into institutions that seek to design and implement effective programs for at-risk student populations. By applying the proposed student success conceptual framework, institutions can develop similar programs with methodological soundness and rigor to effectively address the needs of the students. In addition, institutions can apply the propensity score matching used in this study to better measure the short-term and long-term outcomes of such programs as they relate to specific student populations. Finally, this study will contribute to the scarce literature on the effectiveness of such programs on Latinx student success at community colleges in the mid-Atlantic region of the United States.

**Summary**

Latinx students are enrolling at two-year HSIs at high rates, but graduation rates for this student population continues to lag behind its counterparts. In order to address this issue in higher education, the federal government implemented the Title V grant program to provide federally designated HSIs with the opportunity to apply for funding to design and implement programs to increase Latinx student success. However, since its inception in 1995, the Title V grant program has not been effective in addressing its goal of improving Latinx student success in higher education. Due to the limited emphasis on grant program design, implementation and measurable outcomes, the effectiveness of programs has not been widely assessed and documented. This study examines the effect of participation in a Title V program’s accelerated developmental English and ESL paths on student success measured by academic performance, fall to fall retention, and persistence.
Organization of the Dissertation

To provide context for the proposed study, Chapter II will include an overview of the Latinx population in the U.S. and in higher education, and a historical background on the inception of Hispanic-Serving Institutions and the Title V grant program. In addition, a review of the literature on Latinx student success, major trends at HSIs, and Title V program effectiveness will be discussed. Chapter III outlines the quantitative research design and methods for the study, and Chapter IV will report the findings of the study. Lastly, Chapter V will conclude with a discussion of the research findings, implications for the field and recommendations for future research.
CHAPTER II
LITERATURE REVIEW

Introduction

Although the existing research on the extent to which the Title V Developing Hispanic-Serving Institutions program promotes Latinx student success is limited, this literature review will serve to provide an understanding of Latinx students’ trajectory and academic experiences in higher education, specifically two-year, Hispanic-Serving Institutions (HSIs). First, the historical background on HSIs and federal funding for HSIs will be provided. Second, the issue of access and affordability for Latinx students will be reviewed in higher education in the context of student success. Third, a discussion of the empirical research on Latinx academic experiences will be presented to draw a further understanding of this complex topic. Next, I will review the extant literature on the Title V federal grant program as it relates to its effectiveness on Latinx student success. Lastly, building upon theories and prior research, a conceptual model will be developed to examine the short-term and long-term effects of participation in a Title V program’s accelerated developmental English and ESL paths on Latinx student success at two-year, Hispanic-Serving Institution.

Latinx Population in the United States

There are approximately 59.1 million Latinxs in the United States, comprising 18.5% of the entire population (HACU, 2018). From 2000 to 2014, the Latinx population in the U.S. accounted for 54% of the total U.S. population growth (Stepler & Lopez, 2016). As one of the fastest growing populations, Latinxs represent the largest minority group and are projected to represent 28.6% of the U.S. population by 2060 (Facts for Figures, 2017). Additionally, the Latinx population in the United States is among the youngest of all racial and ethnic groups in
the nation with approximately 32% at the age of 18 years old or younger and 26% between the ages of 18-33 years old (Patten, 2016). By 2050, the percentage of Latinx youth (18 years old or younger) is expected to rise to 35% (Passel & Cohn, 2008). The Latinx population is heavily concentrated in a subset of states including Arizona, California, Colorado, Florida, Illinois, New Jersey, New Mexico, New York, and Texas (Facts for Figures, 2017).

Regarding socioeconomic status, the United States’ poverty rate has decreased from 13.5% to 12.7% from 2015 to 2016. However, a disproportionate percentage of Latinxs (19.4%) and Blacks (22%) are at the poverty level (Semega, Fontenot, & Kollar, 2017), compared with only 8.8% of Whites and 10.1% of Asian Americans (Semega et al., 2017). This is significant within the context of student success as research provides evidence that Latinxs and Blacks often experience multidimensional poverty (e.g., living in a low-income area, low income household, lack of health insurance, higher rates of unemployment, and limited access to a high quality education), which negatively impacts their educational attainment (Reardon, Robinson & Weathers, 2015; Reeves, Rodrigue, & Kneebone, 2016).

**Historical Background**

From the turn of the 20th century, the landscape of higher education has shifted towards providing people with more opportunities to a higher education. With the inception of the GI Bill in 1944, veterans who served in World War II were provided with the financial assistance to attend college to learn new skills to re-enter the workforce (History and Timeline, 2013). This legislation marked the first step towards access and affordability to a higher education for non-traditional groups. In the 1950s, community colleges experienced a tremendous growth increasing opportunities for coeducation and racial diversity, and by the 1960s, community colleges became the largest sector in higher education (Trainor, 2015). In 1965, President
Lyndon B. Johnson signed into law the Higher Education Act of 1965 (HEA); further supporting this idea of access and affordability. The Act served to strengthen the educational resources of colleges and universities and to provide financial assistance to postsecondary institutions (Higher Education Act, 1965). The HEA provided low income students with the opportunity to receive grants to attend colleges and universities as well as provided all students with no prior credit history with the ability to borrow loans for educational expenses. Over the next two decades (1970s and 1980s), access to higher education continued to expand with additional federal grants and loan options.

As the landscape of higher education continued to change, so did the demographics and needs of students attending both public and private, two-year and four-year colleges and universities. Through the advocacy work of policymakers, the limited funding and unique challenges experienced by institutions with high enrollments of Latinx students were finally being addressed. As a result, under the 1992 reauthorization of the HEA, Senator Claiborne Pell authorized recognition of the identification and definition of Hispanic-Serving Institutions (HSIs) through the “Strengthening Institutions Programs” (Excelencia in Education, 2014). The recognition of HSIs led to the inception of the Title V, Part A, Developing Hispanic-Serving Institutions (DHSI) grant program. The program provided eligible HSI institutions (institutions with at least 25% undergraduate FTE enrollment of Hispanic and/or Latinx student population) with the opportunity to apply for federal grant funding to increase educational opportunities and degree attainment for Latinx and other low income students (U.S. Department of Education, 2019).

From 1995 to 2015, the total grant funding provided to HSIs has increased by $87M from $12M (Excelencia in Education, 2015b). Approximately 70% of the funding awarded has been
allocated to programs focusing on three key areas: faculty and curriculum development (33%), student support services (26%), and fund and administrative management (11%) (Santiago et al., 2016). Although the program’s funding has increased from its inception, the annual federal appropriations have not been consistent from year to year. In addition, the growth in the number of HSIs from 189 in 1994 to 523 in 2018 has far outpaced the increase in funding available to eligible institutions (Excelencia in Education, 2019a).

For FY 2016, due to limited funding available, a grant competition was not held. The U.S. Department of Education (DOE) funded down the slate from the FY 2015 competition to provide an additional 30 institutions with Title V grant funding. For FY 2017, the grant recipients were not posted on the DOE website until March, 2018; nearly six months after the start of the grant fiscal year. In addition, information regarding the FY 2017 and FY 2018 funding appropriations, and the FY 2018 grant recipients were not posted until October 2018. With an additional 328 Emerging Hispanic-Serving Institutions (institutions with 15-24% undergraduate FTE of Latinx students), a growth of 83.2% over the last ten years, the current funding appropriations will no longer be able to sustain the program’s growth (Excelencia in Education, 2019b).

Regarding geographic location, 523 HSIs are located in 27 states and Puerto Rico representing 17% of higher education institutions and serving 66% of the Latinx student population (Excelencia in Education, 2019a). Of the 27 states, the majority of HSIs are concentrated in California (170), Texas (94), New York (34), Florida (25), Illinois (25), New Mexico (23), and New Jersey (17). In addition, Puerto Rico has 63 HSIs (Excelencia in Education, 2019a). The 328 Emerging HSIs can be found in 35 states and D.C. serving 20% of the Latinx student population (Excelencia in Education, 2019b). The states with the highest
number of Emerging HSIs include California (48), Texas (46), Florida (32), New York (27), and Illinois (25) with an additional five states ranging between 10-17 institutions (Excelencia in Education, 2019b). The following section will provide an overview of Latinx student representation at HSIs.

**Latinx Student Representation at HSIs**

In 2017-2018, 66% of Latinx students attended a federally designated Hispanic-Serving Institution\(^1\) (Excelencia in Education, 2019a). From 1994-2018, the number of Latinx students attending HSIs has increased by 394.1% from 280,852 to 1,387,552 students (Excelencia in Education, 2019). Similarly, the number of HSIs has increased by 176.7% from 189 to 523 institutions, of which 244 (47%) are community colleges (Excelencia in Education, 2019a). Additionally, another 328 institutions have been identified as Emerging HSIs\(^2\) providing further evidence to support the growing number of Latinx students enrolled in higher education (Excelencia in Education, 2019b).

Despite the increased percentage of Latinx students enrolled in higher education, the percentage of students earning degrees is not increasing at the same rate. From 1995 to 2014, the number of Latinxs earning an associate degree or higher increased from 12 to 23 percent (Excelencia in Education, 2016). Moreover, the number of Latinx students earning a bachelor’s degree or higher only increased from 9 to 15 percent (Excelencia in Education, 2016). Although the persistence rate at two-year HSIs was similar to the persistence rate at four-year HSIs (23% vs. 24%), the completion rate was significantly lower at two-year HSIs (34% vs. 51%)

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1 Hispanic-Serving Institution as defined by the U.S. Department of Education as an institution that has “an enrollment of undergraduate full-time equivalent students that is at least 25 percent Hispanic students.” Retrieved on 3/18/17 from [https://www2.ed.gov/print/programs/idueshsi/definition.html](https://www2.ed.gov/print/programs/idueshsi/definition.html)

2 Emerging HSIs are degree-granting public or private not-for-profit institutions of higher education with 15-24% undergraduate Hispanic FTE enrollment.
Latinx students who begin their college career at two-year HSIs are less likely to earn a bachelor’s degree than students who begin their college career at four-year HSIs (Castaneda, 2002; Fry, 2002; Krogstad, 2016; Melguizo, 2009; Suarez, 2003). Although the Latinx graduation rates at four-year HSIs increased by six percentage points over the past twelve years, the graduation rates at two-year HSIs declined one percentage point (Excelencia in Education, 2016).

The following section will discuss the impact of access and affordability on the high enrollment rates of Latinx students at community colleges.

**Access and Affordability: Tenets of the Community College**

Historically, community colleges have been a pathway to higher education for first-generation, low-income students (Crews & Aragon, 2007). Latinx students are more likely to attend a community college than any other racial and/or ethnic group (Nora & Crisp, 2009). Several factors influence college choice for this student population (Gonzales, Doane, Sladek, Jenchura, & Kennedy, 2016; Kurlaender, 2006; Nora & Crisp, 2009). Due to its open door policy and affordability, community colleges have provided opportunities for Latinx students to gain entrance to a higher education (Fry, 2005). Approximately 35-40% of Latinx high school seniors who graduate from high school, enroll in college (Nora & Crisp, 2009), and, of those who attend college, Latinx students are less likely than their white counterparts (56% versus 72%) to attend a four-year institution (Fry & Taylor, 2013). Based on low socioeconomic status, Latinx students often attend high poverty schools with limited resources to the latest technology and software, textbooks, and pre-college programs (Boschma & Brownstein, 2016). The community college’s open admissions policy provides access to and affordable higher education for Latinx students with no admissions barriers of meeting SAT, ACT, or other admissions requirements such as
minimum high school GPA or documented status. In addition, most community colleges do not require an application fee which eliminates another barrier to admissions for low-income students.

Another factor that influences college choice for Latinx students is the geographical location of the college in proximity to their home (Cerna, Perez, & Saenz, 2006; Goble, 2010; Kim 2004; Pérez & McDonough, 2008). Community colleges provide access to an affordable higher education in close proximity to the student’s home. Typically, Latinx students are responsible for contributing financially to the household, and may be the only source of income due to parents’ limited language proficiency and/or documented status (Crisp & Nora, 2010). Students also often support younger siblings with homework and other school-related responsibilities (Nora & Crisp, 2009). By attending a community college, Latinx students are able to honor their cultural values while earning a college credential.

Additionally, the flexible class schedule available at a community college provides Latinx students with the opportunity to create a full-time or part-time day, evening and/or online schedule. The flexibility in schedule as well as small class size provides Latinx students with the ability not only to meet external family and work obligations, but also to be successful in college. Community colleges also offer in-county tuition for residents significantly lowering the cost of attendance. For eligible low-income, Latinx students may also be eligible for state and federal financial aid grants which cover the cost of attendance at a community college (Krogstad, 2016). Pursuing and earning an associate’s degree also provides Latinx students with the opportunity to earn a college credential and higher pay wage (Belfield & Bailey, 2017). Although most Latinx students aspire to transfer to a four-year institution, earning an associate’s degree gives students the option to enter the workforce.
While many of these factors account for the high enrollment rates of Latinx students at community colleges, there is limited research to suggest that Latinx students purposefully enroll at two-year, HSIs for the institution’s mission and identity (Torres & Zerquera, 2012). In fact, studies have indicated that Latinx students are often unaware of the unique services, if any, provided to Latinx students at HSIs (Torres & Zerquera, 2012). Historically, HSIs were and continue to be federally designated, by definition, solely on its enrollment of at least 25% of the undergraduate FTE of Hispanic and/or Latinx descent (U.S. Department of Education, 2016).

**Latinx Academic Experiences**

As Latinx students enter into higher education, almost half begin their college career at a community college, and the majority at an HSI. When students are asked to provide their intended academic goal, research indicates that 41% of Latinx high school students state that they aspire to earn a bachelor’s degree (Santiago, 2016; ACT, 2016; Swail, Cabrera, & Lee, 2004). Yet, only 15% of Latinxs actually earn a bachelor’s degree (Santiago, 2016). Studies have also found that community colleges provide Latinx students with the foundation to be successful at a four-year institution (Gonzalez & Hilmer, 2006). However, research has also found that Latinx students who begin their academic careers at community colleges are less likely to transfer to a four-year institution and earn a bachelor’s degree (Crisp & Delgado, 2014). In fact, other studies suggest that attending a community college may negatively impact a student’s ability to persist, transfer and earn any college degree (Aulck & West, 2017; Lockwood, 2012; Doyle, 2009; Long & Kurlaender, 2009; Alonso, 2006).

While these studies highlight the issue of Latinx student success, they fail to recognize that a student’s entrance point (two-year versus four-year institution) is not the sole determinant of degree attainment. Research indicates that there are many other external and institutional
barriers that contribute to the high attrition rates and low degree attainment at community colleges among this student population (Clark, 1960; Gonzalez & Hilmer, 2006; Nora & Crisp, 2009). The negative effects of these barriers are not only present in Latinxs’ academic experiences at the elementary and secondary level, but also continue to impact students at the postsecondary level. Arbona & Nora (2007) found that pre-college factors were most predictive of Latinx student success in earning an associate’s degree and transferring successfully to a four-year institution.

Additional studies have discussed college-related and environmental pull factors, and their influences on Latinx student success (e.g., Bailey, 2009; Bailey, Jeong, & Cho, 2010; Barnett & Reddy, 2017; Contreras, 2005; Crisp & Delgado, 2014; Crisp & Nora, 2010; Crisp, Taggart, & Nora, 2015; Cuellar Mejia, Rodriguez, & Johnson, 2016; Hagedorn, Cypers, & Lester, 2008; Hill, 2008; Hughes & Scott-Clayton, 2011; Martinez & Deil-Amen, 2015; Nora & Crisp, 2010, 2012; Rendón, 1994; Swail et al., 2005; Zarate & Gallimore, 2005). These factors (e.g., familial responsibilities, employment, financial need and transportation) can influence student persistence by either “drawing in” or “pulling away” Latinx students from the institution (Reyes & Nora, 2012; Bean, 1990; Nora & Wedham, 1991). Although the literature is mostly limited to experiences of Latinx students at four-year institutions, studies have also noted the impact on Latinx students attending community colleges (e.g., Tovar, 2014; Acevedo-Gil, Santos, Alonso, & Solórzano, 2015; Nunez, Sparks & Hernandez, 2011; Nora & Crisp, 2009; Nora et al., 1999; Martinez & Fernández, 2004). Specifically, Latinx students attending two-year, HSIs experience these environmental pull factors in ways that significantly impact their student persistence in comparison to Latinx students who attend four-year institutions (Nunez et al., 2012; Nunez et al., 2011; Nora, 2004; Hurtado, Carter & Spuler, 1997).
Lack of Academic Preparedness

Throughout the K-12 educational pipeline, Latinx students’ academic experiences tend to be very different than their white counterparts. Due to low socioeconomic status, Latinx students often attend schools in high poverty, urban areas with limited funding and resources (Contreras, 2005; Crisp et al., 2015). In high school, Latinx students are often tracked into non-academic curriculum at highly underperforming schools which impact their preparation for and success in college (Arbona & Nora, 2007, p. 256, Crisp et al., 2015; Meier & Stewart, 1991; Perie, Grigg & Donahue, 2005; Swail et al., 2005). In their quantitative study, Swail et al. (2005) analyzed Latinx high school preparation data from the National Educational Longitudinal Study (NELS: 88) to explore the impact on Latinx educational attainment in college. The findings indicated that Latinx students were more disadvantaged academically during high school and less prepared for college than their white counterparts. While some studies have argued that such tracking in either academic or vocational tracks is based on factors related to a student’s academic record and ability to complete the coursework (Ekstrom, Goertz, & Rock, 1988; Oakes, 1985, 1987; Rosenbaum, 1986), these studies fail to address the inequities in academic programs in urban school districts which directly places Latinx students at a disadvantage academically.

In contrast, Arbona and Nora’s (2007) study found that Latinx students were more likely to succeed in college when enrolled in an academic track or a more rigorous academic program. They are also more likely to have higher aspirations to attend a four-year institution (Arbona & Nora, 2007, p. 262). In contrast, Latinx community college students who did not perform as well academically in high school are far less likely to transfer to a four-year institution (Arbona & Nora, 2007, p. 265; Fry, 2002; Swail et al., 2005; Tienda & Mitchell, 2006). Similarly, Zarate and Gallimore (2005) noted that college enrollment for Latinx students was directly influenced
by their academic performance in high school. Yet, they also highlighted the deficiencies in prior studies which did not take into account non-cognitive factors in the enrollment process which could provide further information on the differences between Latinx students who enroll in a four-year institution in comparison to those who do not enroll.

**Developmental Course Placement**

During the first semester in college, 67% of all community college students are deemed academically underprepared for college coursework based on a college placement exam (Bailey, 2009). The national average of Latinx students enrolled in developmental education is 58% in comparison to 30% of Whites (Chen, 2016). Studies have also cited the overrepresentation of Latinx students in developmental education with state averages as high as 87% in California and 75% in Ohio (e.g., Bettinger & Long, 2005; Cuellar Mejia et al., 2016; Grimes & David, 1999; Nora & Crisp, 2012; Penny, White & William, 1998), and Latinx students enrolled in at least one developmental course during their first semester at a community college with a lower likelihood of transferring to a four-year institution and earning a college degree (Crisp & Delgado, 2014). However, there is little evidence on the impact of developmental coursework on Latinx student success (Nora & Crisp, 2012).

Despite limited research on the effect of developmental education on Latinx students, a main barrier for students enrolled in developmental coursework is the extended time and delay to degree completion (Bailey et al., 2010; Hughes & Scott-Clayton, 2011; Levin & Calcagno, 2008). Not only does the coursework delay progress towards earning college credit for degree completion, it also limits students in the types of courses they can enroll in due to prerequisite course requirements (Scott-Clayton & Rodriguez, 2012). Current research in developmental education reform has identified course acceleration and multiple measures as best practices in
improving persistence and graduation rates among this student population (Barnett & Reddy, 2017; CCCSE, 2016; Cuellar Mejia et al., 2016).

Lack of Institutional Fit

According to a 2012 study conducted by the U.S. Department of Education, 61% of Latinx students were identified as first-generation college students compared with 41% African American and 25% white and Asian students (Aud et al., 2012), representing a significant gap of between Latinx and other racial/ethnic first-generation college students. First-generation college students are more likely to enter postsecondary education at a disadvantage due to lack of institutional knowledge than continuing-generation college students (Gloria & Castellanos, 2012; Engle, 2007; Strayhorn, 2006). Most studies have focused on first-generation college students’ experiences and transition from high school to a four-year institution (Pascarella et al., 2004). However, enrollment data indicates that the majority of first-generation college students, especially Latinx students, enroll in community colleges at disproportionately high rates (Catalfi, Bennett & Chen, 2018; Redford & Mulvaney Hoyer, 2017).

Although there is limited research, first-generation, Latinx students at two-year colleges face academic and cultural challenges (Delgado Bernal 2010; Nora 2001; Rendón, Jalomo, and Nora, 2000; Rendón, Nora & Kanagala, 2014; Martinez & Fernández, 2004). For example, research found that the majority of Latinx students who attend two-year HSIs are more likely than their counterparts to experience a lack of institutional fit between the institution’s culture and their culture at home (Delgado Bernal 2010; Nora 2001; Rendón et al., 2014; Rendón et al., 2000; Martinez & Fernandez, 2004). Latinx students experience difficulty in navigating the college culture and understanding the campus resources available to them while also honoring their home culture and sense of belonging to their family and community (Rendón et al., 2014).
Tinto’s theory of student departure (1993) explains attrition as a lack of a good fit between the student and the higher education institution. This lack of an institutional fit is a combination of academic and social factors which prove to be particularly challenging for Latinx students. Tinto affirmed that minorities could achieve this academic and social integration through informal and formal forms of associations such as frequency and quality of student-faculty interactions and participation in extracurricular activities.

However, a shortcoming of Tinto’s theory is the notion that students must depart from their former environments in order to succeed in the new campus environment. Contrary to Tinto’s assertion, researchers have found that cultural validation (i.e., affirming the value of students’ unique cultural perspectives and identity to the college community) provides Latinx students with the support to facilitate an easier transition into the institutional culture while having a strong connection to their home culture (Laden, 1998, 2004; Rendón, 1994; Rendón et al., 2014). His overemphasis on placing the individual responsibility on the student to integrate academically and socially into the college community is not an applicable theoretical framework for Latinx students at community colleges (Guiffrida, 2006).

**Limited Access to Social and Cultural Capital**

As first-generation college students, Latinxs often have limited access to social and cultural capital (i.e., the informal networks that often are relied upon to provide college-related information to students) (Nora & Crisp, 2009). This lack of social and cultural capital limits the accurate information and guidance that they receive regarding the college admissions process and the nuances of the college environment (Gonzalez et al., 2003). Latinx students from low SES were more likely to attend high schools that utilized a traditional strategy which primarily focused on preparing students for the labor market and limited college information to a select
few. These students described entering their first-year in college with low self-efficacy as a result of the “gatekeeping ideology” that they were exposed to in high school (Martinez & Deil-Amen, 2015, p.2).

White students or students from upper-middle class backgrounds are more likely to have a strong social support network to provide college information and explain processes related to admissions, registration, and financial aid. For most first-semester students, these processes tend to be overwhelming; however, students with a strong social and cultural capital can navigate these processes more easily than Latinx students with little to no social and cultural capital. Additionally, due to low SES status and educational attainment, Latinx parents have access to fewer resources and less knowledge about the college process (Auerbach, 2004). This further complicates the situation, adding another barrier as Latinx students tend to begin the college process late (Auerbach, 2004).

Gonzalez et al. (2003) qualitative study employed life history research methods to examine how the relationship between school administrators and parents of Latina students, positively or negatively impact access to college information. Findings indicated that Latina students’ college choice opportunities were limited by their lack of social and cultural capital. While in high school, these students did not receive adequate early college advisement, and delayed the college planning process due to lack of resources (Gonzalez et al., 2003). For those Latinas who overcame these barriers and enrolled in a community college, they were placed in at least one developmental or ESL course, experienced negative faculty-student interactions, and had limited access to college advisors (Gonzalez et al., 2003).

Gandara’s (2002) research found that the most significant barrier to college access for Latinx students in California was their lack of knowledge of the admissions process for higher
education. These students had negative experiences in their school environments by counselors, teachers, and administrators, and did not have access to college information from parents. Due to their limited resources, Latinx students were not aware of college options, college application steps, and related admissions processes. Without the social and cultural support networks, Latinx students begin their college career at an extreme disadvantage over their white counterparts.

For Latinx students, it is especially critical for student success to have access to social and cultural capital in college (Garcia & Ramirez, 2015; Linares & Munoz, 2011; Rendón, 2002; Rendón, Jalomo & Nora, 2000; Stanton-Salazar, 2011; Tovar, 2014). As with many first-generation college students, Latinx students’ parents tend to have low educational attainment and lack access to professionals who have accurate information on the college process, financial aid, and college culture (Bloom, 2008). This lack of social and cultural capital places Latinx students at a disadvantage in navigating the college environment in comparison to their white counterparts who typically have access to social and cultural capital (Bourdieu, 1977, 1983; Crisp & Nora, 2009; Gonzalez, Stoner, & Jovel, 2003; Jalomo & Rendón, 2004; Rendón et al., 2008).

The research emphasizes that without access to pre-college resources, Latinx students are underprepared for the ACCUPLACER or COMPASS college entrance exams often resulting in lower scores (Bailey et al., 2010; Hughes & Scott-Clayton, 2011), and placement in at least one or more developmental or ESL course in college (Bailey, 2009; Gonzalez et al., 2003). Additionally, Latinx first-generation college students tend to struggle with low self-efficacy further impacting their student persistence and academic performance (Bordes-Edgar, Arredondo, Robinson-Kurpius, & Rund, 2011; Cole, 2008; Crisp et al., 2015; Massey, Charles, Lundy, & Fischer, 2003; Rodriguez, 1996; Strange, 1999; Torres & Solberg, 2000).
Familial Support and Responsibilities

Studies have found that familial support has a significant impact on Latinx students’ aspirations and decisions to attend college (Ceja, 2006; Gándara, 1995; Pérez & McDonough, 2008). Despite having low educational attainment and limited knowledge of the college environment and expectations, Latinx parents support their children attending college. Studies have reported that Latinx parents and extended family members affirm Latinx students’ college aspirations and abilities to be successful in college and influence their decisions to persist (Arbelo-Marrero & Milacci, 2016; Ceja, 2004; Hossler, Schmit, & Vesper, 1999; Nora & Crisp, 2009; Rendón et al., 2008). In addition, a strong motivator for Latinx students is the desire to make their family proud, and to not repeat the family cycle of those who did not attend college (Cejda, Casparis & Rhodes, 2002; Nora & Crisp, 2009).

Although parents of Latinx students value the importance of earning a college degree, they often lack the knowledge of college expectations and the time commitment to be successful in college (Turcios-Cotto & Milan, 2012; Pew Hispanic, 2009). For Latinx students enrolled at community colleges, their academic experiences are considerably different than their White counterparts at both two-year and four-year institutions. They often experience a cultural bind to prioritize familial responsibilities over one’s academic responsibilities (Rendón, 1994). As a result, Latinx students experience an internal struggle between supporting their families and earning a college degree (Rendón, García & Person, 2004). This sense of familismo or cultural value associated with respect, loyalty, solidarity, and commitment to one’s family over personal interests, places an unspoken expectation on Latinx students (Delgado-Romero, Galvan, Hunter & Torres, 2008; Espinoza, 2010; Vega, 1990).
Sy & Romero (2008) found that *familismo* led Latinx students to experience a cultural bind or conflict in which they felt the need to spend less time at college and more time at home to support their family’s needs. Other researchers have studied the influence of *familismo* on Latinx youth’s educational experiences (Fuligni & Pedersen, 2002; Fuligni, Tseng, & Lam, 1999; Sy, 2006; Sy & Brittian, 2008; Tseng, 2004). The findings suggested that there was a strong commitment to fulfill family responsibilities including, but not limited to, caring for siblings and assisting with homework, translating for parents and other family members, contributing financially to the household, helping with household chores, and spending time with the family. Latinx students attending a community college experience these environmental pulls even more strongly due to the college’s close proximity to home (Espinoza, 2010).

When this occurs, Latinx students tend to place family responsibilities resulting in limited participation in formal programs and academic support services, and community service and leadership activities which provide students with the academic and social support structures to persist in college (Crisp & Nora, 2009). Studies have reported that environmental pull factors were found to be the most significant barrier to Latinx student success, and beyond the control of the institution (Ornelas & Solórzano, 2004).

**Financial Factors**

Latinx students are more likely to have parents with low educational attainment (Schneider, Martinez & Ownes, 2006), which further contributes to the high attrition rates and low degree attainment (Bers & Schuetz, 2014). Additionally, Latinx students are more adverse to borrowing loans for college than their counterparts (Cunningham & Santiago, 2008; Dowd, 2008). On average, 30% of Latinx students will borrow loans in comparison to 35% of whites and 43% of blacks (Cunningham & Santiago, 2008). Approximately 50% of Latinx students
received an average Pell Grant of $3,500 which approximately covers 20% of the cost of attendance at a four-year institution (Excelencia in Education, 2017b), and 24% of Latinx students also received a state grant, which combined with the Pell Grant award, is not enough to offset the high cost of attendance at four-year institutions. The lower cost of attendance at community colleges is important in the college choice process as Latinx students are concerned about paying for school and contributing financially to their households (Crisp & Nora, 2009). Even though community colleges offer in-county tuition rates, Latinx students often find it challenging to cover the costs related to textbooks, technology, and transportation resulting in sporadic attendance patterns, and, overall, impacting their success in courses (Hurtado & Kamimura, 2003).

Another key influence on Latinx student persistence is financial support stressors (Crisp & Nora, 2009; Nora, 2003) related to family responsibilities and educational expenses (Crisp & Nora, 2009; Rendón et al., 2008). Many Latinx students serve as the main contributors to the household income due to a variety of reasons, including parents’ low educational attainment, immigration status, and English language proficiency. In addition, Latinxs had the highest unemployment rates among any other racial/ethnic groups at 6.8% compared with 4.3% of Whites (Crisp & Nora, 2009). Due to this responsibility, Latinx students often work up to 60 hours per week to pay for household expenses (Nora & Crisp, 2009; Nora et al., 1996; Nora & Wedham, 1991). These barriers often result in a students’ decisions to “stop out” or change enrollment status from full-time to part-time (Perez Huber, Huidor, Malagón, Sánchez & Solórzano, 2006).

In addition, financial assistance in the form of scholarships can assist in reducing financial stress for Latinx students (Rendón et al., 2008). However, due to their limited time on
campus, Latinx students are often unaware of such opportunities. Rendón (1994) argues that a proactive approach by institutional agents can assist Latinx students in learning about support services, and improving student persistence.

**Sense of Belonging**

Studies have reported that a sense of belonging or a feeling that one’s presence matters for minority students, especially for Latinx students, strongly influences student persistence (Crisp & Nora, 2010; Hausmann, Schofield, & Woods, 2007; Hurtado & Carter, 1997; Hurtado, Carter & Spuler, 1996; Johnson, Soldner, Leonard, & Alvarez, 2007; Museus & Maramba, 2011; Strayhorn, 2008, 2012). In particular, students enter college with pre-college characteristics which influence their decision to leave or remain in college (Reason, 2009; Pascarella & Terenzini, 2005; Tinto, 1975, 1993). Hurtado & Carter (1997) sought to determine if Latinxs’ background characteristics as well academic and social experiences in the first and second year in college contributed to their sense of belonging and decision to persist to the third year (Hurtado & Carter, 1997). The findings confirmed that Latinx’s first-year academic and social experiences as defined as: (1) peer engagement in discourse outside of the classroom, (2) participation in religious or social-community organizations, and (3) exposure to an inclusive campus environment were significant in developing a strong sense of belonging in their third year in college. In contrast, Latinx students who did not experience a positive campus environment were more likely to feel less connected to the institution, and experience feelings of hostility and isolation (Hurtado & Carter, 1997).

Similarly, other studies have explored factors that not only influence Latinx’s sense of belonging, but also serve as predictors of Latinx student persistence (Gloria, Castellanos, Lopez, & Rosales, 2005; Hurtado et al., 1996; Nora & Cabrera, 1996; Longerbaum, Sedlacek, &
Alatorre, 2004). Gloria et al.’s quantitative study (2005) tested three constructs: perceptions of social support, perceptions of an inclusive campus climate, and self-beliefs on student persistence for a sample of 99 second generation, Mexican students at a four-year institution. Although all three constructs were found to be significant, the variables related to mentoring, peer support, and university comfort had the highest predictive value on Latinx student persistence (Gloria et al., 2005). Further studies have confirmed the influence of campus climate on Latinxs’ sense of belonging and commitment to the institution (Nora & Cabrera, 1996; Hurtado et al., 1996; Longerbaum et al., 2004). For Latinx students, persistence is highly influenced by positive interactions and experiences with faculty, staff, and peers both in and out of the classroom (Rendón et al., 2008).

Additionally, Nunez’s quantitative study (2009) utilized national longitudinal data of first-year Latinx students at nine public research universities from the Diverse Democracy Project Study (Hurtado, 2003) to determine the direct and indirect effects of social and cultural capital on their sense of belonging. Utilizing Structural Equation Modeling to test several hypotheses on the direct and indirect effects on sense of belonging, Nunez found that Latinx students who experienced more academic and social engagement and higher awareness of diversity issues were more likely to have a strong sense of belonging. Unlike the earlier studies, Nunez also found that these students were also more likely to experience a hostile campus climate, concluding that these students were able to coexist in a marginalized environment with access to intercultural capital through positive cross-racial interactions and diverse curricula.

**Validation Theory and High-Impact Practices**

Studies have argued that Latinx students do not need to disconnect from their home culture in order to transition to the college culture and make a commitment to the institution
(Cabrera & Nora, 1996; de Anda, 1984; Hurtado & Carter, 1997; Pascarella & Terenzini, 1991; Rendón, 1996). For Latinx students, incorporating aspects of their culture both in and out of the classroom is an important factor in influencing student success (Rendón, 1994). Participation in campus activities which provide Latinx students leadership or community service opportunities to give back to their communities is more impactful than participation in social organizations (Hurtado & Carter, 1997; Nunez, 2009; Rendón, 1994). Even more effective is when these high-impact activities are embedded within a diverse course curricula as experiential learning opportunities (Braxton & Mundy, 2001; CCCSE, 2014; Finley & McNair, 2013; Kuh, 2008; Rendón, 1994).

In contrast to Tinto’s theory of student departure (1975), Rendón (1994) argues that minority students who succeed in college have experienced academic or interpersonal validation from faculty, advisors, academic mentors or peers. Her theory of validation is not premised on students assimilating into the institutional culture, but rather on the presence of a “validating institutional agent” who affirms the invaluable cultural experiences and knowledge that the students contribute to the institution both in and out of the classroom (Rendón, 2002; Rendón Linares & Munoz, 2011). Empirical evidence supports Rendón’s validation theory as a framework that positively influences Latinx student persistence and fosters personal development and academic and social adjustment to college (Dowd et al., 2013; Rendón et al., 2011).

Drawing upon Rendón’s (1994) validation theory, The Puente Project, widely known as a national student success model, is one such California-based program aimed at fostering Latinx student persistence and successful transfer at approximately 38 high schools and 65 community colleges in the state (About Puente, 2019). On average, 56% of community college Latinx
students who complete the Puente Project transfer to four-year institutions (Puente Success Data, 2019). Similarly, specialized college programs like the Puente Project have the opportunity to provide Latinx students with institutional agents who can promote student success. Studies have reported that faculty-student interaction is influential in validating Latinx students (Chang, 2005; Crisp & Nora, 2009; Nora & Garcia, 2001; Zalaquett & Lopez, 2006). When a one-on-one connection in the form of an informal or formal mentoring relationship occurs between a faculty member and a Latinx student, the student receives both interpersonal and academic validation. The student is also affirmed in the classroom as a creator of knowledge (Rendón, 1994; Rendón Linares & Munoz, 2011) further validating their presence as a valuable member of the learning community (Nora & Crisp, 2009).

Within a learning community, studies have also emphasized the importance of faculty incorporating cultural-based learning practices as well as the value of familismo within the classroom to provide students with academic and interpersonal validation (Crisp et al., 2015; Rendón et al., 2008). By developing an inclusive classroom environment, Latinx students build a strong sense of belonging and experience support from peers, tutors, advisors and faculty (Garcia & Ramirez, 2015; Rendón, 1994; Rendón, Linares & Munoz, 2011; Tovar, 2014). In particular, peer support has been highlighted in the literature as a significant factor influencing Latinx student success (Gloria, Castellanos, Lopez & Rosales, 2005; Rendón, 1994; Rendón, Linares & Munoz, 2011; Rendón et al., 2008), and has been linked to better grades and transition into the college culture (Crisp et al., 2015; Hurtado & Kamimura, 2003).

**Mentoring Relationships**

Research has also shown that minority students have a higher likelihood of graduating from higher education with the presence of a mentor. Latinx students experience adjusting to
college socially as more difficult than adjusting academically (Garcia, 2001). Specifically, Latinx students find that the absence of a mentor not only makes navigating the college culture more challenging, but also makes it difficult to successfully attain a college degree (Garcia, 2001). Several studies confirm mentor relationships as specifically valuable for minorities (Mallinckrodt & Sedlacek, 1987; Murguia, Padilla, and Pavel, 1991; Padilla, Trevino, Gonzalez, & Trevino, 1997). They provide a connection to the campus community, a social support network, and act as a validating agent to the student (Guiffrida, 2003). Mentor relationships can be instrumental in facilitating a transition into the college culture and making a connection to the institution.

To date, one of the most comprehensive reviews of mentoring literature was conducted by Crisp and Cruz (2009). They reviewed mentoring literature from 1991 to 2007 to build upon Jacobi’s (1991) mentoring definitions and characteristics; provide a critical analysis of the empirical mentoring literature; and recommendations for future studies (Crisp & Cruz, 2009). The systematic review highlighted the strengths among the literature in providing an understanding of the positive impact of mentoring relationships on student success for non-traditional student populations as well as the characteristics that are found in mentoring programs (Crisp & Cruz, 2009). However, the review also found significant deficiencies in the literature that limit the ability for scholars to use this work to frame future research. Weaknesses were attributed to the existence of over fifty variations in mentoring definitions (Miller, 2002; Zimmerman & Danette, 2007), a lack of theory to provide a framework to explain the roles in a mentoring experience and how those experiences are perceived by college students, and methodological designs (Crisp & Cruz, 2009; Crisp & Nora, 2009).

From 2008-2015, an additional 100 mentoring studies were conducted. Researchers reviewed this literature to gain an insight on the advancements made in mentoring theories and
methodological designs since the last review (Crisp, Baker, Griffin, Lunsford, & Pifer, 2017). This body of work attempted to focus more on theory, and the positive impact of mentoring in fostering equity in higher education for traditionally underserved, at-risk student populations (Crisp et al., 2017). Studies were also found to provide more of an understanding on the diversity of mentoring relationships (e.g., group mentoring, formal or informal, natural mentoring); how undergraduate students experience and perceive mentoring; and how the mentor matching processes and activities are developed to engage the mentor with the mentee (Crisp et al., 2017). Although there have been some improvements in advancing mentoring scholarship to address these gaps, further research is needed to address how mentoring is defined and conceptualized across qualitative and quantitative studies; development of theory that provides a framework for the administration and evaluation of mentoring programs; and the use of experimental or quasi-experimental methodological designs which expand beyond existing national data sets (Crisp et al., 2017).

**Academic Support**

As Latinx students enter community college, they often experience academic challenges due to their lack of academic preparation in high school (Rendón et al., 2008; Swail et al., 2005). As noted earlier, one of the most common barriers to student success is placement into developmental coursework (Crisp & Delgado, 2014; Crisp & Nora, 2010; Bailey et al., 2010; Bailey, 2009). Developmental coursework extends a student’s time to degree completion often impacting student retention, persistence, and graduation. In addition, students may take up to three semesters to complete the developmental sequence without earning college credit towards their degree. However, the developmental coursework counts towards the financial aid semester eligibility limit (Federal Student Aid, 2018).
The literature regarding the impact of developmental coursework on student persistence at community colleges is limited in scope and lacks methodological rigor (Attewell, Lavin, Domina, & Levey, 2006; Bailey, 2009; Levin & Calgano, 2007). The most highlighted study on this topic was conducted by Crisp & Nora (2010). Their quantitative study found that enrollment status (part-time versus full-time) highly influenced persistence and successful transfer or degree attainment for Latinx students who were enrolled in developmental courses at community colleges. Specifically, Latinx students enrolled full-time were more likely to experience student success. The findings also confirmed earlier studies, which reported that Latinx students experience environmental pulls which significantly impact their persistence and consistent enrollment patterns (Crisp & Nora, 2010; Crisp et al., 2009; Longerbeam et al., 2004; Reyes & Nora, 2012).

In 2004, the Lumina Foundation launched a national initiative to improve developmental education with 83 participating community colleges over a five year period. A case study was conducted on three of the 83 institutions to explore the experiences that they had in implementing developmental education reform utilizing the Achieving the Dream (ATD) model as a conceptual framework. The ATD model employs seven institutional practices: 1) teaching and learning, 2) data and technology, 3) policy and practice, 4) student and faculty engagement and communication, 5) strategy and planning, 6) leadership and vision, and 7) equity (Our Approach, 2019). Utilizing the diagnostic Institutional Capacity Assessment Tool (ICAT), colleges were able to assess their strengths and areas for growth with the goal of accelerating student success at their institutions (Achieving the Dream, 2016).

Although the instructional reform was found to be in the pilot stages, the findings demonstrated positive and promising impacts in improving academic performance (Zachry,
Since this initiative, developmental education has continued to experience a national reform with many community colleges in the past five years adapting the *Accelerated Learning Program* from Baltimore Community College (Bailey et al., 2010; Jenkins, Speroni, Belfield, Smith Jaggars, & Edgecombe, 2010; Nora & Crisp, 2012). The accelerated model aligns reading and writing curricula and provides students with a number of ways to accelerate through the course sequence, including co-requisite coursework in developmental English with credit level English. To date, there is limited evidence on the effectiveness of the accelerated model on Latinx student persistence at community colleges.

**Academic and Career Advisement and Tutoring Services**

Research on Latinx students’ lack of academic preparedness consistently affirms the need for intentional academic and career advisement and support services at community colleges to facilitate student success (CCCSE, 2014; Chang, 2005; Crisp & Nora, 2009; Dowd et al., 2013; Rendón, 1994; Suarez, 2003; Tovar, 2014). As community colleges have attempted to respond to this need with extended student services hours, research suggests that a personal connection with an advisor positively impacts Latinx student persistence, especially when the advisement model incorporates the cultural value of family (Rendón, 1994; Rendón et al., 2008). Earl (1988) termed this type of advisement as intrusive advisement; other researchers have defined it as intentional or proactive advisement. This type of proactive one-on-one advisement is critical for Latinx students to receive guidance regarding their major and career; how to transition to the college culture; developing time management skills; and strategies to balance school, work, and family responsibilities.

According to research conducted by the Community College Center for Student Engagement (2014), intrusive advisement provides at-risk students with high-impact practices
that have been proven to improve student persistence. Through an intrusive advisement model, Latinx students can experience both academic and interpersonal validation (Rendón, 1994). Advisors serve as institutional agents proactively providing students with information to succeed in college. For example, these institutional agents facilitate required and continued orientation sessions; work one-on-one with students to degree completion or successful transfer; collaborate in developing an academic and career plan; and conduct class visits, provide mini in-class workshops, and communicate weekly with the faculty to receive updates on students’ progress. Intrusive advisement models also utilize an early alert tool to contact students to provide early intervention. These aspects of an intrusive advisement model have been proven to facilitate student success as it relates to academic performance (C or better in gatekeeper courses), retention, persistence, successful transfer and/or degree completion (CCCSE, 2012, 2014).

Tutoring services are also highly useful in Latinx student success. In particular, in-class support provides students with proactive one-on-one collaboration with a tutor who also serves as an institutional agent. The in-class support not only fosters a positive experience that will continue outside of the classroom, but it also provides Latinx students with an academic support network within a learning community environment (Braxton & Mundy, 2001; CCCSE, 2012, 2014; Rendón, 1994). Studies have reported that academic performance in the first year of college is the most significant predictor of Latinx students’ decision to leave college or persist (Nora, 2004; Nora & Cabrera, 1996; Nora, Cabrera, Hagedorn, & Pascarella, 1996; Nora & Crisp, 2009; Hu & St. John, 2001). Specifically, the better the cumulative grade point average, the more confident Latinx students feel in being able to thrive in college and earn a degree.
Limitations of the Literature

In reviewing the shortcomings of the literature on college-related and environmental pull factors, much of the research has heavily focused on four-year institutions with differences in significant demographics amongst Latinx students (i.e., first generation vs. second generation; first-year vs. second-year; ethnicity; and gender). These findings may not be applicable to Latinx students’ academic and social experiences at community colleges.

Regarding the constructs and variables defining academic and social integration (e.g., Museus, Nichols, & Lambert, 2008; Nora, 1987; Tinto, 1993; Torres, 2006), sense of belonging (e.g., Crisp & Nora, 2010; Hurtado & Carter, 1997; Hurtado et al., 1996; Museus & Maramba, 2011; Strayhorn, 2008, 2012), and social and cultural capital (e.g., Bordes-Edgar et al., 2011; Crisp & Nora, 2009; Gloria et al., 2005; Martinez & Deil-Amen, 2015), there was no consensus on the definitions among the studies which limits the ability to make comparisons and connections across the research findings. The studies focused primarily on the constructs as predictive factors of Latinx student persistence, but did not study the effect of these constructs on persistence behavior to degree completion. For the environmental pull factors, there was a focus mainly on factors that pull Latinx students away from four-year institutions, but there was limited research on factors that draw in Latinx students to an institution, especially at community colleges (Martinez & Fernández, 2004; Nora, 2003; Nora & Rendón, 1990; Nora & Wedham, 1991).

Although Tinto’s (1993) theory of student integration has been widely criticized for its relevance to students, the majority of studies used the framework as a basis for their studies on
Latinx students due to the lack of newly developed and more relevant theoretical and conceptual frameworks to predict academic outcomes for this student population (Baker, 2008; Crisp & Nuñez, 2014; Fisher, 2007; Museus et al., 2008). The majority of the quantitative studies utilized national data sets to test hypotheses, and the use of methodological designs such as experimental and quasi-experimental were limited to test for causality (Crisp & Nuñez, 2014). Qualitative research designs mostly conducted interviews and focus groups regarding Latinx students’ experiences, and were limited to single, four-year institutions (Crisp & Nuñez, 2014).

Major Trends at Hispanic-Serving Institutions

HSIs, by definition, should be equipped to facilitate Latinx student success. However, common trends in HSIs suggest that these institutions often struggle to improve Latinx student success (Crisp et al., 2015). HSI mission identity is not often at the forefront of the institution’s mission statement, institutional priorities and policies and procedures. Therefore, they are lacking in the necessary academic and support services for Latinx students to overcome academic barriers to successful degree completion (Laden, 2004). Unlike Historically Black Colleges and Universities (HBCUs), the designation for HSIs was established based on Latinx institutional enrollment rather than the institution’s mission-driven focus on Latinx student success (Laden, 2004). “As a result, the Hispanic-serving institution designation can be seen to be an acquired identity- that is, one that results from demographic changes that happened to an institution and not necessarily purposeful action by the institution” (Malcom et al., 2010, p. 2). For many HSIs, reflecting the “acquired identity” within the mission of the institution continues to be a challenge (Malcom et al., 2010, p. 2).

Contreras et al. (2008) exploratory study on Hispanic-Serving Institutions analyzed ten (two-year and four-year) Hispanic-Serving Institutions’ mission statements, websites and
documents to explore if and how their HSI identity was integrated into the fabric of the institution. Additionally, they assessed the equity level in educational outcomes between Latinx and White students through the use of enrollment, major and degree attainment data. They found that none of the institutions reflected the HSI identity in their institutional mission and websites (Contreras et al., 2008; Corral et al., 2015). At best, acknowledgment of the HSI identity was limited to program descriptions, and, when applicable, initiatives funded under the Title V grant program. Regarding the assessment of access and educational outcomes, the Equity Index Method (EIM) confirmed that these HSIs provided equal access opportunities for Latinx students. However, the findings also demonstrated unequal educational outcomes in degree attainment for Latinx students compared to Whites, especially in majors that typically lead to high-income careers (Contreras et al., 2008). A similar study by Corral et al. (2015) examined Latinx initiatives and culture at ten existing and Emerging Hispanic-Serving Institutions selected from five geographically different regions. The study explored in what ways, if any, these HSI institutions directly serve Latinx students. Corral et al. (2015) reviewed the Title V proposal abstracts for the existing HSIs who received grant funding to identify and investigate the specific initiatives that they sought financial assistance. In addition, all existing and emerging HSIs’ websites were reviewed for transparent initiatives such as academic and support services and cultural programs aimed at directly supporting Latinx students.

The findings of this study further support the existing trends that HSIs tend to lack identity as an HSI in their mission statements and fail to deliver academic and support services that support Latinx student success. Although two of the HSIs who received Title V grant funding established partnerships to provide Latinx students with vocational training and experiential learning opportunities, these grant projects were also open to all other student
populations providing no direct outreach or intentional project designed to specifically target and support Latinx students. The weak project design by these Title V grant recipients adds to the limited evidence available on the overall impact of HSIs and the Title V grant program in promoting Latinx student success. Moreover, all existing and Emerging HSIs in their study, provided little to no evidence from the websites and institutional data to demonstrate that the institutions offered cultural and support services for Latinx students. While these existing and Emerging HSIs provided Latinx students with access to postsecondary education, the institutions seem to fail to provide initiatives that facilitated student success.

On the other hand, some current and Emerging HSIs have attempted to revisit their institutional practices to support Latinx student success (Santiago & Andrade, 2010). In a case study of four, Emerging Hispanic Institutions from diverse geographical locations, size and student population, Santiago & Andrade (2010) examined the institutional efforts to serve Latinx students. Data was collected and analyzed from public institutional databases, interviews and focus groups, pertinent documents, and an online survey to understand the perspectives of faculty, staff, administrators and students on how the Emerging HSIs directly supported academic success for Latinx students. The research team sought to document the promising practices that the institutions were undertaking as examples to share in how HSIs and Emerging HSIs can move beyond higher education access points to a more mission driven focus in serving Latinx students. Although the findings indicated similar challenges to the aforementioned studies (Contreras et al., 2008; Corral et al., 2015), this study shed light on the potential that Emerging HSIs have in improving educational outcomes for Latinx students. In reviewing their perspectives and institutional characteristics, the institutions identified practices to better serve Latinx students. These Emerging HSIs included Latinx students at the forefront of their mission.
statements; administration, staff and faculty reiterated a consistent message of and commitment to Latinx student success; leadership appeared to be a collaborative effort among all constituents; research and pilot practices were encouraged; and the institution’s high level of awareness fostered higher levels of community engagement (Santiago & Andrade, 2010). However, the study indicated that the Emerging HSIs’ focus was limited to: 1) knowledge of the institution’s growth in Latinx enrollment and 2) broad institutional outreach efforts (e.g., recruitment) focused on this student population.

Overall, the trends among current and Emerging HSIs in these studies seems to lean towards more of a focus on “Hispanic-enrolling” institutions than Hispanic-Serving Institutions. The minor successes discussed have not reflected direct correlation or impact of the Title V Developing Hispanic-Serving Institutions program in improving Latinx student success. Additionally, the successes shared in the studies have not been documented by the institutions, and there is no indication of sustainable efforts for the institutions beyond the life of the grant.

**Federal Title V Program Addressing Latinx Student Success**

In this section, I will provide an overview of the Title V program including goals, grant eligibility and funding, grant cycle, and annual program evaluation. In addition, I will provide information regarding HSIs to make the connection that an institution needs to be a federally designated HSI in order to apply for Title V funding. About half of all HSIs are community colleges, which enroll a majority of Latinx students. Research indicates that Latinx students who enroll at a community college are less likely to earn a bachelor’s degree than Latinx students who enroll initially at a four-year institution (Fry, 2002; Martinez & Fernández, 2004; Pérez & Ceja, 2010; Schhneider, Martinez & Ownes, 2002). Although the goal of Title V is to address
this achievement gap, there is limited research on the impact of the program on Latinx student academic success.

In order for an institution to be eligible to apply for the Title V grant, the institution must first submit an application to request designation as an eligible HSI institution by December of the previous calendar year for which the institution would like to apply for the grant (Federal Register, 2017). This application verifies an HSI’s designation in meeting the minimum 25% enrollment of undergraduate, full-time equivalent Latinx students. Although submission of the form is a requirement of the application process, the open submission period not does not guarantee that a grant competition will be held. If, and, when, a grant competition is held, an announcement is released as a request for proposals (RFP) for the Individual development (single HSI) and cooperative arrangement projects (lead institution is an HSI partnered with another institution). In addition, other requirements for eligibility include: 1) an enrollment of needy students as defined under section 502(b) of the Higher Education Act (HEA); and 2) average general and educational expenditures per full-time equivalent (FTE) undergraduate student which are lower in comparison to other institutions that offer similar instruction to FTE undergraduate students under section 502(a) (2) (A) (ii) of the HEA (Federal Register, 2017). When an institution is federally designated as an HSI, the institution is reviewed and verified as meeting both of these eligibility requirements (Federal Register, 2017).

The RFP outlines the Title V project requirements and competitive preference priorities for the given year; allowable budget activities and maximum budget request; and the submission requirements. For FY 2018, the maximum annual budget request for the individual development grant was $550K and $750K for the cooperative arrangement grant for up to a 60 month period or five years. These amounts are subject to change by the Assistant Secretary for
Postsecondary Education, and are dependent on the annual appropriation of funds (Federal Register, 2017). The institutions have 60 days to submit the application from the release date of the RFP. Applications that do not meet the Title V project requirements and/or the submission requirements will be disqualified (Federal Register, 2017). The RFP is not released at the same time each year nor has there been a competition yearly.

Applicants are required to address the Title V Developing Hispanic-Serving Institutions Program’s priorities within the proposed project’s activities. These areas include: academic quality, student services, fiscal stability, student outcomes and institutional management. As per the DHSI program, the grant activities should enhance the institution’s capacity to improve student success outcomes for Latinx students. The RFP references the allowable activities as well as the link to the Office of Management and Budget A.21 Circular which provides the full detail of allowable and unallowable activities (Federal Register, 2017).

Regarding academic quality, activities that involve improvement to curriculum and instruction; faculty development; redesign of developmental education; and acquisition of library materials, laboratory equipment, and instructional materials and software are considered allowable. For student services and student outcomes, activities involving intrusive academic, transfer, career, and personal advisement and student workshops; enhanced mentoring and tutoring support services; improvements to student facilities and computer labs; and licenses for web-based student development tools are allowable under the DHSI program. Under fiscal stability, institutions may propose projects that will strengthen alumni relations and improve contributions from the private sector; establish an endowment fund; establish or strengthen a development office; and purchase equipment or software to strengthen funds and administrative management (Federal Register, 2017, p. 54). Lastly, the Title V DHSI Program has a
“supplement- not supplant” grant funding requirement which states that grant recipients may only utilize funds to supplement activities that are already supported by the institution, and, in no way, is eligible to use grant funds to supplant the institution’s financial commitment to such activities (Federal Register, 2017, p. 22).

Although the U.S. Department of Education outlines the process for collecting and evaluating the effectiveness of grant projects in the RFP, there is little to no evidence of such data collection. The main evaluation tools used by the DOE are the Annual Performance Report (APR), and, for those institutions selected at random, a federal audit of the project. The APR is due each calendar year in January for the prior fiscal year ending on September 30th. However, for FY 2017, the release of the APR was off cycle and released in March 2018. In addition, grant programs which ended on September 30, 2017 were no longer required to submit an APR for the final year. This further contributes to the lack of data on the effectiveness of the Title V DHSI program. Additionally, the Title V federal audit has no formal cycle nor do the program regulations require the DOE to conduct a certain amount of audits per fiscal year. The U.S. Secretary of Education has established performance measures to evaluate the effectiveness of the projects funded under Title V DHSI.

The key performance measures requested in the APR include (Federal Register, 2017, p. 47):

1) The number of first-time, full-time, undergraduate students enrolled at the institution (enrollment).

2) The percentage of first-time, full-time degree-seeking undergraduate students, including Hispanics, who re-enrolled in the current academic year at the same institution (retention).
3) The annual persistence rate from the previous year to the current year for all students, including Hispanics, served in the project.

4) The number of students, including Hispanics, provided with a direct student support service(s) from the funded project.

5) The percentage of first-time, full-time degree-seeking undergraduate students enrolled at four-year HSIs graduating within six years of enrollment (degree attainment).

6) The percentage of first-time, full-time degree-seeking undergraduate students enrolled at two-year HSIs graduating within three years of enrollment (degree attainment).

The performance measures and the APR questions do not yield significant data to assess the overall effectiveness and impact of the Title V grant program on Latinx student success. The APR questions are designed to have grantees only report numbers (e.g. the number of students served by the tutoring component this year vs. the prior year; the number of library materials acquired this year in comparison to the previous year) rather than meaningful data as it relates to academic performance, retention, persistence and degree attainment. The data provided also does not disaggregate Latinx students from all students served in the project. This contributes to the lack of data focused on the impact of the Title V DHSI Program on Latinx student success. Moreover, this method of project evaluation provides little opportunity for grantees to discuss the data, assess the effectiveness of the project, and to identify areas for improvement for the next grant year.

After the APR is submitted, grantees often do not receive feedback from their institution’s designated DOE Program Officer regarding the project’s progress in comparison to the proposed project timeline and yearly measurable outcomes. Instead, the Program Officer’s follow-up is limited to contacting those institutions with a budget carry-over to request an
updated budget for the next grant fiscal year. For grantees, especially first-time grantees, the lack of guidance provides little to no support to overcome project implementation and related milestone challenges. When grantees have questions about reporting or allowable activities, the information provided is often vague and inconsistent from Program Officer to Program Officer. The main reason often provided by Program Officers is that the regulations are broad and left to individual interpretation. The confusion for the grantee remains in the inconsistency of this interpretation from Program Officer to Program Officer. Often, institutions also are reassigned to a new Program Officer who may have a more liberal or conservative interpretation of grant regulations. This lack of clarity of the regulations also impacts the success of the projects.

Additionally, the Title V DHSI Program does not offer an online portal to build a support network for grantees to share ideas and best practices. An online portal could also serve to collect data on best practices and student success outcomes for Latinx students as well as provide guidance on how to overcome institutional and project challenges. Currently, the Title V DHSI Program website includes outdated information and has dead links to important resources regarding the grant regulations and allowable activities.

In addition to the lack of post-reporting feedback and online support, there are many challenges in assessing the effectiveness of the Title V DHSI Program on Latinx student success. Gaps in project reporting and inconsistencies in project grant management further contribute to this overall problem. To date, the studies on the impact of Title V on Latinx student success have been limited primarily to research conducted by Excelencia in Education. The research findings have mostly concluded that select institutions with Title V funding have resulted in outcomes that provide a framework for promising or best practices. However, the results have not been easily replicated at other institutions. In addition, the successful outcomes reported were not
directly attributed to Title V funding. Although it has been acknowledged that such funding has
provided institutions with the opportunity to improve academic and support services, there has
been no direct measure of assessment to affirm that the Title V funding has been the direct
contributor to improving Latinx student success.

Another challenge in data collection is related to the APR questions providing limited
opportunity for grantees to discuss the direct benefits that the project has on Latinx student
success at the institutions. The questions do not require grantees to provide data on the number
and percentage of Latinx students being served by the project annually as well as their cohort
success metrics. Rather than reporting on each cohort’s progress from year to year in comparison
to the milestones proposed in the grant application, the APR requires grantees to compare the
current cohort to the previous cohort. For example, the APR’s retention question requires
grantees to list the prior year’s retention rate from cohort A, and then asks the grantee to list the
current retention rate for cohort B. The final question asks if the retention rate has increased;
however, the data is not comparing the same cohort. This provides inconsistent data and does not
account for evaluating and highlighting cohort specific challenges or successes.

Moreover, the data collection is inconsistent from institution to institution. The Title V
DHSI Program does not provide specific benchmarks or program goals that each project is held
accountable to report. The Title V application requirements also do not include project design
guidelines or requirements to outline the measurable outcomes. For projects funded prior to
2013, a logic model was not required for the application process. Although projects are now
required to include a logic model, there has been no updates to the Title V DHSI program
evaluation process. In order to close the achievement gap for Latinx students, institutions should
be held accountable to the metrics outlined in their respective logic models.
Lastly, the Title V DHSI Program has no requirements in the application process for institutions to make a formal commitment to sustain aspects of the proposed project beyond the life of the grant. The sustainability of the grant is addressed in general terms in the project application. Again, this is another aspect of the program that further contributes to the lack of impact on Latinx student success. By requiring institutions to make a direct commitment upfront to sustain components of the project (including the project staff) at the end of the grant, they will be more likely to focus their efforts on achieving greater student success outcomes. Furthermore, this would also provide the Title V DHSI Program with more solid data to assess the overall effectiveness and impact of the funding in strengthening HSIs and improving Latinx student success.

**Theoretical Framework**

Based on the most widely cited theories and models developed by researchers such as Tinto (1975, 1987, 1993), Astin (1984), Bean and Metzner (1985), Pascarella and Terenzini (1991, 2005), Braxton (2000); Braxton & Lien (2000); Braxton, Hirschy, and McClendon (2004); and Kuh (1995), these models are more applicable to four-year institutions and traditional student populations. Although Bean and Metzner (1985), Braxton (2000), and Braxton et al. (2004), attempted to expand how non-traditional students are viewed within this paradigm, more research is needed to develop frameworks which address the unique demographic and institutional characteristics of community colleges and the student population they serve. Despite these limitations, the models cited above provide a lens through which community college students experience and interact with their environments. Therefore, in order to provide a holistic conceptual framework, the research model utilized in this study is informed by elements
of these theories in conjunction with the research conducted by the Center for Community College Student Engagement on high-impact practices for community college student success.

In 2014, the Center for Community College Student Engagement released the final report of a three-part series, *A Matter of Degrees: Practices to Pathways (High-impact Practices for Community Colleges)*, outlining 13 data-informed high-impact, educational practices that community colleges should incorporate to redesign their institutional programs, and strengthen student success. The national data set for this report was gathered from the Community College Survey for Student Engagement (CCSSE), which has been recognized as a survey instrument with strong validity (Nora & Crisp, 2011). The development of the survey instrument draws from Tinto’s student integration theory (1975), Astin’s student involvement theory (1984) and Kuh’s student engagement theory (1995) to incorporate constructs which measure students’ experiences against five benchmarks (i.e. level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment) on educational experiences and practices (Kuh, 2009). The thirteen high-impact practices identified in the report as pathways to community college student success are the program elements that were used to guide and develop the Title V program in this study. The thirteen high-impact practices outlined in the report are as follows (CCCSE, 2014):

1) **Orientation**—one-time event or series of events to familiarize students with the college environment, policies, procedures and available resources.

2) **Accelerated or fast track developmental education**—accelerated courses to provide students with the opportunity to complete the sequence in a shorter time frame to begin college level courses.
3) First-year experience- a series of activities or workshops to provide students with opportunities to acquire new tools and skills, and to engage with faculty, staff and peers.

4) Student success course- is a first-year seminar designed to equip students with new strategies and skills to be successful in college.

5) Learning community- is a group of two or more courses linked together with the same group of students.

6) Academic goal setting and planning- provides students with an academic plan which maps program courses by semester to degree completion. Advisement also includes discussion of academic and career goals with milestones.

7) Experiential learning beyond the classroom- offers students with hands-on opportunities through internships, co-op experiences, clinicals, labs, field experience, etc. to apply content knowledge, and critical thinking and problem-solving skills to workplace activities.

8) Tutoring- provides students with academic assistance to excel in developmental and college level courses. Tutoring is offered both in and out of the classroom one-on-one and in groups.

9) Supplemental instruction- is a regularly scheduled small group session facilitated typically by a student who successfully completed the gatekeeper course. The sessions are designed to supplement the classroom discussion and reinforce key concepts.

10) Assessment and placement- includes placement test preparation, academic skills assessment in reading, writing and math, and course placement.

11) Registration before classes begin- is defined as students completing the course registration process on time prior to the start of the semester.
12) Class attendance- is defined by the instructors in the syllabus as required attendance to each class session with the consequence for missing a class session(s) outlined.

13) Alert and intervention- is a systematic process for faculty to alert an advisor of a student who is in need of academic or personal assistance. The advisor contacts the student to provide an intervention so the student can successfully complete the semester.

Lastly, the Center classifies five of the thirteen high-impact practices when incorporated into a program together as “structured group learning experiences”: orientation, accelerated or fast track developmental education, first-year experience, student success course, and learning community (CCCSE, 2014). The Title V program in the proposed study included the “structured group learning experiences” as noted above in addition to tutoring, academic goal setting and planning, alert and intervention, registration before classes begin, and experiential learning opportunities beyond the classroom. However, for the purpose of this study, only the effects of participation in a Title V program’s accelerated developmental English or ESL path on Latinx student success will be measured in a community college in the mid-Atlantic region.

The decision to focus on the accelerated developmental English and ESL tracks was based on: 1) the literature on student success barriers related to developmental education and time to completion and 2) the availability of the institutional data on the accelerated developmental English and ESL paths. Figure 1 represents the proposed student success model.
Building upon prior research, this study aims to fill a void in the literature and provide insight into the short-term and long-term effects of participation in a Title V program on Latinx student success. Drawing upon the theoretical frameworks related to student success, the proposed conceptual framework provides a comprehensive model that explores the effect that participation in a Title V program has on student success using multiple academic measures. The academic measures included are cumulative GPA, success rate (percentage of first attempt grades of C or better in the developmental English or ESL courses), completion rate (percentage of first attempt grades of D or better in the developmental English or ESL courses), fall to fall...
retention (percentage of cohort students enrolled in the fall semester of the reporting year at SCC who re-enroll in the fall semester of the next academic year at SCC) and persistence (enrollment and completion of each course in the developmental English or ESL course sequence). In addition, the model takes into account demographic variables which may also contribute to the combined effect on student success. The demographic characteristics included in this model are age, gender, race/ethnicity, in-county vs. out-of-county resident, and financial aid. The county residency status and Pell grant eligibility were critical demographic factors to include in the study because the county residency status determines a student’s tuition rate and financial aid provides insight on a student’s socioeconomic status (i.e., low-income); both factors are highlighted in the research as access issues which impact student success for underrepresented student populations (Crisp & Nora, 2009).

While the existing literature demonstrates that participating in a Title V program is positively associated with academic performance, these studies have several methodological shortcomings: 1) most studies simply compare academic performance measured by GPA or retention rate between students enrolled in a Title V program and a general student population without controlling for self-selection bias and 2) there is a scarcity of research that has examined the long-term effects of participation in a Title V program on Latinx student success. The next chapter provides an overview of the research design and methods that will be used to test the student success model.
CHAPTER III

METHODS

Research Overview

The purpose of this study was to examine the effect of participation in a Title V program’s accelerated developmental English and ESL paths on Latinx student success measured by academic performance, persistence, and fall to fall retention at a comprehensive community college. In particular, this study aimed to determine if there is a difference in student success outcomes, controlling for demographic variables, between the Title V English and ESL accelerated cohorts and the English and ESL PSM baselines. The demographic variables include age, gender, race/ethnicity, in-county vs. out-of-county resident, and receipt of financial aid.

Research Questions

The overarching question that guides this study is:

What is the effect of a Title V program’s accelerated developmental English and ESL paths on students’ academic success at a community college?

More specifically, this study intends to answer the following main and sub-questions:

Main questions:

1. What is the effect of participation in the Title V accelerated developmental English and ESL paths on students’ academic performance measured by cumulative GPA, success rate in developmental English and ESL courses (percentage of first attempt grades of C or better in the developmental English and ESL courses), and completion rate (percentage of first attempt grades of D or better in the developmental English and ESL courses) in comparison to students in the English and ESL baselines?
2. What is the effect of participation in the Title V accelerated developmental English and ESL paths on students’ fall to fall retention in comparison to students in the English and ESL baselines?

3. What is the effect of participation in the Title V accelerated developmental English and ESL paths on students’ persistence in comparison to students in the English and ESL baselines?

Sub-questions specifically aim at examining the program’s effect on Latinx students:

1a. What is the effect of participation in the Title V accelerated developmental English and ESL paths on Latinx students’ academic performance measured by cumulative GPA, success rate in developmental English and ESL courses (percentage of first attempt grades of C or better in the developmental English and ESL courses), and completion rate (percentage of first attempt grades of D or better in the developmental English and ESL courses) in comparison to Latinx students in the English and ESL baselines?

2a. What is the effect of participation in the Title V accelerated developmental English and ESL paths on Latinx students’ fall to fall retention in comparison to Latinx students in the English and ESL baselines?

3a. What is the effect of participation in the Title V accelerated developmental English and ESL paths on Latinx students’ persistence in comparison to Latinx students in the English and ESL baselines?

**Research Design**

The purpose of this dissertation was to examine the effect of participation in a Title V program’s accelerated developmental English and ESL paths on Latinx student success at a comprehensive community college. The study aims to determine if students’ participation in the
Title V program’s accelerated developmental English and ESL paths is associated with better short-term and long-term student success outcomes (i.e., academic performance, persistence and fall to fall retention) than the comparable English and ESL baseline students. More specifically, the study examined the differences in student success between the Title V English and ESL accelerated cohorts and the English and ESL baselines, and the Title V Latinx English and ESL accelerated cohorts and the Latinx English and ESL baselines.

**Hypothesis**

The study hypothesized that participation in a Title V program’s accelerated developmental English and ESL paths positively affects Latinx student success in comparison to the student success of the English and ESL baseline participants enrolled in non-accelerated developmental English and ESL courses. Student success was measured by academic performance (cumulative GPA; success rate in developmental English and ESL courses (percentage of first attempt grades of C or better in the developmental English and ESL courses); completion rate (percentage of first attempt grades of D or better in the developmental English and ESL courses); fall to fall retention (student re-enrolling in the fall semester of the next academic year at SCC); and persistence (enrollment in and successful completion of each course in the developmental English and ESL course sequence).

Based on prior research and theories on student success, participation in educationally purposeful activities (Trowler, 2010) with one or more structured group learning experiences (Kuh, 2008) contributes to higher levels of student engagement (CCCSE, 2014; Pascarella & Terenzini, 2005), academic performance and student involvement (Astin, 1984, 1993; Nora, 2003), academic and social integration (Tinto, 1987, 1993), and academic and interpersonal validation (Acevedo-Gil et al., 2015; Hurtado, Cuellar, Guillermo-Wann, 2011; Rendón, 1994).
Furthermore, research has also found that participation in these high-impact practices leads to increased student retention and persistence (CCCSE, 2012, 2014).

**Research Site**

This study was conducted at Spring Community College (SCC), a pseudonym for the institution, a public comprehensive college located in a state in the mid-Atlantic region. Based on most recent U.S. Census data, the state median household income is $80k with 10.3% of the population living in poverty (United States, 2018). The race and ethnic origins of the state’s residents are as follows: 72.1% White, 20.4% Hispanic or Latinx, 15.0% Black, 10.1% Asian, 2.2% two or more races, and 0.7% other races. The percentage of residents age 25+ years who hold a bachelor’s degree or higher is 30.7% (United States, 2018). The state has 19 community colleges, 10 public, four-year institutions and 14 private, four-year institutions. In addition, the state has a total of 17 HSIs: 6 public, two-year, 5 public, four-year and 6 private, four-year HSIs (HACU, 2019b).

SCC has a commitment to serving one of the most diverse populations in the country with a student population representing 63 different countries. As a federally designated Hispanic-Serving Institution (with an FTE Latinx student population of 38.2%), SCC is committed to fulfilling its mission of access by providing a high quality, affordable education to the community. The average growth rate of the Latinx population in the county in which SCC is located is 3.3% over the last five years. Over the last ten years, the Latinx student population at SCC has increased by 16.1%, outpacing the county growth rate. SCC currently serves more than 3,600 Latinx students (part-time and full-time) across multiple campuses, two of which are located in urban cities.
In fall 2018, SCC had 9,412 undergraduate students enrolled: 4,189 full-time (45.1% male and 54.9% female); 4,786 part-time (31.1% male and 68.9% female); and 437 not seeking a degree (44.6% male and 55.3% female). The race and ethnic composition of the SCC student population was: 38.2% Hispanic/Latinx, 27.9% Black, 17.7% White, 4% Asian, 1.1% Non-Resident Alien, 0.7% Other races, 1.8% Two or more races, and 8.6% Unknown. The graduation rate for first-time, full-time cohort who entered in fall 2015 was 29.7% and the fall to fall retention rate was 68.2%.

SCC serves a first-generation student population with over 25% of SCC’s students residing in one of the state’s urban cities. Of the total urban city population, 82.5% of the residents do not hold a college credential, and 75.1% speak a language other than English at home. In addition, the majority of SCC’s students reside in school districts that are rated as “District Factor A” (i.e., educationally and/or economically disadvantaged) resulting in students entering the college academically underprepared.

SCC was selected as the site for this study based on several reasons:

1) The institution is a federally designated Hispanic-Serving Institution with high enrollment of undergraduate FTE students of Latinx descent;

2) The institution was awarded a five-year Title V grant (October 2012-September 2017) which centered on the implementation of accelerated developmental English and ESL paths to improve student success for Latinx and other underrepresented students; and

3) Due to the college’s proximity to an urban area and based on the community college’s mission of open access and affordability, SCC enrolls a higher proportion of an academically underprepared and low-income student population than four-year institutions in the same geographical area. As a result, nearly 60% of first-time, full-time students placed into a
developmental course at the inception of the grant. SCC’s goal for the Title V grant in this study was to improve student success outcomes for students who place into developmental education.

**The Data**

Data for this study was requested from Spring Community College’s institutional research office. Institutional and Title V program data included individual demographic information (age, gender, race/ethnicity, in-county and out-of-county resident status and receipt of financial aid) and academic records. The Title V Project Accel program was awarded to the institution as a five-year grant beginning October 2012 and ending September 2017. The full implementation of the accelerated developmental English and ESL paths began in fall 2013 with the last Title V cohort in fall 2016. Therefore, for this quantitative study, the total Title V cohort sample included: Title V ENG (N = 319) and Title V ESL (N = 76). For the baselines, the sample included: ENG (N = 2446) and ESL (N = 537).

To obtain data for this study, IRB applications were filed with institutional research at Spring Community College and Seton Hall University. The request to institutional research included permission to use pre-existing program data from the Title V Project Accel program records and institutional data for the Title V ENG and ESL accelerated cohorts and the ENG and ESL baselines. To ensure the anonymity of the student participants, all student identifiers such as name and ID number were removed prior to the data retrieval.

The institutional data was maintained by institutional research and retrieved from the student management system. Specifically, the demographic (age, gender, race/ethnicity, in-county vs. out-of-county and financial aid), fall to fall retention and persistence data were based on the first-time, full-time cohort census data reported to the Integrated Postsecondary Education Data System (IPEDS). Several college departments, Admissions, Financial Aid, and the
Registrar, contributed to the data that was inputted in the student management system. The
Admissions Office receives the students’ application which includes demographic data (age,
gender, race/ethnicity, major and city of residence), and inputs this data into the system to create
a student profile. The Admissions Office also reviews high school and transfer institution
transcripts for possible college transfer credits. If a student receives transfer credits, the
Admissions Office enters the transfer credit(s) in the student management system.

The Financial Aid Office is responsible for retrieval of the students’ Free Application for
Federal Student Aid (FAFSA) from the Institutional Student Information Record (ISIR) file.
After the file is uploaded into the student management system, the Financial Aid Office awards
the students’ financial aid package through an automated process. The financial aid award
information indicates grants, scholarships and loans. Additionally, the state need-based grant
roster is received and verified, and eligible students are awarded the state tuition grant. Lastly,
the Registrar is responsible for maintaining the students’ academic records (i.e., grades,
institutional and federal GPA, transcript and academic standing). The student grades are
manually recorded by faculty each semester in web services and received through a file transfer
to the student management system. The cumulative GPAs are automatically generated in the
student management system each semester. Grade change and approved course
substitution/waiver forms are entered manually by the Registrar’s Office. Program changes are
entered manually in the student management system. Degree audits are verified by the
Registrar’s Office.

The Project Accel program data was maintained by the program staff and verified by
institutional research and the external evaluation process for the annual performance report to the
U.S. Department of Education. The program data included the Title V first-time, full-time
cohort participants for the accelerated developmental English path and full-time cohort participants for the accelerated ESL path from the fall start terms of 2013, 2014, 2015 and 2016. The accelerated developmental English and ESL course sections associated with these cohorts were recorded. Additionally, the program maintained records of the students’ grades in the courses and cohort persistence and retention rates. Students’ grades were retrieved from the student management system and the cohort persistence and retention rates were received through a Business Objects report created by the IT Department. The ENG and ESL baseline data was provided by the IT Department using a report of comparable first-time, full-time students enrolled in the equivalent non-accelerated courses for developmental English, and full-time students enrolled in the equivalent non-accelerated ESL courses for levels 5 and 6. Since the data was provided to the Project Accel staff as a collective group, the individual demographic information was not available. Therefore, the IRB application requested access to the individual demographic information for data analysis. The comparable groups in this study were coded as: ENG accelerated cohort, ENG PSM (propensity score matching) baseline, ESL accelerated cohort, and ESL PSM (propensity score matching) baseline. The subgroups were coded as: Latinx ENG accelerated cohort, Latinx ENG PSM (propensity score matching) baseline, Latinx ESL accelerated cohort, and Latinx ESL PSM (propensity score matching) baseline.

Sample

The sample size for this study included two Title V cohorts and two baseline groups enrolled in the developmental English and ESL courses between 2013 and 2016 with the fall semesters as the cohort start terms. The rationale for inclusion of these four cohort years was based on the number of cohort data available for the five-year grant period. Since the grant program began in October 2012, the program did not have a fall 2012 cohort. Regarding the
sample size, there are four groups: a) first-time, full-time, ENG and ESL accelerated cohorts who participated in the Title V program’s accelerated developmental English and ESL paths, and b) ENG and ESL baselines who were enrolled in the comparable non-accelerated, developmental English and ESL courses.

For the Title V ENG accelerated cohort, eligibility was based on: 1) first-time, full-time status at the start of the respective fall term and 2) placement into developmental English based on the Accuplacer college placement exam (i.e., ENG 088 or ENG 089 developmental reading I/II and/or ENG 098 or ENG 099 developmental writing I/II). The ENG baseline criteria was based on a comparable group to the Title V ENG accelerated cohort. Students in this baseline cohort met the criteria of: a) first-time, full-time enrollment status at the start of the fall semester, and 2) placement into developmental English based on the Accuplacer college placement exam (i.e., ENG 088 or ENG 089 developmental reading I/II and/or ENG 098 or ENG 099 developmental writing I/II). The ENG baseline was created by a random sample of developmental English students who met these criteria.

The Title V ESL cohort eligibility was based on: 1) full-time status at the start of the respective fall term and 2) placement into level 5 ESL based on the college placement exam or successful completion of level 4 ESL. Although it is possible for new students to place into level 5, it is less probable due to the advanced language proficiency required at this level. In total, the ESL path has 6 levels. To maintain a representative sample size, the Title V ESL cohort and the ESL baseline were not limited to first-time, full-time; however, it was limited to full-time students only. The ESL baseline cohort criteria were based on a comparable group to the Title V ESL accelerated cohort. The students in this baseline met the criteria of: a) full-time status at the start of the fall semester and 2) placement into level 5 ESL based on the college placement exam.
or by successful completion of level 4 ESL. With both the Title V English and ESL accelerated cohorts, students who met the criteria were sent informational postcards and emails and received a phone call from a program advisor to share the benefits of enrolling in the accelerated developmental ENG and ESL courses.

**Model Specification**

**Outcome Variable**

There were three outcome variables in this study: 1) academic performance, 2) fall to fall retention and 3) persistence.

The following defines each of the outcome variables:

1) Academic performance variable has three levels measured by: a) cumulative GPA, b) success rate in developmental English and ESL courses (percentage of first attempt grades of C or better in the developmental English and ESL courses), and c) completion rate (percentage of first attempt grades of D or better in the developmental English and ESL courses). These levels of academic performance were measured for each of the Title V ENG and ESL accelerated cohorts enrolled in the accelerated developmental English and ESL courses, and for each of the ENG and ESL baselines enrolled in the non-accelerated developmental ENG and ESL courses.

2) Persistence was defined as enrollment in and successful completion of each course in the developmental English or ESL course sequence.

3) Fall to fall retention was defined by a student re-enrolling in the fall semester of the next academic year at SCC (First-Year Persistence, 2018).
Independent Variable

Participation in Title V Program

- Accelerated developmental English and ESL paths is a dichotomous variable, coded as 1=Title V cohort or 0=non-Title V cohort, indicating whether students participated in Title V or not.

Propensity score matching covariates

- Age is a dichotomous variable indicating the age of a student at the start of the student’s term.
- Gender is a categorical variable indicating the student’s gender. For the purpose of this study, gender was coded as: 1= male, 2= female or 3= other/unknown.
- Race/ethnicity is a categorical variable indicating the student’s race/ethnicity. In this study, race/ethnicity was coded as: 1=Hispanic/Latinx, 2= Black or African American, 3= White, 4= Asian, 5=American Indian, 6=Hawaiian/Pacific Islander, 6=Two or More Races, 7=Non-Resident Alien, and 8=Unknown.
- In-county vs. out-of-county resident is a dichotomous variable indicating the student’s county residency status. This variable will be coded as: 0= in-county or 1= out-of-county.
- Financial aid is dichotomous variable indicating the student’s need or merit based financial aid. For this study, this variable was coded as: 0= no financial aid and 1= financial aid.

Data Analysis

Due to the rigor of the accelerated courses, students who enroll in such courses may have higher levels of self-efficacy, motivation, and goal realization (CCCSE, 2012, 2014). As a result, student success for the Title V accelerated developmental English and ESL cohorts may be
influenced positively by these non-cognitive variables. For this reason, propensity score matching (PSM) was utilized as the statistical technique for data analysis. Descriptive statistics, and paired t-tests and chi-squared tests were conducted in the analysis of the Title V ENG and ESL accelerated cohorts in comparison to the English and ESL baselines. R was used to perform propensity score matching and Microsoft Excel was used to analyze the data.

**Propensity Score Matching**

In the raw data set, the Title V ENG and ESL accelerated cohorts and the ENG and ESL baselines had unequal sample sizes of $N = 319$, $N = 76$, $N = 2446$ and $N = 537$ respectively. The samples sizes for the Latinx ENG and ESL accelerated cohorts and the Latinx ENG and ESL baseline subgroups were also unequal at $N = 130$, $N = 26$, $N = 802$ and $N = 290$ respectively. Since the numbers of students in the baselines and the Title V accelerated cohorts were not equal, sampling was required in order to conduct statistical analysis on the data. For the reasons outlined in the following paragraph, propensity score matching was chosen as the sampling method for this study.

Propensity score matching is a statistical technique utilized in non-randomized or quasi-experimental studies in order to minimize the effects of selection bias or other covariates (Kool, Mainhard, Jaarsma, van Beukelen, & Brekelmans, 2017). This allowed for effects of a treatment or program on the outcome variables to be measured (Rubin, 2001). Therefore, propensity score matching was identified as the appropriate sampling technique for this study. Specifically, the distribution of the covariates from the individual demographic variables (age, gender, race/ethnicity, in-county vs. out-of-county and financial aid) were balanced to minimize the variation between the treatment group, the Title V ENG and ESL accelerated cohorts, and the control group, the English and ESL baselines.
In order to calculate the propensity scores, the covariates to include in the calculation were determined. Three possible options for selecting these variables were to include those that: (a) affect the probability of receiving the treatment, (b) affect the outcome variables, or (c) affect both (a) and (b) (Kool et al., 2017). This study selected option b and included all of the covariates that affected the outcome variables. A regression analysis was conducted to identify the variables that met these criteria. The propensity scores were calculated in R using these variables and the data was matched 1:1; the caliper width for the 1:1 matching was selected such that the number of matches and the covariates were balanced between the Title V ENG and ESL accelerated cohorts and their respective control groups (Kool et al., 2017). The final step was to conduct paired two sample t-tests and Pearson’s chi-squared tests to determine the significance of the differences in outcomes between the Title V ENG and ESL accelerated cohorts who participated in the accelerated developmental English and ESL paths in comparison to the respective ENG and ESL baselines.

Results of Propensity Score Matching

Propensity score matching was conducted on the baseline groups using R in order to match the sample sizes between the ENG and ESL accelerated cohorts (treatment group) and the ENG and ESL baselines (control group) as well as the Latinx subgroups. This statistical method balances the covariates to eliminate selection bias (Austin, 2011). To perform matching, the nearest neighbor technique was used to match the treatment unit to the control unit closest in distance measure (Randolph, Falbe, Kureethara Manuel, & Balloun, 2014). After propensity score matching was conducted, the sample sizes of the ENG PSM baseline \(N = 319\) and ESL PSM baseline \(N = 76\) were matched to their respective Title V accelerated cohorts. In addition,
the samples sizes of the Latinx ENG PSM baseline \( (N = 130) \) and Latinx ESL PSM baseline \( (N = 26) \) were matched to the sample sizes of the Latinx ENG and ESL Title V cohorts.

Next, the jitter plots in *Figures 2-5* were created to provide a visual understanding of the distribution of propensity scores between the treatment units and the control units (Randolph et al., 2014). The individual circles represented in the jitter plots illustrate the propensity score for each case. *Figures 2-5* confirm that each case in the treatment unit was matched. The figures also demonstrate the close match between the treatment units and the matched control units. Lastly, the figures show the unmatched control units which were not found to match any of the treatment units. These unmatched control units were not used for analyses in the study (Randolph et al., 2014). By using propensity score matching, the data was then able to be analyzed to determine the effect of participation in the Title V program’s accelerated developmental English and ESL paths on student success without the influence of the covariates.

*Figure 2. Jitter Plots of ENG Baseline: Before and After Propensity Score Matching*
Figure 3. Jitter Plots of ESL Baseline: Before and After Propensity Score Matching

Figure 4. Jitter Plots of Latinx ENG Baseline: Before and After Propensity Score Matching
Figure 5. Jitter Plots of Latinx ESL Baseline: Before and After Propensity Score Matching

The histograms in Figures 6-9 illustrate the balance before and after matching for the ENG and ESL accelerated cohorts, the ENG and ESL PSM baselines, and the Latinx ENG and ESL accelerated and baseline subgroups. The left side of the histograms (i.e., raw treated and raw control) show the large differences, both visually and numerically, between the groups before propensity score matching. The right side of the histograms (i.e., matched treated and matched control) demonstrate the close match, both visually and numerically, between the groups after propensity score matching was conducted (Randolph et al., 2014).
Figure 6. Histogram of ENG Baseline: Before and After Propensity Score Matching
Figure 7. Histogram of ESL Baseline: Before and After Propensity Score Matching
Figure 8. Histogram of Latinx ENG Baseline: Before and After Propensity Score Matching
Limitations

One limitation of this study was its focus on one of the thirteen high-impact practices, acceleration or fast track developmental education, discussed in the theoretical framework (CCCSE, 2014). Although the high-impact practice of an accelerated developmental path has been found to improve retention and persistence rates, other high-impact practices that were
incorporated in the Title V Project Accel program may have also influenced student success. The decision to exclude the other high-impact practices was due to: a) the availability of the institutional data for the ENG and ESL baselines, and b) the other high-impact practices incorporated more non-cognitive factors such as academic and interpersonal validation (Rendón, 1994), socio-cultural fit (Crisp & Nora, 2009), involvement in activities (Kuh, 2009), goal realization (Kuh, 2009) and supportive campus involvement (CCCSE, 2012, 2014).

The second limitation of the study was related to demographic data (e.g., age, gender, and race/ethnicity) that was missing or unknown for some students in the Title V ENG and ESL cohorts and ENG and ESL baselines. Access to this information was dependent on the student voluntarily providing it on the admissions application. However, since SCC is a community college with a mission of open access, students are not required to provide this information to gain admission to the college. After the institutional data was obtained, a number of cases were excluded from the data analysis due to missing values in the variables of interest. This resulted in a reduced sample size and limited generalizability of the results.

A third limitation of the study relates to the inherent limitation of propensity score matching, a statistical method which relies on the Conditional Independence Assumption (Heinrich, Maffioli & Vazquez, 2010). This assumption states that there is a defined set of covariates that are observable to the researcher, and, once the researcher controls for these variables, the data is “as good as random” (Heinrich et al., 2010). While it is possible to correlate observable variables, such as cumulative GPA, to unobservable variables, such as motivation, it is not possible to directly measure such unobservable factors.

A fourth limitation of the study was its exclusion of the part-time student population. At SCC, approximately 27.1% of the new student population were first-time, full-time, and, only
44.8% of the overall student population was enrolled full-time. Thus, the majority of the student population at SCC was enrolled part-time (55.2%). Due to the Title V program requirements, part-time students were not included in the Title V ENG and ESL accelerated cohorts, and the ENG and ESL baseline students.

Lastly, as a single case study, the findings of this study cannot be generalized to an entire population or applied to the effect of participation in a Title V program on Latinx student success. The findings from this study contributed to the existing literature and provided further discussion on student success as it relates to participation in a federal or state program for underrepresented student populations. To expand the sample size for data analysis, multi-site participation could provide for more comprehensive findings to generalize across institutions.
CHAPTER IV
RESULTS

The purpose of this study was to examine the effect of participation in a Title V accelerated developmental English and ESL paths on Latinx student success measured by academic performance, fall to fall retention, and persistence at a comprehensive community college. As discussed in Chapter 3, the study included four years of student data from a Title V program at a community college in the mid-Atlantic region. The results of this study are based on the analysis of demographic and academic data from the Title V ENG and ESL accelerated cohorts and the ENG and ESL PSM baselines. For this analysis, the cohorts were compared in the following ways: ENG accelerated cohort and ENG PSM baseline, Latinx ENG accelerated cohort and Latinx ENG PSM baseline, ESL accelerated cohort and ESL PSM baseline, Latinx ESL accelerated cohort and Latinx ESL PSM baseline. Chapter 4 provides the results of the study in response to the research questions.

Descriptive Analysis

Demographic Variables

ENG accelerated cohort vs. ENG PSM baseline. Table 3 displays the demographic data for the ENG accelerated cohort \( (N = 319) \) and the ENG PSM baseline \( (N = 319) \). The table includes the following categorical variables: financial aid, gender, race/ethnicity and county residency status.

For the dichotomous variable of financial aid, the percentage of the ENG accelerated cohort and the ENG PSM baseline who received aid was the same (82%). Males accounted for 49% of the ENG accelerated cohort and 48% of the ENG PSM baseline. Regarding race/ethnicity, the ENG accelerated cohort was represented by the following groups:
Hispanic/Latinx (41%), Black or African American (35%), Asian (3%), White (11%), Hawaiian/Pacific Islander (1%), and Unknown (9%). The ENG baseline has a lower proportion of Hispanic/Latinx (33%), followed by Black or African American (31%), White (22%), Unknown (9%, and Asian (2%). The ENG PSM baseline included: Hispanic/Latinx (42%), Black or African American (34%), Asian (3%), White (11%), and Unknown (9%). Lastly, the majority of the ENG accelerated cohort lived in-county (87%) vs. out of county (13%). Similarly, 86% of the ENG PSM baseline lived in-county vs. 14% of the ENG PSM baseline who lived out of county.
### Table 3

*Categorical Variables (N = 319)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>ENG Accel</th>
<th>ENG PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Aid</td>
<td>82%</td>
<td>82%</td>
</tr>
<tr>
<td>Male</td>
<td>49%</td>
<td>48%</td>
</tr>
<tr>
<td>Female</td>
<td>51%</td>
<td>52%</td>
</tr>
<tr>
<td>Unknown</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Hispanic/Latinx</td>
<td>41%</td>
<td>42%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>35%</td>
<td>34%</td>
</tr>
<tr>
<td>Asian</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>White</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>Hawaiian/Pacific Islander</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Non-Resident Alien</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Unknown</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>In-County Resident</td>
<td>87%</td>
<td>86%</td>
</tr>
<tr>
<td>Out of County</td>
<td>13%</td>
<td>14%</td>
</tr>
</tbody>
</table>

**Latinx ENG accelerated cohort vs. Latinx ENG PSM baseline.** Table 4 displays the demographic data for the Latinx ENG accelerated cohort (N= 130) and the Latinx ENG PSM baseline (N= 130). The table includes the following demographic variables: financial aid, gender, race/ethnicity and county residency status.
For the dichotomous variable of financial aid (Yes/No), 87% of the Latinx ESL accelerated cohort and the Latinx ESL PSM baseline received financial aid. More than half of Latinx ENG accelerated cohort and Latinx ENG PSM baselines were female (58% vs. 42% and 59% vs. 41%). Lastly, the same percentage of the Latinx ENG accelerated cohort and the Latinx ENG PSM baseline lived in-county (90%) and out of county (10%).

Table 4

*Categorical Variables (N = 130)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Latinx ENG Accel</th>
<th>Latinx ENG PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Aid</td>
<td>87%</td>
<td>87%</td>
</tr>
<tr>
<td>Male</td>
<td>42%</td>
<td>41%</td>
</tr>
<tr>
<td>Female</td>
<td>58%</td>
<td>59%</td>
</tr>
<tr>
<td>Hispanic/Latinx</td>
<td>41%</td>
<td>42%</td>
</tr>
<tr>
<td>In-County</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Out of County</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>

ESL accelerated vs. ESL PSM baseline. Table 5 displays the descriptive analysis of the demographic variables for the ESL accelerated cohort (N = 76) and the ESL PSM baseline (N = 76). The table includes the following demographic variables: financial aid, gender, race/ethnicity and county residency status.

For the dichotomous variable of financial aid (Yes/No), the majority of the ESL accelerated cohort (80%) and the ESL PSM baseline (76%) received financial aid. The ESL accelerated cohort was comprised of 26% male and 74% female in comparison to the ESL PSM baseline of 25% male and 75% female. Regarding race/ethnicity, the ESL accelerated cohort was represented by the following groups: Hispanic/Latinx (34%), Black or African American (18%),
Asian (8%), White (9%), Non-Resident Alien (9%), and Unknown (20%). Hispanic/Latinx students made up a larger proportion of the ESL PSM baseline (46%), followed by Unknown (30%). Black or African American (8%), Asian (4%), White (5%), Non-Resident Alien (7%). Lastly, the same percentage of the ESL accelerated cohort and the ESL PSM baseline lived in-county (92%).

Table 5

*Categorical Variables (N = 76)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>ESL Accel</th>
<th>ESL PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Aid</td>
<td>80%</td>
<td>76%</td>
</tr>
<tr>
<td>Male</td>
<td>26%</td>
<td>25%</td>
</tr>
<tr>
<td>Female</td>
<td>74%</td>
<td>75%</td>
</tr>
<tr>
<td>Hispanic/Latinx</td>
<td>34%</td>
<td>46%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>18%</td>
<td>8%</td>
</tr>
<tr>
<td>Asian</td>
<td>8%</td>
<td>4%</td>
</tr>
<tr>
<td>White</td>
<td>9%</td>
<td>5%</td>
</tr>
<tr>
<td>Non-Resident Alien</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>Unknown</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>In-County Resident</td>
<td>92%</td>
<td>92%</td>
</tr>
<tr>
<td>Out of County</td>
<td>8%</td>
<td>8%</td>
</tr>
</tbody>
</table>
**Latinx ESL accelerated cohort vs. Latinx ESL PSM baseline.** Table 6 displays the demographic data for the Latinx ESL accelerated cohort \((N = 26)\) and the Latinx ESL PSM baseline \((N = 26)\). The table includes the following demographic variables: financial aid, gender, race/ethnicity and county residency status.

For the dichotomous variable of financial aid (Yes/No), 88% of the Latinx ESL accelerated cohort and the Latinx ESL PSM baseline received financial aid. The majority of the Latinx ESL accelerated cohort and Latinx ESL PSM baselines were female \((73\% \text{ vs. } 27\% \text{ and } 77\% \text{ vs. } 23\%)\). Lastly, 96% of the Latinx ESL accelerated cohort lived in-county and 4% out of county, compared to 100% of the Latinx ESL PSM baseline with in-county residence status.

Table 6

<table>
<thead>
<tr>
<th>Categorical Variables ((N = 26))</th>
<th>Latinx ESL</th>
<th>Latinx ESL PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Aid</td>
<td>88%</td>
<td>88%</td>
</tr>
<tr>
<td>Male</td>
<td>27%</td>
<td>23%</td>
</tr>
<tr>
<td>Female</td>
<td>73%</td>
<td>76%</td>
</tr>
<tr>
<td>Hispanic/Latinx</td>
<td>34%</td>
<td>46%</td>
</tr>
<tr>
<td>In-County Resident</td>
<td>96%</td>
<td>100%</td>
</tr>
<tr>
<td>Out of County</td>
<td>4%</td>
<td>___</td>
</tr>
</tbody>
</table>
Does Participation in a Title V’s Accelerated Path Affect Academic Performance?

**ENG accelerated cohort vs. ENG PSM baseline.** Tables 7-8 display the descriptive analysis of the outcome variables: developmental English success rate (percentage of first attempt grades of C or better in the developmental English courses); developmental English completion rate (percentage of first attempt grades of D or better in the developmental English courses); average first attempt grades in developmental English; average first attempt grades in college level ENG/SOC/PSY; cumulative GPA; and academic standing for the ENG accelerated and Latinx ENG accelerated cohorts and the ENG PSM and Latinx ENG PSM baselines.

The ENG accelerated cohort success rate was 76.7% ($SD = 0.389$) compared to the ENG PSM baseline’s success rate of 61.44% ($SD = 0.440$). For the Latinx ENG accelerated cohort and the Latinx ENG PSM baseline, the success rate was 78.8% ($SD = 0.383$) and 60.4% ($SD = 0.441$). Both the ENG accelerated and the Latinx ENG accelerated cohorts had a higher success rate than the ENG PSM and Latinx ENG PSM baselines indicating that participation in the accelerated developmental English path had a positive effect on the students’ success rate.

The ENG accelerated cohort completion rate of 83.1% ($SD = 0.365$) was considerably higher than the completion rate for the ENG PSM baseline at 66.1% ($SD = 0.429$). The Latinx ENG accelerated cohort also completed at a higher rate (81.2%) than the Latinx ESL PSM baseline (64.0%). Therefore, participation in the accelerated English path had a positive effect on the completion rate for the ENG accelerated and the Latinx ENG accelerated cohorts compared to the ENG PSM and Latinx ENG PSM baselines.

For the ENG accelerated cohort and the ENG PSM baseline, the average first attempt grades in the developmental English course sequence was analyzed and found to be greater for the ENG accelerated and Latinx ENG accelerated cohorts compared to the ENG PSM and Latinx
ENG PSM baselines. For the ENG accelerated cohort, the average first attempt grades in the accelerated developmental English courses was higher ($M = 2.51$, $SD = 1.30$) compared to the ENG PSM baseline average first attempt grades in the non-accelerated developmental ENG courses ($M = 1.96$, $SD = 1.14$). The Latinx ENG accelerated cohort and the Latinx ENG PSM baseline had average first attempt grades in the developmental English course sequence of 2.48 ($SD = 1.35$) and 1.96 ($SD = 1.34$).

Although 92% of the ENG accelerated cohort attempted and completed a college level ENG/PSY/SOC course compared to 80% of the ENG PSM baseline, the average first attempt grades for the ENG accelerated cohort ($M = 2.22$, $SD = 1.18$) was lower than the ENG PSM baseline ($M = 2.29$, $SD = 1.19$). For the Latinx ENG accelerated cohort ($n=130$), 119 students or 92% attempted and completed a college level ENG/PSY/SOC course with average first attempt grades of 2.23 ($SD = 1.20$) whereas 108 students or 83% of the Latinx ENG baseline ($n = 130$) attempted and completed a college level ENG/PSY/SOC course with average first attempt grades of 2.29 ($SD = 1.14$). Similar to the completion rate and developmental ENG grade data, these results revealed that participation in the Title V accelerated English path had a positive effect on the percentage of ENG accelerated and Latinx ENG accelerated cohort students who attempted and completed a college level ENG/PSY/SOC course compared to the ENG PSM and Latinx ENG PSM baselines.

The ENG accelerated and Latinx ENG accelerated cohorts had a higher mean cumulative GPA than the ENG PSM and Latinx ENG PSM baselines. The mean cumulative GPA for the ENG accelerated cohort was 2.47 ($SD = 1.28$) compared to 2.19 ($SD = 1.13$) for the ENG PSM baseline. For the Latinx ENG accelerated cohort and the Latinx ENG PSM baseline, the mean cumulative GPA was 2.44 ($SD = 1.29$) and 2.27 ($SD = 1.05$). The results revealed that
participation in the Title V accelerated English path had a positive effect on cumulative GPA for the ENG accelerated and Latinx ENG accelerated cohorts compared to the ENG PSM and Latinx ENG PSM baselines.

The academic standing variable was categorized as: Honors, Good Standing, Probation, Dismissed, and Drop-out. The ENG accelerated and Latinx ENG accelerated cohorts had higher percentages of students at theHonors and Good Standing categories than the ENG PSM and Latinx ENG PSM baselines. In contrast, the ENG PSM and Latinx ENG PSM baselines had higher percentages of students at theProbation and Drop-out categories. Almost two-thirds of the ENG accelerated cohort (65%) maintained good standing or honors compared to 46% of the ENG PSM baseline in Good Standing or Honors. The percentage of ENG accelerated students who dropped out was 4% compared with 21% Drop-out for the ENG PSM baseline group. The Latinx ENG accelerated had an academic standing of: 2% Honors, 57% Good Standing, 35% Probation, 0% Dismissed and 6% Drop-out. The Latinx PSM baseline’s academic standing was: 8% Honors, 39% Good Standing, 24% Probation, 4% Dismissed and 25% Drop-out. Therefore, participation in the Title V accelerated English path had a positive effect on academic standing for the ENG accelerated and Latinx ENG accelerated cohorts, especially on the lower Drop-out rates for the cohorts who participated in the program.
Table 7

*Continuous Variables (N = 319)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>ENG Accel</th>
<th>ENG PSM Baseline</th>
<th>ENG Accel</th>
<th>ENG PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>Dev. ENG Success Rate (% C or better)</td>
<td>78.7%</td>
<td>3.89</td>
<td>61.4%</td>
<td>4.40</td>
</tr>
<tr>
<td>Dev. ENG Completion Rate (% D or better)</td>
<td>83.1%</td>
<td>3.65</td>
<td>66.1%</td>
<td>4.29</td>
</tr>
<tr>
<td>Avg. First Attempt Grades</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dev. ENG</td>
<td>2.52</td>
<td>1.30</td>
<td>1.97</td>
<td>1.14</td>
</tr>
<tr>
<td>Avg. First Attempt Grades</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG/PSY/SOC</td>
<td>2.23</td>
<td>1.18</td>
<td>2.30</td>
<td>1.96</td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td>2.48</td>
<td>1.28</td>
<td>2.20</td>
<td>1.13</td>
</tr>
</tbody>
</table>

*Categorical Variables (N = 319)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>ENG Accel</th>
<th>ENG PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>Honors</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>Good Standing</td>
<td>63%</td>
<td>39%</td>
</tr>
<tr>
<td>Probation</td>
<td>31%</td>
<td>28%</td>
</tr>
<tr>
<td>Dismissed</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>Drop-out</td>
<td>4%</td>
<td>21%</td>
</tr>
</tbody>
</table>
### Continuous Variables (N = 130)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Latinx ENG Accel</th>
<th>Latinx ENG PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>Dev. ENG Success Rate (% C or better)</td>
<td>78.8%</td>
<td>3.89</td>
</tr>
<tr>
<td>Dev. ENG Completion Rate (% D or better)</td>
<td>81.2%</td>
<td>3.75</td>
</tr>
<tr>
<td>Avg. First Attempt Grades Dev. ENG</td>
<td>2.48</td>
<td>1.35</td>
</tr>
<tr>
<td>Avg. First Attempt Grades ENG/PSY/SOC</td>
<td>2.24</td>
<td>1.20</td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td>2.44</td>
<td>1.30</td>
</tr>
</tbody>
</table>

### Categorical Variables (N = 130)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Latinx ENG Accel</th>
<th>Latinx ENG PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>Honors</td>
<td>2%</td>
<td>8%</td>
</tr>
<tr>
<td>Good Standing</td>
<td>57%</td>
<td>39%</td>
</tr>
<tr>
<td>Probation</td>
<td>35%</td>
<td>25%</td>
</tr>
<tr>
<td>Dismissed</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>Drop-out</td>
<td>6%</td>
<td>25%</td>
</tr>
</tbody>
</table>

**ESL accelerated vs. ESL PSM baseline.** Tables 9-10 include the descriptive analysis of the outcome variables: ESL success rate (percentage of first attempt grades of C or better in the
ESL courses); ESL completion rate (percentage of first attempt grades of D or better in the ESL courses); average first attempt grades in ESL; average first attempt grades in college level ENG/SOC/PSY; cumulative GPA; and academic standing for the ESL accelerated and Latinx ESL accelerated cohorts and the ESL PSM and Latinx ESL PSM baselines.

The ESL accelerated cohort success rate was 93.9% ($SD = 0.202$) compared to the ESL PSM baseline’s success rate of 58.2% ($SD = 0.315$). For the Latinx ESL accelerated cohort and the Latinx ESL PSM baseline, the success rate was 88.5% ($SD = 0.297$) and 54.8% ($SD = 0.346$). Both the ESL accelerated and the Latinx ESL accelerated cohorts had a higher success rate than the ESL PSM and Latinx ESL PSM baselines indicating that participation in the accelerated ESL path had a positive effect on the students’ success rate.

The ESL accelerated cohort completion rate of 96.1% ($SD = 0.172$) was distinctively higher than the completion rate for the ESL PSM baseline at 62.5% ($SD = 0.354$). The Latinx ESL accelerated cohort also completed at a higher rate (91%) than the Latinx ESL PSM baseline (60.6%). Therefore, participation in the accelerated ESL path had a positive effect on the completion rate for the ESL accelerated and the Latinx ESL accelerated cohorts compared to the ESL PSM and Latinx ESL PSM baselines.

For the ESL accelerated cohort and the ESL PSM baseline, the average first attempt grades in the ESL course sequence was analyzed and found to be greater for the ESL accelerated and Latinx ESL accelerated cohorts compared to the ESL PSM and Latinx ESL PSM baselines. For the ESL accelerated cohort, the average first attempt grades in the accelerated ESL courses was higher ($M = 3.28, SD = 0.805$) than the ESL PSM baseline average first attempt grades in the non-accelerated ESL courses ($M = 2.51, SD = 1.17$). The Latinx ESL accelerated cohort and
the Latinx ESL PSM baseline had average first attempt grades in the ESL course sequence of 3.23 (SD = 1.14) and 2.34 (SD = 1.29).

For the ESL accelerated cohort (n = 76), 67 students or 88% attempted and completed a college level ENG/PSY/SOC course with average first attempt grades of 3.32 (SD = 0.733) whereas 40 students or 53% of the ESL PSM baseline (n = 76) attempted and completed a college level ENG/PSY/SOC course with average first attempt grades of 2.57 (SD = 0.998). For the Latinx ESL accelerated cohort (n = 26), 22 students or 85% attempted and completed a college level ENG/PSY/SOC course with average first attempt grades of 3.41 (SD = 0.934). The Latinx ESL baseline (n = 26) had 14 students or 54% attempt and complete a college level ENG/PSY/SOC course with average first attempt grades of 2.37 (SD = 1.19). The average first attempt grades for college level ENG/PSY/SOC were higher for the ESL accelerated and Latinx ESL accelerated cohorts compared to the ESL PSM and Latinx ESL PSM baselines.

The ESL accelerated and Latinx ESL accelerated cohorts had a higher mean cumulative GPA than the ESL PSM and Latinx ESL PSM baselines. The mean cumulative GPA for the ESL accelerated cohort was 2.91 (SD = 1.16) compared to 1.44 (SD = 1.50) for the ESL PSM baseline. For the Latinx ESL accelerated cohort and the Latinx ESL PSM baseline, the mean cumulative GPA was 2.94 (SD = 1.38) and 1.57 (SD = 1.49). These results revealed that participation in the Title V accelerated ESL path had a positive effect on cumulative GPA for the ESL accelerated and Latinx ESL accelerated cohorts compared to the ESL PSM and Latinx ESL PSM baselines.

The academic standing variable was categorized as: Honors, Good Standing, Probation, Dismissed, and Drop-out. The ESL accelerated and Latinx ESL accelerated cohorts had higher percentages of students at the Honors and Good Standing categories than the ESL PSM and
Latinx ESL PSM baselines. In contrast, the ESL PSM and Latinx ESL PSM baselines had higher percentages of students at the *Probation* and *Drop-out* categories. More than half of the ESL accelerated cohort (54%) maintained Good Standing followed by 33% Honors compared with 25% in good standing for the ESL PSM baseline. The percentage of ESL accelerated students who dropped out was 11% compared with 29% *Drop-out* for the ESL PSM baseline group. For the Latinx ESL accelerated cohort, the academic standing was: 42% Honors, 46% Good Standing, no Probation, 4% Dismissed and 8% *Drop-out*. The Latinx PSM baseline’s academic standing was: 8% Honors, 19% Good Standing, 31% Probation, 12% Dismissed and 31% *Drop-out*. As a result, the findings revealed that participation in the accelerated ESL path had a positive effect on academic standing for the ESL accelerated and Latinx ESL accelerated cohorts.
Table 9

*Continuous Variables (N = 76)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>ESL Accel</th>
<th></th>
<th>ESL PSM Baseline</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>ESL Success Rate (% C or better)</td>
<td>93.9%</td>
<td>2.02</td>
<td>58.2%</td>
<td>3.15</td>
</tr>
<tr>
<td>ESL Completion Rate (% D or better)</td>
<td>96.1%</td>
<td>1.72</td>
<td>62.5%</td>
<td>3.15</td>
</tr>
<tr>
<td>Avg. First Attempt Grades in ESL</td>
<td>3.28</td>
<td>0.81</td>
<td>2.37</td>
<td>1.10</td>
</tr>
<tr>
<td>Avg. First Attempt Grades ENG/PSY/SOC</td>
<td>3.33</td>
<td>0.73</td>
<td>2.58</td>
<td>1.00</td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td>2.91</td>
<td>1.16</td>
<td>1.46</td>
<td>1.50</td>
</tr>
</tbody>
</table>

*Categorical Variables (N = 76)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>ESL Accel</th>
<th></th>
<th>ESL PSM Baseline</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td></td>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>Honors</td>
<td>33%</td>
<td></td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Good Standing</td>
<td>54%</td>
<td></td>
<td>42%</td>
<td></td>
</tr>
<tr>
<td>Probation</td>
<td>1%</td>
<td></td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Dismissed</td>
<td>1%</td>
<td></td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Drop-out</td>
<td>11%</td>
<td></td>
<td>19%</td>
<td></td>
</tr>
</tbody>
</table>
Table 10

Continuous Variables ($N = 26$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Latinx ESL Accel</th>
<th>Latinx ESL PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std.Dev.</td>
</tr>
<tr>
<td>ESL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Success Rate (% C or better)</td>
<td>88.5%</td>
<td>2.97</td>
</tr>
<tr>
<td>ESL Completion Rate (% D or better)</td>
<td>91.0%</td>
<td>2.76</td>
</tr>
<tr>
<td>Avg. First Attempt Grades in ESL</td>
<td>3.23</td>
<td>1.14</td>
</tr>
<tr>
<td>Avg. First Attempt Grades ENG/PSY/SOC</td>
<td>3.40</td>
<td>0.93</td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td>2.94</td>
<td>1.38</td>
</tr>
</tbody>
</table>

Categorical Variables ($N = 26$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Latinx ESL Accel</th>
<th>Latinx ESL PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>Honors</td>
<td>42%</td>
<td>8%</td>
</tr>
<tr>
<td>Good Standing</td>
<td>46%</td>
<td>19%</td>
</tr>
<tr>
<td>Probation</td>
<td>0%</td>
<td>31%</td>
</tr>
<tr>
<td>Dismissed</td>
<td>4%</td>
<td>12%</td>
</tr>
<tr>
<td>Drop-out</td>
<td>8%</td>
<td>31%</td>
</tr>
</tbody>
</table>
Does Participation in a Title V’s Accelerated Path Affect Persistence and Retention?

ENG accelerated cohort vs. ENG PSM baseline. Tables 11-12 include the persistence and retention rates for the ENG accelerated and Latinx ENG accelerated cohorts and the ENG PSM and Latinx ENG PSM baselines. In addition, Tables 11-12 include the percentage of students in the ENG accelerated and Latinx ENG accelerated cohorts and ENG PSM and Latinx ENG PSM baselines who attempted and earned college level credits in the most highly enrolled general education courses (ENG/PSY/SOC). These percentages were discussed in the previous section in conjunction with the average first attempt grades in college level ENG/PSY/SOC.

For the ENG accelerated and the Latinx ENG accelerated cohorts, the persistence rates were positively affected by participation in the accelerated developmental ENG path in comparison to the ENG PSM and Latinx ENG PSM baselines. The persistence rate for the ENG accelerated cohort was 81.5% and 55.8% for the ENG PSM baseline. For the Latinx ENG accelerated cohort and the Latinx ENG PSM baseline, the persistence rates were 78.5% and 53.1%.

Next, the fall to fall retention rates for the ENG accelerated and Latinx ENG accelerated cohorts were found to be slightly higher than the fall to fall retention rates of the ENG PSM and Latinx ENG baselines. Although this result does not show a sizeable difference, participation in the ENG accelerated path still indicates a positive effect on the ENG accelerated and Latinx ENG accelerated cohorts. The fall to fall retention rates for the ENG accelerated cohort and the ENG PSM baselines were 64.9% and 63.0%. The Latinx ENG accelerated cohort had a fall to fall retention rate of 60.8% in comparison to 59.2% for the Latinx ENG PSM baseline.
Table 11

**Dependent Variables (N = 319)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>ENG Accel</th>
<th>ENG PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence</td>
<td>81.5%</td>
<td>55.8%</td>
</tr>
<tr>
<td>Fall to Fall Retention</td>
<td>64.9%</td>
<td>63.0%</td>
</tr>
<tr>
<td>% of Cohort Who Attempted College Level Courses</td>
<td>92.5%</td>
<td>79.6%</td>
</tr>
</tbody>
</table>

Table 12

**Dependent Variables (N = 130)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Latinx ENG Accel</th>
<th>Latinx ENG PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence</td>
<td>78.5%</td>
<td>53.1%</td>
</tr>
<tr>
<td>Fall to Fall Retention</td>
<td>60.8%</td>
<td>59.2%</td>
</tr>
<tr>
<td>% of Cohort Who Attempted College Level Courses</td>
<td>91.5%</td>
<td>82.4%</td>
</tr>
</tbody>
</table>

**ESL accelerated vs. ESL PSM baseline.** Table 13-14 include the persistence and retention rates for the ESL accelerated and Latinx ESL accelerated cohorts and the ESL PSM and Latinx ESL PSM baselines. In addition, the table includes the percentage of students in the
ESL accelerated and Latinx ESL accelerated cohorts and ESL PSM and Latinx ESL PSM baselines who attempted and earned college level credits in the most highly enrolled general education courses (ENG/PSY/SOC). These percentages were discussed in the previous section in conjunction with the average first attempt grades in college level ENG/PSY/SOC.

For the ESL accelerated and the Latinx ESL accelerated cohorts, the persistence rates were positively affected by participation in the accelerated ESL path in comparison to the ESL PSM and Latinx ESL PSM baselines. The persistence rate for the ESL accelerated cohort was 93.4% and 26.3% for the ESL PSM baseline. For the Latinx ESL accelerated cohort and the Latinx ESL PSM baseline, the persistence rates were 88.5% and 30.8%.

Next, the fall to fall retention rates for the ESL accelerated and Latinx ESL accelerated cohorts were also found to be positively affected by participation in the accelerated ESL path in comparison to the ESL PSM and Latinx ESL baselines. The fall to fall retention rates for the ESL accelerated cohort and the ESL PSM baselines were 73.7% and 57.9%. The Latinx ESL accelerated cohort had a fall to fall retention rate of 73.1% in comparison to 50.0% for the Latinx ESL PSM baseline.
### Table 13

*Dependent Variables (N = 76)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>ESL Accel</th>
<th>ESL PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence</td>
<td>93.4%</td>
<td>26.3%</td>
</tr>
<tr>
<td>Fall to Fall Retention</td>
<td>73.7%</td>
<td>57.9%</td>
</tr>
<tr>
<td>% of Cohort Who Attempted College Level Courses</td>
<td>88.2%</td>
<td>52.6%</td>
</tr>
</tbody>
</table>

### Table 14

*Dependent Variables (N = 26)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Latinx ESL Accel</th>
<th>Latinx ESL PSM Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence</td>
<td>88.5%</td>
<td>30.8%</td>
</tr>
<tr>
<td>Fall to Fall Retention</td>
<td>73.1%</td>
<td>50.0%</td>
</tr>
<tr>
<td>% of Cohort Who Attempted College Level Courses</td>
<td>84.6%</td>
<td>53.8%</td>
</tr>
</tbody>
</table>
Results of Paired Two Sample T-Test

After propensity score matching was completed, paired two sample t-tests were conducted on the matched groups for the continuous variables: cumulative GPA, success rate and completion rate. Paired two sample t-test was selected to test the hypothesis because this statistical method is used to compare two sample means for different populations (e.g., ENG accelerated cohort vs. ENG PSM baseline) that have been matched to determine if the difference between the mean samples is statistically significant. The results were considered statistically significant if $p < 0.05$.

ENG Accelerated vs. ENG PSM Baseline

Cumulative GPA. Paired two sample t-tests were performed between the cumulative GPA means of the ENG accelerated cohort and the ENG PSM baseline. The results indicated that cumulative GPA was significantly higher for the ENG accelerated cohort ($M = 2.48$, $SD = 1.28$) than for the ENG PSM baseline ($M = 2.20$, $SD = 1.13$), $t(318) = -2.96, p < .001, d = 0.23$. In addition, the effect size value suggests a low practical significance. This result indicates that participation in this Title V program’s accelerated developmental English path positively affected academic success measured by cumulative GPA. The results also support findings from previous studies indicating that participation in a student support program leads to student success (Trowler, 2010; CCCSE, 2012, 2014; Tinto, 1987, 1993; Rendón, 1994; Acevedo-Gil et al., 2015; Hurtado et al., 2011).

Success rate. Paired two sample t-tests were conducted to analyze the difference in mean success rate (percentage of first attempt grades of a C or better in the developmental English
courses) between the ENG accelerated cohort and the ENG PSM baseline. The students in the ENG accelerated cohort had significantly higher success rates ($M = 78.7$, $SD = 3.89$) than the students in the ESL PSM baseline ($M = 61.4$, $SD = 4.40$), indicating that participation in the Title V program’s accelerated developmental English path positively affected success rates $t(318) = -5.67$, $p < .001$, $d = 4.16$). Further, the effect size value suggests very high practical significance. Based on prior studies conducted by the CCCSE, this result supports and adds to their findings that students who participate in an accelerated or fast track path are more likely to successfully complete at least one developmental course with a grade of C or better (CCCSE, 2014). Students who participated in the accelerated English path not only earned a grade of C or better in one of the accelerated developmental ENG courses, but they were also more likely (79%) than the ESL PSM baseline (61%) to earn a grade of C or better on the first attempt for each course in the developmental English sequence.

**Completion rate.** A paired two sample t-test was conducted to analyze the difference in mean completion rate (percentage of first attempt grades of D or better in the developmental English courses) between the ENG accelerated cohort and the ENG PSM baseline. The results indicated that completion rate was significantly higher for the ENG accelerated cohort ($M = 83.1$, $SD = 3.65$) than for the ENG PSM baseline ($M = 66.1$, $SD = 4.29$), $t(318) = -5.64$, $p < .001$, $d = 4.26$. In addition, Cohen’s effect size suggests very high practical significance. As expected, this result supports and adds to the findings from the CCCSE research that students who participate in an accelerated or fast-track developmental path are more likely to complete a developmental course (CCCSE, 2014). Students who participated in the accelerated developmental English path were not only more likely than the ENG PSM baseline to complete a one of the developmental English courses, but they were also more likely to complete the entire developmental English
sequence (83.1% vs. 66.1%), indicating that participation in the Title V program positively affected completion rate.

**Latinx ENG Accelerated vs. Latinx ENG PSM Baseline**

**Cumulative GPA.** A paired two sample t-test was conducted to analyze the difference in mean cumulative GPA between the Latinx ENG accelerated cohort and the Latinx ENG PSM baseline. The cumulative GPA was higher for the Latinx ENG accelerated cohort \( (M = 2.44, SD = 1.30) \) compared to the Latinx ENG PSM baseline \( (M = 2.27, SD = 1.05) \), \( t(129) = -1.14, p = 0.25, d = 0.14 \). Further, Cohen’s effect size suggests very low practical significance. Although the Latinx ENG accelerated cohort had a higher cumulative GPA (2.44) than the Latinx ENG baseline (2.27), due to the small sample size, the variance was too high to demonstrate statistical significance for cumulative GPA. Research shows that the better the cumulative GPA, the more confident Latinx students feel about being able to succeed in college (Nora & Crisp, 2009; Nora & Cabrera, 1996; Nora et al., 1996; Nora, 2004; Hu & St. John, 2001; Rendón et al., 2008)

**Success rate.** A paired two sample t-test was conducted to analyze the difference in mean success rate (percentage of first attempt grades of a C or better in the developmental English courses) between the Latinx ENG accelerated cohort and the Latinx ENG PSM baseline. The results indicated that success rate was significantly higher for the Latinx ENG accelerated cohort \( (M = 78.9, SD = 3.83) \) than for the Latinx ENG PSM baseline \( (M = 60.4, SD = 4.41) \), \( t(129) = -3.94, p < .001, d = 4.48 \). Further, the effect size suggests very high practical significance. As expected, this result supports and adds to the findings from the CCCSE research that students who participate in an accelerated or fast-track are more likely to complete a single developmental course (CCCSE, 2014). Latinx students who participated in the accelerated developmental English path were not only more likely to complete a developmental English course, but they
were also more likely to complete the entire developmental English sequence than the Latinx ESL PSM baseline (78.9% vs. 60.4%). This indicates that participation in the Title V program positively affected the student’s success rate. In addition, research shows that academic performance in the first year is the greatest predictor of Latinx students’ decision to leave college or persist (Nora & Crisp, 2009; Nora & Cabrera, 1996; Nora et al., 1996; Nora, 2004; Hu & St. John, 2001; Rendón et al., 2008).

Completion rate. A paired two sample t-test was conducted to analyze the difference in mean completion rate (percentage of first attempt grades of D or better in the developmental English courses) between the Latinx ENG accelerated cohort and the Latinx ENG PSM baseline. The results indicated that completion rate was significantly higher for the Latinx ENG accelerated cohort ($M = 81.2$, $SD = 3.75$) than for the Latinx ENG PSM baseline ($M = 64.0$, $SD = 4.30$), $t(129) = -3.66$, $p < .001$, $d = 4.25$. In addition, the effect size suggests very high practical significance. As expected, this result supports and adds to the findings from the CCCSE research that students who participate in an accelerated or fast-track developmental path are more likely to complete the developmental course (CCCSE, 2014). Latinx students who participated in the accelerated developmental English path were not only more likely than the ENG PSM baseline to complete a developmental English course, but they were also more likely to complete the entire developmental English sequence (81.2% vs. 64.0%), indicating that participation in the Title V program positively affected completion rate. In addition, research shows that academic performance in the first year is the greatest predictor of Latinx students’ decision to leave college or persist (Hu & St. John, 2001; Nora, 2004; Nora & Cabrera, 1996; Nora & Crisp, 2009; Nora et al., 1996; Rendón et al., 2008).
ESL Accelerated vs. ESL PSM Baseline

Cumulative GPA. Paired two sample t-tests were performed between the cumulative GPA means of the ESL accelerated cohort and the ESL PSM baseline. The cumulative GPA was significantly higher for the ESL accelerated cohort ($M = 2.91, SD = 1.16$) than for the ESL PSM baseline ($M = 1.45, SD = 1.50$), $t(75) = -6.93, p < .001, d = 1.10$. Further, the effect size suggests high practical significance. This result indicates that participation in this Title V program’s accelerated ESL path positively affected academic performance measured by cumulative GPA. The result also supports findings from previous studies that indicate that participation in a student support program leads to student success (Trowler, 2010; CCCSE, 2012, 2014; Tinto, 1987, 1993; Rendón, 1994; Acevedo-Gil et al., 2015; Hurtado et al., 2011).

Success rate. A paired two sample t-test was conducted to analyze the difference in mean success rate (percentage of first attempt grades of a C or better in the ESL courses) between the ESL accelerated cohort and the ESL PSM baseline. The results indicated that success rate was significantly higher for the ESL accelerated cohort ($M = 93.9, SD = 2.02$) than for the ESL PSM baseline ($M = 58.2, SD = 3.15$), $t(75) = -8.85, p < .001, d = 13.8$. In addition, the effect size suggests very high practical significance. This result supports and adds to the findings of prior studies conducted by CCCSE; students who participate in an accelerated or fast track path are more likely to successfully complete at least one developmental course with a grade of C or better (CCCSE, 2014). Students who participated in the accelerated ESL path not only earned a grade of C or better in one of the accelerated ESL courses, but they were more likely (93.9%) than the ESL PSM baseline (58.2%) to earn a grade of C or better on the first attempt for each course in the ESL sequence, indicating that participation in this Title V program positively affects success rate.
Completion rate. A paired two sample t-test was conducted to analyze the difference in mean completion rate (percentage of first attempt grades of D or better in the ESL courses) between the ESL accelerated cohort and the ESL PSM baseline. The results indicated that completion rate was significantly higher for the ESL accelerated cohort ($M = 96.1$, $SD = 1.72$) than for the ESL PSM baseline ($M = 62.5$, $SD = 3.15$), $t(75) = -8.41$, $p < .001$, $d = 13.8$. Further, the effect size suggests very high practical significance. As expected, this result supports and adds to the findings from the CCCSE research which found that students who participate in an accelerated or fast-track developmental path are more likely to complete a developmental course (CCCSE, 2014). This study found that students who participated in the accelerated ESL path were not only more likely than the ESL PSM baseline to complete a single ESL course, but they were also more likely to complete the entire ESL sequence (96.1% vs. 62.5%). This indicates that participation in this Title V program positively affected student completion rate.

Latinx ESL Accelerated vs. Latinx ESL PSM Baseline

Cumulative GPA. Paired two sample t-tests were performed between the cumulative GPA means of the Latinx ESL accelerated cohort and the Latinx ESL PSM baseline. The results of the paired two sample t-test indicated that cumulative GPA was significantly higher for the Latinx ESL accelerated cohort ($M = 2.94$, $SD = 1.38$) than for the Latinx ESL PSM baseline ($M = 1.57$, $SD = 1.49$), $t(25) = -3.04$, $p = 0.005$, $d = 0.96$. In addition, the effect size suggests high practical significance. This result confirms that participation in this Title V program’s accelerated ESL path positively affected Latinx academic performance measured by cumulative GPA. The result also supports findings from previous studies indicating that participation in a student support program leads to student success (Acevedo-Gil et al., 2015; CCCSE, 2012, 2014; Hurtado et al., 2011; Rendón, 1994; Tinto, 1987, 1993; Trowler, 2010).
**Success rate.** Paired two sample t-tests were conducted to analyze the difference in mean success rate (percentage of first attempt grades of a C or better in the ESL courses) between the Latinx ESL accelerated cohort and the Latinx ESL PSM baseline. The results indicated that the ESL accelerated cohort had a significantly higher success rate ($M = 88.5$, $SD = 2.97$) than the ESL PSM baseline ($M = 54.8$, $SD = 3.47$), $t(25) = -3.48$, $p = 0.002$, $d = 10.5$. Further, the effect size suggests very high practical significance. Based on findings from the CCCSE, this result supports and adds to their research that students who participate in an accelerated or fast track path are more likely to successfully complete at least one developmental course with a grade of C or better (CCCSE, 2014). Latinx students who participated in the accelerated ESL path not only earned a grade of C or better in one of the accelerated ESL courses, but they were also more likely (88.5%) than the ESL PSM baseline (54.8%) to earn a grade of C or better on the first attempt for each course in the ESL sequence, indicating that participation in this Title V program positively affected success rate.

**Completion rate.** A paired two sample t-test was conducted to analyze the difference in mean completion rate (percentage of first attempt grades of D or better in the ESL courses) between the Latinx ESL accelerated cohort and the Latinx ESL PSM baseline. The Latinx students in the ESL accelerated cohort ($M = 91.0$, $SD = 2.76$) had a significantly higher completion rate than the Latinx students in the ESL PSM baseline ($M = 60.6$, $SD = 3.62$), indicating that participation in the Title V program positively affected completion rates $t(25) = -3.28$, $p = 0.003$, $d = 9.55$. In addition, the effect size suggests very high practical significance. As expected, this result supports and adds to the findings from the CCCSE research that students who participate in an accelerated or fast-track developmental path are more likely to complete a developmental course (CCCSE, 2014). This study found that Latinx students who participated in
the accelerated ESL path were not only more likely than the Latinx ESL PSM baseline to complete a single ESL course, but they were also more likely to complete the entire ESL sequence (91.0% vs. 60.6%). This indicates that participation in this Title V program positively affected student completion rate.

**Pearson’s Chi-Squared Test Results**

Next, Pearson’s chi-squared test was selected to test whether or not the observed outcomes for persistence and fall to fall retention were independent of the student’s participation in the Title V program.

**ENG Accelerated vs. ENG PSM Baseline**

**Persistence.** A chi-squared test was performed to determine whether or not persistence was affected by participation in the Title V program’s accelerated developmental English path. The results of the chi-squared test indicate that students who participated in the Title V program’s accelerated developmental English path were significantly more likely to persist than the ENG PSM baseline students who did not participate in the program, $x^2 (1, N = 638, = 48.4, p < .001)$. Given the limited research on student persistence in community colleges (Attewell et al., 2006; Bailey, 2009; Levin & Calgano, 2007) and student support programs (CCCSE, 2012, 2014; Crisp & Nora, 2009; Kuh, 2008; Nora & Crisp, 2012; Trowler, 2010), this study contributes to the literature by providing evidence on student persistence for community college students who participated in traditional and accelerated developmental English courses.

**Fall to fall retention.** A chi-squared test was performed to determine whether or not fall to fall retention was affected by participation in the Title V program’s accelerated developmental English path. Although the ENG accelerated cohort had a slightly higher fall to fall retention rate (65%) than the ENG PSM baseline (63%), the results revealed that fall to fall retention was
not significantly affected by participation in the Title V program’s accelerated English path, \( x^2 (1, N = 638), = 0.25, p = 0.62 \). This finding reflects the variability in the existing research on student retention in developmental education (Crisp & Nora, 2009; Nora & Crisp, 2012). The research indicates that fall to fall retention may or may not affect student success for students enrolled in developmental education at community colleges. Due to non-academic factors, community college students often stop-out of college or switch enrollment status from full-time to part-time (Perez Huber et al., 2006). In addition, fall to fall retention may not be indicative of longer-term student success based on the other outcomes measured in this study (i.e., success rate; completion rate; and persistence).

**Latinx ENG Accelerated vs. Latinx ENG PSM Baseline**

**Persistence.** A chi-squared test was performed to determine whether or not Latinx student persistence was affected by participation in the Title V program’s accelerated developmental English path. The results of the chi-squared test indicate that Latinx students who participated in the Title V program’s accelerated developmental English path were significantly more likely to persist than the Latinx ENG PSM baseline students who did not participate in the program, \( x^2 (1, N = 260), = 229.1, p < .001 \). Given limited research on student persistence in community colleges (Attewell et al., 2006; Bailey, 2009; Levin & Calgano, 2007) and student support programs (CCCSE, 2012, 2014; Crisp & Nora, 2009; Kuh, 2008; Nora & Crisp, 2012; Trowler, 2010), this study contributes to the literature by providing evidence on student persistence for community college students who participated in traditional and accelerated developmental English courses.

**Fall to fall retention.** A chi-squared test was performed to determine whether or not Latinx fall to fall retention was affected by participation in the Title V program’s accelerated
developmental English path. The results indicate that Latinx students who participated in the Title V program’s accelerated developmental English path were significantly more likely to have a higher fall to fall retention rate than Latinx ENG PSM baseline students who did not participate in the program, $x^2(1, N = 260)$, $= 130.3$, $p < .001$). In addition, this result supports prior studies which found that high-impact practices positively affect student engagement and retention (CCCSE, 2012, 2014; Kuh et. al, 1991, 2005; Pascarella & Terenzini, 2005).

**ESL Accelerated vs. ESL PSM Baseline**

**Persistence.** A chi-squared test was performed to determine whether or not persistence was affected by participation in the Title V program’s accelerated ESL path. Students who participated in the Title V program’s accelerated ESL path were significantly more likely to persist than the ESL PSM baseline students who did not participate in the program, $x^2(1, N = 152)$, $= 71.2$, $p < .001$). Given the paucity of research on student persistence in community colleges (Attewell et al., 2006; Bailey, 2009; Levin & Calgano, 2007) and student support programs (CCCSE, 2012, 2014; Crisp & Nora, 2009; Kuh, 2008; Nora & Crisp, 2012; Trowler, 2010), this study makes a contribution to the research by providing evidence on student persistence for community college students who participated in traditional and accelerated ESL courses.

**Fall to fall retention.** A chi-squared test was performed to determine whether or not fall to fall retention was affected by participation in the Title V program’s accelerated ESL path. The results indicate that students who participated in the Title V program’s accelerated ESL path were significantly more likely to have a higher fall to fall retention rate than the ESL PSM baseline students who did not participate in the program, $x^2(1, N = 152)$, $= 6.16$, $p = 0.013$). In addition, this result supports prior studies which state that high-impact practices positively affect

**Latinx ESL Accelerated vs. Latinx ESL PSM Baseline**

**Persistence.** A chi-squared test was performed to determine whether or not Latinx student persistence was affected by participation in the Title V program’s accelerated ESL path. The results indicate that Latinx students who participated in the Title V program’s accelerated ESL path were significantly more likely to persist than Latinx ESL PSM baseline students who did not participate in the program, $x^2 (1, N = 52), = 18.0, p < .001$. Given the paucity of research on student persistence in community colleges (Attewell et al., 2006; Bailey, 2009; Levin & Calgano, 2007) and student support programs (CCCSE, 2012, 2014; Crisp & Nora, 2009; Kuh, 2008; Nora & Crisp, 2012; Trowler, 2010), this study contributes to the literature by providing evidence on student persistence for community college students who participated in traditional and accelerated ESL courses.

**Fall to fall retention.** A chi-squared test was performed to determine whether or not Latinx student fall to fall retention was affected by participation in the Title V program’s accelerated ESL path. The results revealed that fall to fall retention was marginally significant for Latinx students who participated in the Title V program’s accelerated ESL path than for Latinx ESL PSM baseline students who did not participate in the program, $x^2 (1, N = 52), = 2.93, p = 0.087$. Although fall to fall retention was only found to be marginally significant, 73.1% of the Latinx ESL accelerated cohort were retained compared to 50.0% of the Latinx ESL PSM baseline. In addition, this result supports prior studies which state that high-impact practices positively affect student engagement and retention (CCCSE, 2012, 2014; Kuh et. al, 1991, 2005; Pascarella & Terenzini, 2005).
Summary

This chapter examined the effect of participation in a Title V program’s accelerated developmental English and ESL paths on academic performance, persistence, and fall to fall retention. Paired-two sample t-tests were performed on the samples means for cumulative GPA, success rate and completion rate to determine if the differences between the means were statistically significant. The effect size suggested whether these differences had a very low, low, medium, high or very high practical significance. Out of the three academic performance measures, cumulative GPA was the least affected by participation in this Title V program’s developmental English path. However, the results did suggest high practical significance for the ESL accelerated and Latinx accelerated cohorts’ cumulative GPAs. Furthermore, participation in the Title V program’s accelerated developmental English and ESL paths had a very high practical significance on the results of success rate and completion rate for the ENG and ESL accelerated and Latinx ENG and ESL accelerated cohorts.

In addition, chi-squared tests were conducted to determine whether or not the observed outcomes for persistence and fall to fall retention were independent of the accelerated cohorts’ participation in the Title V program’s developmental English and ESL paths. Persistence was higher for the ENG and ESL accelerated and Latinx ENG and ESL accelerated cohorts compared to their baselines. This result was found to be statistically significant, indicating that participation in this Title V program positively affected persistence.

The chi-squared results for fall to fall retention differed from the results for persistence. Participation in the Title V program was not found to be statistically significant in affecting fall to fall retention for the ENG accelerated and Latinx ENG accelerated cohorts. Additionally, participation in the Title V program’s accelerated ESL path was found to be statistically
significant and marginally significant in affecting fall to fall retention for the ESL accelerated and Latinx ESL accelerated cohorts respectively.

Descriptive analysis was performed on academic standing, average first attempt grades in the developmental English and ESL courses, and the average first attempt grades in ENG/PSY/SOC. For academic standing, the results showed that the accelerated cohorts had a higher percentage of students in the Good Standing and Honors category levels than the baseline groups. Moreover, the accelerated cohorts had a lower percentage of students in the Drop-out category than the baseline groups, indicating that participation in this Title V program had a positive effect on academic standing.

The average first attempt grades in the developmental English and ESL courses were higher for the accelerated cohorts compared to their baselines. Yet, the results of the average first attempt grades in ENG/PSY/SOC varied. Although the ENG accelerated and Latinx ENG accelerated cohorts’ average first attempt grades were slightly lower than the ENG and Latinx ENG PSM baselines, the percentage of students in the ENG and Latinx ENG accelerated cohorts who attempted and completed a college level ENG/PSY/SOC course was higher (92.5% and 91.5%) than the ENG and Latinx ENG PSM baselines (79.6% and 82.4%).

For the ESL accelerated and Latinx ESL accelerated cohorts, the average first attempt grades in the ESL courses and ENG/PSY/SOC were higher than the ESL and Latinx ESL PSM baselines. In addition, the percentage of students in the ESL and Latinx ESL accelerated cohorts who attempted and completed a college level ENG/PSY/SOC course was greater (88.2% and 84.6%) than the ESL and Latinx ESL PSM baselines (52.6% and 53.8%).
CHAPTER V
CONCLUSION

Overview of the Study

The purpose of this study was to examine the effect of participation in a Title V program’s accelerated developmental English and ESL paths on Latinx student success. Specifically, the study aimed to determine if there is a difference in student success outcomes measured by academic performance, persistence, and fall to fall retention between the Title V accelerated ENG and ESL cohorts and the ENG and ESL baselines, using propensity score matching to address the issue of selection bias. The results provide insight into the short-term and long-term effects of participation in a Title V program at a mid-Atlantic community college on student success compared to students with similar characteristics who did not participate in the program. The study tested the hypothesis that participation in a Title V program’s accelerated developmental English and ESL paths positively affects students’ academic performance, persistence and fall to fall retention.

The following overarching research question guided the study:
What is the effect of a Title V program’s accelerated developmental English and ESL paths on students’ academic success at a community college?
More specifically, this study intended to answer the following main and sub-questions:

Main questions:

1. What is the effect of participation in the Title V accelerated developmental English and ESL paths on students’ academic performance measured by cumulative GPA, success rate in developmental English and ESL courses (percentage of first attempt grades of C or better in the developmental English and ESL courses), and completion rate (percentage of
first attempt grades of D or better in the developmental English and ESL courses) in comparison to students in the English and ESL baselines?

2. What is the effect of participation in the Title V accelerated developmental English and ESL path on students’ fall to fall retention in comparison to students in the English and ESL baselines?

3. What is the effect of participation in the Title V accelerated developmental English and ESL path on students’ persistence in comparison to students in the English and ESL baselines?

Sub-questions specifically aimed at examining the program’s effect on Latinx students:

1a. What is the effect of participation in the Title V accelerated developmental English and ESL paths on Latinx students’ academic performance measured by cumulative GPA, success rate in developmental English and ESL courses (percentage of first attempt grades of C or better in the developmental English and ESL courses), and completion rate (percentage of first attempt grades of D or better in the developmental English and ESL courses) in comparison to Latinx students in the English and ESL baselines?

2a. What is the effect of participation in the Title V accelerated developmental English and ESL path on Latinx students’ fall to fall retention in comparison to Latinx students in the English and ESL baselines?

3a. What is the effect of participation in the Title V accelerated developmental English and ESL path on Latinx students’ persistence in comparison to Latinx students in the English and ESL baselines?
Conceptual Framework

The conceptual model developed for this study drew from the most widely cited theories and models on student retention and persistence (Astin, 1984; Bean & Metzner, 1985; Braxton, 2000; Braxton & Lien, 2000; Braxton et al., 2004; Kuh, 1995, 2008; Pascarella & Terenzini, 1991, 2005; Tinto, 1975, 1987, 1993), and expands the focus beyond traditional student populations at four-year institutions to develop a framework which acknowledges the unique characteristics and experiences of non-traditional student populations at community colleges (Acevedo-Gil et al., 2015; Crisp & Nora, 2010; Hurtado et al., 2011; Nora & Crisp, 2009; Rendón, 1994). These models cited above provide a lens to understand how community college students experience and interact with their environments. The conceptual framework was informed by elements of these theories (i.e., students’ inputs such as demographics and background characteristics; informal and formal integration of the students into the college through participation in this Title V program; student involvement and engagement related to higher academic performance) as well as the research on the high-impact practice of accelerated paths in improving community college student success (CCCSE, 2012, 2014). This conceptual model included the new elements of participation in the Title V program’s accelerated developmental English and ESL paths; demographic variables (age, gender, race/ethnicity, receipt of financial aid, and in-county vs. out-of-county residency status); and student success variables such as completion rate, persistence and fall to fall retention.

Methods

The data for this study was compiled from a Title V program at Spring Community College located in the mid-Atlantic region of the United States. Institutional Research (IR) provided access to the raw student data for both the Title V participants and the comparison
baseline students. All student identifiers (e.g., student name and ID number) were removed and
coded prior to receiving the demographic and academic data from IR. The data was comprised of
two Title V cohorts (treatment group): ENG accelerated ($N=319$) and ESL accelerated ($N=76$)
enrolled in accelerated developmental English and ESL courses at the start of the fall terms
between fall 2013 and fall 2016. The data also included two comparative baselines (control
group), ENG PSM ($N=319$) and ESL PSM ($N=76$), enrolled in developmental English and
ESL courses at the start of the fall terms between fall 2009 and fall 2011. The Title V ENG
accelerated cohort and the ENG baseline included first-time, full-time students who placed into
developmental English courses (ENG 088 or 089 developmental reading I/II and ENG 098 or
ENG 099 developmental writing I/II) based on the Accuplacer college placement exam. The ESL
sample was comprised of full-time students who successfully exited level 4 ESL or placed into
level 5 ESL (of a six-level sequence) based on the college placement exam. In total, after
propensity score matching, the final analytic sample of the ENG accelerated cohort and ENG
PSM baseline sample was 319 and the final analytic sample of the ESL accelerated cohort and
ESL PSM baseline was 76.

This study included the following demographic variables: age, gender, race/ethnicity, in-
county vs. out-of-county resident, receipt of financial aid, and the independent variable,
participation in the Title V program. The first step in the data analysis was to perform the
descriptive statistics for the ENG and ESL accelerated cohorts, the ENG and ESL baselines and
the respective Latinx subgroups. Next, propensity score matching (PSM) was completed to
account for selection bias among the covariates. By balancing the distribution of the covariates,
the treatment group (Title V ENG and ESL participants) and the control group (ENG and ESL
PSM baseline students) were matched using R. Next, paired two sample t-tests were performed
on the matched groups for the different groups (treatment group vs. control group) to determine if the difference between the mean samples for cumulative GPA, success rate and completion rate were statistically significant. Lastly, chi-squared tests were conducted to test whether or not the observed outcomes for persistence and fall to fall retention were independent of the student’s participation in the Title V program.

Summary of the Findings

The following results provide evidence to support the use of the conceptual model and methodological approach to analyze the effects of participation in a Title V program on students’ academic performance, persistence and fall to fall retention.

Academic Standing

The findings on academic standing revealed that Latinx and all other students who participated in the Title V program’s accelerated developmental English and ESL paths were more likely to be in good standing than the ENG and ESL baselines students. Specifically, the most noticeable difference for students in good standing was between the Latinx ESL accelerated cohort (46%) and the Latinx ESL PSM baseline (19%) followed by the ENG accelerated cohort (63%) vs. the ENG PSM baseline (39%).

Another significant finding showed that students who participated in the Title V program’s accelerated developmental English and ESL paths were less likely to drop-out than those in the baseline groups. The most marked difference in drop-outs was between the Latinx ESL accelerated cohort (8%) and the Latinx ESL PSM baseline (31%) followed by the Latinx ENG accelerated cohort (6%) and the Latinx ENG PSM baseline (25%) confirming that participation in this Title V program had a positive effect on Latinx drop-out status.
For the Title V ENG cohorts, the overall percentage of students placed on probation was observed to be greater than the respective ENG PSM baseline students. The most noticeable gap was found between the Latinx ENG accelerated cohort and the Latinx ENG PSM baseline with a difference of 10%. However, the drop-out status for this same comparison group was observed to be 19% higher for the Latinx ENG PSM baseline. Therefore, while the Latinx ENG accelerated cohort had more students on probation, it is likely that participation in the Title V program prevented these same students from dropping out. For the ESL and Latinx ESL accelerated cohorts, fewer students dropped out (11% and 8%) compared to the percentage of drop-out students in the ESL and Latinx ESL PSM baselines (29% and 31%).

**Cumulative GPA**

The results from the paired two sample t-tests found that participation in this Title V program’s accelerated developmental English and ESL paths was statistically significant in positively affecting students’ cumulative GPA for the Latinx ESL accelerated, ESL accelerated and the ENG accelerated cohorts. Although the cumulative GPA for the Latinx ENG accelerated cohort was observed to be higher than the Latinx ENG baseline, the higher variance and small sample size made it difficult to demonstrate statistical significance. However, this result might be improved with a larger sample size in a future study.

**Success Rate**

The findings of the paired two sample t-tests found success rate to be statistically significant for all students who participated in the Title V program’s accelerated developmental English and ESL paths. It was observed that the students in the Title V program completed the accelerated developmental English and ESL courses with a higher percentage of first attempt
grades of a C or better in the course sequence than the ENG and ESL PSM baseline students.

The most salient differences were between the ESL accelerated ($M = 93.9\%$) and the ESL PSM baseline ($M = 58.2\%$), and between the Latinx ESL accelerated ($M = 88.5\%$) and the Latinx ESL PSM baseline ($M = 54.8\%$).

**Completion Rate**

Similarly, the paired two sample t-tests revealed that participation in the Title V program’s accelerated developmental English and ESL paths was found to be statistically significant and had a positive effect on completion rates for students in the accelerated cohorts. The students in the Title V program completed the accelerated developmental English and ESL courses with a higher percentage of first attempt grades of a D or better in the course sequence than students in the ENG and ESL PSM baselines. Overall, the differences between the Title V cohorts and the comparison baselines were: ENG accelerated and the ENG PSM baseline (17\%); the Latinx ENG accelerated cohort and the Latinx ENG baseline (17.2\%); the ESL accelerated cohort and the ESL PSM baseline (33.1\%); and the Latinx ESL accelerated cohort and the Latinx ESL PSM baseline (30.5\%).

**Persistence**

The findings of the chi-squared tests confirmed the hypothesis that participation in the Title V program’s accelerated developmental English and ESL paths positively affects persistence compared to persistence for students who did not participate in the program. More notably, the persistence rates differed vastly between the ENG and ESL accelerated cohorts and the ENG and ESL baselines further validating the hypothesis. Specifically, the difference between the ESL accelerated cohort and the ESL PSM baseline was 67.1\%, while the difference
between the Latinx ESL accelerated cohort and the Latinx ESL PSM baseline was 57.7%. Both
the ENG accelerated and Latinx ENG accelerated cohorts had more than a 25% greater
persistence rate than the comparative baselines.

**Fall to Fall Retention**

Chi-squared tests were performed to examine the effect of participation in the Title V
program on fall to fall retention. The findings concluded that fall to fall retention was not
indicative of student success in this Title V program. Although the accelerated cohorts had a
higher fall to fall retention rate than the baseline students, the difference between the groups was
not great enough to demonstrate statistical significance. For the accelerated cohorts and the
baselines, the fall to fall retention rates for all cohorts ranged between 59% and 65%, indicating
that both the accelerated and baseline students returned to SCC at similar rates.

However, an important distinction between the accelerated cohorts who participated in
the Title V program (treatment group) and the baseline students who did not participate in the
Title V program (control group) is that the accelerated cohorts returned to SCC the next fall with
their developmental and ESL course sequence completed. This finding is significant within the
broader context of research on retention as institutions should reflect beyond whether students
return to the institution the following academic year, and, instead, determine how the students
make progress academically. Institutions should investigate student success outcome differences
amongst the various student cohorts, and design academic programs to effectively address the
needs of individual student cohort.

**Discussion of Findings**

The findings of this study provide evidence that participation in this Title V program’s
accelerated developmental English and ESL paths positively affect student success. Specifically,
the findings contribute to the limited research on the short-term and long-term effects of Title V programs at community colleges and expand the research beyond more than one academic success outcome (i.e., academic performance- cumulative GPA, success rate and completion rate; persistence; and fall to fall retention). The findings from this study add to the literature and address the question of how effective these programs are in improving Latinx academic performance. By applying the conceptual model and methodological approach used in this study, institutions can examine the effect of participation in Title V programs on student success (Nora & Crisp, 2009). The following section provides a discussion of how the study’s findings are tied to the extant literature.

This study found that the students in the accelerated ENG and ESL cohorts had higher GPAs than their ENG and ESL PSM baseline counterparts. The results support findings from previous studies that participation in a student support program fosters academic success (Acevedo-Gil et al., 2015; CCCSE, 2012, 2014; Hurtado et al., 2011; Rendón, 1994; Tinto, 1987, 1993; Trowler, 2010). Prior research also indicates that the higher their cumulative GPA is, the more confident Latinx students feel about their ability to succeed in college (Hu & St. John, 2001; Nora, 2004; Nora & Cabrera, 1996; Nora & Crisp, 2009; Nora et al., 1996; Rendon et al., 2008). Therefore, Latinx students are more likely to succeed academically at a community college when they are provided with a structured academic support program which includes one or more of the high-impact practices (CCCSE, 2014).

This study also found that students who participated in the Title V program earned higher grades than the baseline students on the first attempt for each course in the developmental English or ESL sequence, indicating that participation in this Title V program positively facilitated academic performance. Therefore, this finding not only supports but also adds to the
findings of prior research conducted by CCCSE stating that students who participate in an accelerated or fast track path are more likely to successfully complete at least one developmental course with a grade of C or better (CCCSE, 2014). In addition, research shows that academic performance in the first year is the greatest predictor of Latinx students’ decision to leave college or persist (Hu & St. John, 2001; Nora, 2004; Nora & Cabrera, 1996; Nora & Crisp, 2009; Nora et al., 1996; Rendón et al., 2008). Both the Latinx ENG accelerated and Latinx ESL accelerated cohorts in this study had higher success rates and persistence rates than the Latinx students in the ENG PSM and ESL PSM baselines, providing further evidence indicating that strong academic performance in the first-year is critical to Latinx student persistence.

This study found that completion rate was higher for the Title V accelerated ENG and ESL cohorts compared to the ENG and ESL PSM baselines. As a result, this study confirms the findings from the CCCSE research which found that students who participate in an accelerated path or fast-track are more likely to complete a developmental course (CCCSE, 2014). This study found that students who participated in the accelerated English or ESL path were not only more likely than the baseline to complete a single course in the sequence, but they were also more likely to complete the entire course sequence.

Students who participated in the Title V program in this study were found to have higher persistence and fall to fall retention rates than the baseline groups. The findings in this study contribute to filling that gap by providing data on student persistence for community college students who participated in traditional and accelerated developmental English and ESL courses. In addition, this result reaffirms that high-impact practices positively affect student engagement and retention (CCCSE, 2012, 2014; Kuh et. al, 1991, 2005; Pascarella & Terenzini, 2005).
There is little evidence to date indicating that Title V programs have methodological rigor and soundness to empirically improve student success. This study informs the literature by providing evidence on the long-term effects on more than one academic success outcome (i.e., academic performance-cumulative GPA, success rate and completion rate, persistence and fall to fall retention), and utilizes propensity score matching as a methodological approach to examine the effectiveness of participation in the program on student success. It also provides a conceptual model which can be used for future studies, drawing from retention and persistence theories (Astin, 1984; Bean & Metzner, 1985; Braxton, 2000; Braxton & Lien, 2000; Braxton et al., 2004; Kuh, 1995; Pascarella & Terenzini, 1991, 2005; Tinto, 1975, 1987, 1993) and research on high-impact practices at community colleges (CCCSE, 2014). The use of this model, along with the methodological approach of propensity score matching, allows researchers to draw causal inferences by addressing the major issue of selection bias in the observational studies. Additionally, the findings of this study provide community colleges and four-year institutions, especially HSIs, with a framework for program design by incorporating high-impact practices such as accelerated or fast-track developmental paths or tutoring to improve student success.

**Implications for Policy and Practice**

**Implications for Title V Policy**

This study contributes to the scarcity of research on the effects of the Title V program on Latinx student success at a two-year Hispanic-Serving Institution. From a broader program perspective, the lack of methodological soundness and rigor in the annual program evaluation further complicates the issue of how, if at all, this federally funded program improves Latinx student success as intended by the program’s goals. Currently, the Title V DHSI program requires applicants to submit a logic model that includes: the project’s goals related to the
identified problem being addressed; the grant activities to address the problem; the measurable outcomes; and the short-term and long-term outputs. Although logic models are effective in the initial program design, without consistent program evaluation across all Title V projects, this larger issue of whether the Title V DHSI program is effective in Latinx student success still remains. The U.S. Department of Education should reconsider the format of the federal annual report to have grant recipients report quantitative data analysis related to student success outcomes in a similar manner as was done in this study that used propensity score matching or other methods to address causation in observational studies. This will provide the agency with the data to conduct an annual Title V DHSI program evaluation to determine the effectiveness of the program in improving Latinx student success. In addition, this evaluation process would provide the opportunity to utilize the data to determine if any adjustments need to be made to the overall program and its allowable activities to achieve the goal of improving Latinx student success.

Moreover, by applying propensity score matching, the individual institutions may be able to report more meaningful data to demonstrate how, if at all, their grant projects improved Latinx student success compared to Latinx students who did not participate in the project’s activities. This type of project evaluation would not only hold institutions more accountable in assessing how their projects are directly improving Latinx student success, but it also provides the institutions with opportunities to utilize the data to adjust the project’s activities to meet the intended goals. The federal annual reporting cycle should also include feedback from the institution’s federal program officer so the institution can make the adjustments to improve the project’s outcomes. Overall, using propensity score matching methodologically addresses the issue of selection bias when assessing the effect of a Title V grant program on improving Latinx
student success. The findings of the data analysis serve as evidence of the long-term effect of the program on student success and provides support for continued funding of the program by the federal government.

**Implications for Institutional Practices**

Based on the findings of this study, community colleges, especially HSIs, should utilize the conceptual model and the methodological approach from this study to measure the effectiveness for their specialized, cohort-based programs. More rigorous research design will guide institutions in assessing student success outcomes to implement changes to program elements and college policies to best meet the needs of the students. Additionally, institutions can use the theoretical framework from this study to identify high-impact practices to drive student success initiatives at the program and institutional levels.

The findings of this study also provide evidence that Latinx students are more likely to succeed academically when participating in a specialized program. This finding is significant for higher education institutions that enroll a large proportion of Latinx student population, and, especially important for institutional practices at HSIs and Emerging HSIs. This finding contributes to the existing research demonstrating how student-centered programs build a strong sense of belonging (Garcia & Ramirez, 2015; Rendón Linares & Munoz, 2011; Tovar, 2014) and improve Latinx student success (Crisp et al., 2015; Hurtado & Kamimura, 2003; Nora & Crisp, 2009; Rendon, 1994). By utilizing the theoretical framework in this study, institutions can implement programs and practices that incorporate the high-impact practices guided by the CCCSE research (CCCSE, 2012, 2014).

In addition, the findings revealed that all students who participated in the Title V program’s accelerated developmental English and ESL paths, regardless of race/ethnicity, were
more successful academically than the students who did not participate in the program. Even though the purpose of the study was to examine the effect of participation in a Title V program’s accelerated developmental English and ESL paths on Latinx student success, the data analysis confirmed that all students benefited from participation in the program’s accelerated developmental English and ESL paths. This study provides evidence that acceleration in developmental English and ESL does improve student success and supports the research from CCCSE on high-impact practices improving academic success at community colleges (CCCSE, 2012, 2014). Institutions should consider alternative pathways for developmental education and ESL through acceleration.

This study provided evidence supporting one of the thirteen high-impact practices, accelerated developmental education (CCCSE, 2012, 2014). In addition to accelerated developmental education, institutions can explore elements from the other high-impact practices when developing institutional programs to improve student success. Lastly, the findings of this study provided evidence of the long-term effects of participation in a Title V program on student success. Based on these findings, HSIs should consider developing a sustainability plan to maintain such programs beyond the grant period.

**Recommendations for Future Research**

This study examined the effectiveness of a Title V program’s accelerated developmental English and ESL paths on Latinx student success measured by academic performance (i.e., cumulative GPA, success rate and completion rate), persistence and fall to fall retention at a community college in the mid-Atlantic region. This study fills a gap in the literature by using the propensity score method to account for selection bias when comparing the effects of a Title V program at a community college in the mid-Atlantic region. In order to extend this research and
explore other important aspects of this study, the following recommendations for future research should be considered:

1. This case study was limited to a single community college at an HSI in the mid-Atlantic region. Although this study found that participation in the program was statistically significant in affecting Latinx student success, the results cannot be generalized to all institutions’ Title V programs or the overall Title V DHSI program. In order to examine the effectiveness of Title V programs in improving Latinx student success in community colleges, this study should be replicated on a larger scale to include more community colleges with similar Title V programs. This will also serve to fill a gap in the literature on Latinx students at two-year HSIs.

2. For this study, the sample excluded part-time students due to the inclusion criteria (first-time and full-time students) of this Title V program. However, the majority of students who attend community colleges enroll part-time. In fact, of the 7.1 million students who attended a public community college in FY 2017, 63% of the students were enrolled part-time (Ginder, Kelly-Reid & Mann, 2017). More specifically to HSIs, nearly two-thirds (65%) of Latinx students attended an HSI in FY 2017, but only 46% attended at full-time enrollment status (Excelencia in Education, 2018). There is limited research that examines the academic performance of part-time community college students at HSIs, especially Latinx students. This is an important area that should be explored for future research to gain an understanding of the academic challenges that part-time Latinx students face at HSIs. Future studies can provide HSIs with opportunities to implement intentional interventions to improve student success outcomes or part-time Latinx students.
3. Based on the cohort start year, degree attainment data was not available for certain cohort years (i.e., fall 2016). As a result, degree attainment was not included in this study as one of the outcome variables. For a future study, it is recommended to request access to the national clearinghouse data for the students in the cohort in order to explore the long-term effect of Title V programs beyond fall to fall retention on the students’ academic trajectory. The study should include data on both associate degree completion and/or successful transfer to a four-year institution.

4. This study focused only on one of the thirteen high-impact practices, accelerated or fast-track developmental education, to examine the effect of participation in the Title V program’s accelerated paths on students’ academic performance, persistence and fall to fall retention for the accelerated cohorts compared to the baselines. The same study could be conducted focusing on each of the other high-impact practices (e.g., student success course, in-class tutor support, etc.) to examine the effect of participation in that particular high-impact practice on the same outcome variables for accelerated students compared to baseline students. The findings from future research could provide HSIs with a framework for institutional practice based on which of the high-impact practices were most effective in improving Latinx academic performance, persistence and fall to fall retention.

5. The existing research on the effectiveness of the Title V program in improving Latinx academic performance is limited, and, more specifically, scarce at the community college level. This study begins to fill the gap in the literature for this important area of research. It is recommended that more quantitative research be conducted on Title V program effectiveness using the conceptual model and methodological approach in this study to
build a body of research and evidence. As more research is published, the Department of Education can utilize the findings to further analyze the Title V DHSI program’s overall effectiveness.

6. The theoretical framework for this study included research on high-impact practices. This Title V program was designed incorporating the thirteen high-impact practices, which were included in the program’s logic model for the Title V application. Although this study did not focus on program design, future research could analyze the program abstracts and the logic models of the Title V grant recipients from a given award year to explore patterns and relationships between the grant activities and the outcome variables used in this study (i.e., academic performance, persistence and fall to fall retention). In addition, a future quantitative study could focus on these same grant recipients and use other methodological approaches such as instrumental variable and difference-in-difference (DID) to measure causal effects. This study could add to the research by investigating the actual effectiveness of the particular grant activity on the outcome variables: academic performance, persistence and fall to fall retention.

7. This study provides evidence and support for accelerated paths in developmental English and ESL. Although research on acceleration has been conducted by the Community College Research Center, there are varying definitions of what acceleration means. A future review article is recommended to examine the effectiveness of participation in different types of accelerated developmental English programs at community colleges. This study could add to the research by identifying the most successful accelerated programs and the common elements within those successful programs. Colleges could use such data to improve the design of their own developmental programs.
8. Qualitative research should be conducted to gain a deeper understanding of the experiences of students who participate in a Title V program at community colleges. The findings of such a study would provide insight on how the student understands the experience in a Title V program, and what components of the program are most impactful and, in what ways, if any, did the program helped them to succeed academically. The study could also identify the elements of the program that students believed contributed to their completion of an associate’s degree and/or successful transfer to a four-year institution.

**Conclusion**

The findings of this study contribute to the limited research on the effectiveness of Title V programs in improving Latinx student success and add to the existing literature by expanding the focus on more than one academic success measure. These findings provide insight for two-year that seek to design and implement effective programs for historically underserved and underrepresented student populations. Instead of simply comparing retention and completion rates between program participants and non-participants, community colleges need to consider alternative methodological approaches to better measure the short-term and long-term outcomes of such programs as they relate to specific student populations. Finally, this study contributes to the scarce literature on the effect of participation in such programs on Latinx student success at community colleges.
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APPENDICES

Appendix A

IRB Approval

October 31, 2018

Dear Ms. Lacagnino,

The Seton Hall University Institutional Review Board has reviewed your research proposal entitled “The Effect of Participation in a Title V Program on Latinx Student Success at a Community College” and has categorized it as exempt.

Enclosed for your records is the signed Request for Approval form.

Please note that, where applicable, subjects must sign and must be given a copy of the Seton Hall University current stamped Letter of Solicitation or Consent Form before the subjects’ participation. All data, as well as the investigator’s copies of the signed Consent Forms, must be retained by the principal investigator for a period of at least three years following the termination of the project.

Should you wish to make changes to the IRB approved procedures, the following materials must be submitted for IRB review and be approved by the IRB prior to being instituted:

- Description of proposed revisions;
- If applicable, any new or revised materials, such as recruitment fliers, letters to subjects, or consent documents; and
- If applicable, updated letters of approval from cooperating institutions and IRBs.

At the present time, there is no need for further action on your part with the IRB.

in harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.

Sincerely,

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Eunyoung Kim
REQUEST FOR APPROVAL OF RESEARCH, DEMONSTRATION OR RELATED ACTIVITIES INVOLVING HUMAN SUBJECTS

All material must be typed.

PROJECT TITLE: The Effect of Participation in a Title V Program on Latinx Student Success at a Community College

The Effect of Participation in a Title V Program on Latinx Student Success at a Community College $H$018.10.8

CERTIFICATION STATEMENT:

In making this application, I (we) certify that I (we) have read and understand the University's policies and procedures governing research, development, and related activities involving human subjects. I (we) shall comply with the letter and spirit of those policies. I (we) further acknowledge my (our) obligation to (1) obtain written approval of significant deviations from the originally-approved protocol BEFORE making those deviations, and (2) report immediately all adverse effects of the study on the subjects to the Director of the Institutional Review Board, Seton Hall University, South Orange, NJ 07079.

Sara Lacagnino
RESEARCHER(S) 10/11/18
DATE

**Please print or type out names of all researchers below signature. Use separate sheet of paper, if necessary.**

My signature indicates that I have reviewed the attached materials of my student advisee and consider them to meet IRB standards.

Eunyoung Kim, Ph.D.
RESEARCHER'S FACULTY ADVISOR 10/11/18
DATE

**Please print or type out name below signature**

The request for approval submitted by the above researcher(s) was considered by the IRB for Research Involving Human Subjects Research at the Oct. 2018 meeting.

The application was approved _ by the Committee. Special conditions were _ were not _ set by the IRB. (Any special conditions are described on the reverse side.)

Mary J. Rizzello 10/10
DIRECTOR
SETON HALL UNIVERSITY INSTITUTIONAL REVIEW BOARD FOR HUMAN SUBJECTS RESEARCH 10/3/18
DATE