Acceptance, Belonging, and Capital: The Impact of Socioeconomic Status at a Highly Selective,

Private, University

By

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A Dissertation Presented to the
FACULTY OF THE ROSSIER SCHOOL OF EDUCATION
UNIVERSITY OF SOUTHERN CALIFORNIA
In Partial Fulfillment of the Degree
DOCTOR OF EDUCATION

December 2014

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UMI Number: 3680864

UMI

Dissertation Publishing

UMI 3680864

ProQuest®

Dedication

My own post-secondary journey has spanned three different decades and four different states. At each stop along the way I have felt increasingly comfortable with my sense of self and direction. This was not the case when I first arrived at Linfield College in the fall of 1994. I was lost in many ways and lacked the capital necessary to afford my mistakes. Eventually these feelings fueled my desire to help college students and my pursuit of work within the field of student affairs. That is why this study is dedicated to students who have questioned whether or not they belonged. Furthermore, this study is dedicated to improving the sense of belonging of future students.

Acknowledgments

I could not have reached this point without good timing and support. My wife, Denitsa, has regularly inspired and challenged me to become a better person. Our daughters, Mila and Niki, have provided me with endless energy, love, laughter, and hope.

Professionally, when I first decided to pursue student affairs, Michele Rosenthal gave me insight and direction. The team at Susman, Duffy, and Segaloff gave me a generous send off as Denitsa and I took a big risk moving across the country to Los Angeles. Felicia Hunt found the misplaced documents of my application, allowing me to start a life-changing master's program. Michele Dunbar and others gave me opportunities to apply my learning within a division led by the great Michael Jackson. My first higher education class was taught by Shaun Harper who helped me feel like I belonged. Pat Tobey repeatedly led me to multiple opportunities. Eddie Roth gave me the flexibility to grow as a professional. And, most importantly, the many students I was lucky to work with helped me feel valued.

When it came to pursuing a doctoral program, I was enrolled and ready to begin the Ph.D. program in Leadership Studies at the University of San Diego. After a change of heart, I was thankful for the flexibility and opportunity that the Rossier School of Education provided. It is rather fitting that Dean Gallagher is a fellow northwest soul and graduate of Western Washington University.

Lastly, this dissertation would not be possible without the people who helped shape it. My chair, Tracy Tambascia gave me honest and necessary criticism, especially when my interests were overwhelming. Pat Tobey, as always, kept me motivated and hopeful. Janice Schafrik was my quantitative savior. Additionally, the data could not have been collected without the aid of Paul Dieken and David Glasgow. To all of these people, I am forever grateful.

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Abstract

There will be challenges resulting from the goals of the completion agenda (Lee & Rawls, 2010), underrepresentation of low socioeconomic status (SES) students at highly selective colleges (Carnevale & Rose, 2003), and relationship between institution type and social mobility (Haveman & Smeeding, 2006). If rates of access and success for low SES students are not improved then the economic intentions behind the completion agenda may be compromised. This study measured the impact of SES and academic preparedness on academic outcomes at a highly selective, private, research university. Academic outcome data consisted of grade point average (GPA) and completed units after the first and fourth year, persistence to the second year, and graduation after the fourth year for the 2007, 2008, and 2009 freshmen cohorts. A composite score of high school GPA and test scores was used to determine the academic preparedness of students and the variable was statistically significantly for all academic outcomes measured. The comparison of students of similar academic preparedness revealed SES was statistically significant for GPA after the first and fourth year, first year units completed, and four year graduation. When further examining the effectiveness of a student support program, the results were inconclusive. Although the potentially at-risk students required to participate in the program achieved similar outcomes when compared to non-participants of similar SES and academic preparedness, the support program did not minimize the effects of SES. The findings of this study further advance previous research pointing to the challenges faced by low SES students in the areas of acceptance, belonging, and capital in higher education. The identification of potential best practices to respond to this will require future research examining the impact of SES at other universities, especially when academic preparedness is factored.

Chapter 1: Overview

Background of the Problem

Each fall, at private colleges and universities throughout the United States, there are life-changing moments experienced by lower socioeconomic status students. These situations happen before the academic and social integration of Tinto (1975; 2006), before the student interactions of Pascarella and Terenzini (1983), and long before the student involvement of Astin (1993). According to Aries and Seider (2005), these students are awed by how pristine and manicured the campus is. They see expensive cars, people wearing suits and fancy clothes, large televisions, computers, gadgets, pricy bookstores and restaurants, and they see other students who are acting as if everything is normal. And the student from a lower socioeconomic status wonders and questions. How did I get here? How am I going to do this? How am I going to pay for this? I guess I'm not normal. I'm poor... Do I even belong here?

The Completion Agenda

The United States has identified a goal to improve graduation rates nationally (Lee & Rawls, 2010). In 2007, 55.8% of the Canadian population between the ages of 25 to 34 had an associate degree or higher. That rate led the world and the United States, with a rate of 40.4%, trailed by a considerable margin. The completion agenda of President Obama calls for the United States to increase its percentage to 55% by the year 2025 (Lee & Rawls, 2010). These goals are widely accepted because the general view is that an educated workforce is necessary for the economic health and vitality of the country (Crellin, Kelly, & Prince, 2012).

As this pursuit continues, it will likely be guided by research. There is substantial literature on the predictive quality of pre-college input variables on graduation rates (Astin, 1997), on the issue of equity within higher education (Bensimon, 2005), and the challenges of

assessing institutional efficiency (Kuh & Pascarella, 2004; Webber & Ehrenberg, 2010). The

economically disadvantaged have also been shown to be the least likely to pursue a college

degree and also the ones that could benefit the most from receiving it (Brand & Xie, 2010).

There has been relatively limited research, however, when it comes to the impact of

socioeconomic status on college outcomes such as retention and graduation (Reason, 2009;

Langhout, Drake, & Roselli, 2009; Walpole, 2003).

Highly Selective Colleges and Universities

Individuals who earn a college degree are more likely to increase their earnings potential

and social class (Haveman & Smeeding, 2006). Considering graduation rates are highest at

highly selective universities (Carnevale & Rose, 2003), degree seekers at these universities are

more likely to reach their goal. Studies have also found that students graduating from highly

selective colleges and universities have a higher earnings potential when compared to graduates

of less selective institutions (Brewer, Eide, & Ehrenberg; 1999; Fox, 1993; Thomas & Zhang,

2005). Highly selective universities are generally defined as those that admit the lowest

percentage of entering freshmen. According to the U.S. News & World Report (2011) guide to

colleges, the institutions with the lowest acceptance rates in 2011 ranged from 3.2% to 33.1% at

the 100 most selective public and private schools. In other words, 66.9% to 96.8% of freshman

applicants at these schools were denied admission.

In addition to finding that students attending highly selective colleges and universities are

also more likely to graduate, Carnevale and Rose (2003) also found that as institutional

selectivity increased so too did graduation rates. This finding also applied for students from

every socioeconomic status (SES) level. Students from higher SES backgrounds still graduated

at higher rates than their lower SES peers, but students of similar SES backgrounds were

graduating at higher rates based on the selectivity of the college or university attended (Carnevale & Rose, 2003). In other words, the two greatest predictors of graduation were the selectivity of the school and the SES of the student. According to Haveman and Smeeding (2006), however, the number of low SES students enrolled in highly selective institutions was far fewer than the total of low SES students that were academically qualified.

Rising Costs of Tuition

The rising costs of attending college are a national concern (Driscoll, Comm, & Mathaisel, 2013). These increasing costs are particularly meaningful to students of low SES. Financial aid is viewed as a means of making college more affordable, but low SES students are responsible for paying a disproportionately higher rate, when comparing the net cost of attending to family income at highly selective, private, institutions (Hill, Winston, & Boyd, 2005). The full cost of attending after accounting for aid that does not need to be repaid is referred to as the net cost of attending and presents a more accurate depiction of what students and families are responsible for paying immediately or through loans (Hill, et al., 2005). The costs of attending highly selective, public, institutions are also of concern because state subsidies and policies regularly lower the cost of attending for all students even though the higher SES students are fully capable of paying full price (Haveman & Smeeding, 2006). No matter what type of institution a low SES student attends, on average, the cost of attending they are responsible for, in relation to their family income, will be inequitably higher when compared to that of their higher SES peers.

Students from low SES backgrounds experience a multitude of challenges. The rate of low SES students attending highly selective institutions is significantly low (Carnevale & Rose, 2003; Goldrick-Rab, 2006; Walpole, 2005). Socioeconomic status can be linked to standardized

test scores and many low SES students may not have the necessary test scores to gain admission into highly selective schools (Hoffman & Lowitzki, 2005). Low SES students who do attend must then adjust to the challenging upper-middle class norms of their campus (Langhout, et al., 2009) and the wealth of their peers (Aries & Seider, 2005).

Sense of Belonging

A student's sense of belonging on a college campus has been connected with academic outcomes (Freeman, Anderman, & Jensen, 2007; Hurtado & Carter, 1997; Locks, Hurtado, Bowman, & Oseguera, 2008; Pittman & Richmond, 2008). Researchers have also found that social class background influences the sense of belonging of a student (Ostrove & Long, 2007). A study by Aries and Seider (2005) revealed that the prominence of wealth at prestigious private colleges results in feelings of exclusion and powerlessness for lower income students.

Social and Cultural Capital

Social capital generally refers to the potential or actual resources available through exchanges between persons within a social network (Avery & Daly, 2010; Bourdieu, 2008; Coleman, 1988; Stanton-Salazar, 1997). Within education, the relationships students potentially establish with teachers and counselors, according to Stanton-Salazar (1997), are extremely valuable because they provide students with the opportunity to gain institutional knowledge. Certain aspects of the campus-specific knowledge described by Stanton-Salazar (1997) can be viewed as similar to the cultural capital of Lareau and Weininger (2003). In their review, they posed that cultural capital equates to "the direct or indirect "imposition" of evaluative norms favoring the children or families of a particular social milieu" (pp. 597-598).

Low SES students are at a disadvantage when it comes to the economic, social, and cultural capital demands of attending college (Aries & Seider, 2005; Langhout, et al., 2009;

Ostrove & Long, 2007; Walpole, 2003). These three concepts of capital come from the writings

of Bourdieu (2008) and are relevant to the challenges that low SES students face when

attempting to earn a college degree to move up the social class ladder. The economic capital that

low SES students lack is evident in their financial disadvantages. The social and cultural capital

available to students of varying SES also impacts academic outcomes (Aries & Seider, 2005;

Avery & Daly, 2010; Langhout, et al., 2009; Ostrove & Long, 2007; Walpole, 2003).

Based on the literature (Aries & Seider, 2005; Langhout, et al., 2009), low SES students

could be expected to have challenges adjusting to the upper middle class norms of a highly

selective, private, university because they lack the cultural capital relevant to the practices and

nuance within the campus environment. These challenges are evident in the findings of

Langhout et al. (2009) that students from low SES backgrounds are more likely to experience

concerns with school belonging, negative psychosocial outcomes, and greater intentions of

leaving school. Similarly, Johnson, Richeson, and Finkel (2011) found that low SES students at

an elite university felt socially stigmatized and were more likely to question their academic fit

and struggle with self-regulation when balancing their social concerns and school work.

Walpole (2003) found that low SES students work more, study less, are less involved,

and report a lower grade point average than high SES students at four-year schools. Low SES

students simply do not have the economic and cultural capital that an upper-middle class college

campus desires. Social capital is also more challenging to acquire for low SES students because

they need to work more and typically have less to exchange or trade when establishing a social

connection.

Within the literature on low SES students there have been recommendations for

improving access (Carnevale & Rose, 2003; Park, Denson, & Bowman, 2012) and sense of

belonging (Aries & Seider, 2005; Langhout, et al., 2009; Ostrove & Long, 2007). Upon analyzing whether low-income students would benefit from affirmative action policies at the top universities in the United States, Carnevale and Rose (2003) found that low SES students from the lowest quartile only accounted for three percent of the college attending population and only nine percent of the student population came from the lowest 50% based on SES. They examined simulations for five alternative methods of admission at the 146 most selective colleges and recommended that racial affirmative action be maintained as much as possible and that economic affirmative action be expanded. Similarly, Park et al. (2012) challenged highly selective colleges to increase efforts toward the recruitment of academically prepared students from low-SES backgrounds. Carnevale and Rose (2003) point out, however, that admission for low SES applicants is only a single hurdle to surpass. The next, and more challenging, barrier is figuring out how to pay the costs at a top college or university.

The sense of belonging of low-SES students attending elite universities also remains a concern. Aries and Seider (2005) recommended that faculty and administrators at prestigious colleges and universities consider how low SES students can better be supported and involved. Langhout et al. (2009) insisted that schools, in addition to admitting students from low SES backgrounds, must also address issues within the campus culture that might prevent the low SES students from feeling like they belong. Ostrove and Long (2007) encouraged institutions to be more aware of how welcoming and inclusive they are for students from low SES backgrounds. Johnson et al. (2011) recommended that future studies attempt to measure which indicators related to SES; such as family income, parental education, parental occupation, and financial aid; have a greater impact on educational outcomes.

Unfortunately, there are challenges when it comes to the recommendations found within the research and additional complications in regards to the assessment of these recommendations. How can highly selective institutions convince greater pools of academically qualified students from low SES backgrounds to apply? What might happen to make highly selective colleges and universities more affordable to low SES students, and how might potential applicants learn about this information? What does a more welcoming campus look like? What additional support is beneficial to low SES students and how would that support be provided? The recommendations lead to multiple questions that have yet to be answered.

Considering the goal of increasing the graduation rate of 25 to 34 year olds in the United States, the lack of attention given to SES is surprising. Students from low SES backgrounds are underrepresented in higher education (Carnevale & Rose, 2003) and this is especially true at highly selective universities. Researchers have shown that low SES students struggle more with finding a sense of belonging (Aries & Seider, 2005; Langhout et al., 2009; Ostrove & Long, 2007) and also are limited when it comes to the many forms of capital required within higher education (Avery & Daly, 2010; Walpole, 2003). Although support programs exist (Dennis, Phinney, & Chuateco, 2005; Grant-Vallone, Reid, Umali, & Pohlert, 2003; Padgett & Reid, 2002), a plan to increase graduation rates nationally will need to include a more informed strategy for aiding students from low SES backgrounds.

Statement of the Problem

There have been studies that examined access to higher education (Walpole, 2003) and the net cost of attending for low SES students (Hill, Winston, & Boyd, 2005). Researchers have not yet fully examined the resulting persistence, grade point averages, units earned, and graduation rates of low SES students. The results and potential gaps are unknown. The research

to date has also relied heavily on student reported data pulled from surveys to calculate SES (Astin & Oseguera, 2004; Carnevale & Rose, 2003; Goldrick-Rab, 2006; Walpole, 2003), as opposed to the actual data provided by families to financial aid offices. Whether college students generally have the perspective and knowledge necessary to accurately answer survey questions about the finances and job occupations of their parents is a question worth asking.

Considering the popular belief and evidence that receiving a college degree increases the opportunity to achieve greater future earnings, it is surprising that the impact of current family earnings on academic outcomes has not received more attention. If low SES students are not receiving the same access or achieving the same success then it would appear that highly selective institutions have become a filter that further divides and reciprocates the division by socioeconomic status within this country. This concern is especially magnified considering the increasingly capitalistic practices of colleges and universities (Brewer, Gates, & Goldman, 2002; Giroux, 2002; Rhoades, 2006). This trend will likely further push the campus culture at highly selective institutions from upper-middle class toward upper class and elite class norms and beliefs. Continuation of these practices could further confuse, alienate, and push away current and potential low-SES students during a time when the country is trying to increase graduation rates and more equitable academic and economic opportunities.

The limited research on the impact of student support programs on low SES students also requires further attention (Rhoades, 2006). The importance of sense of belonging has been related to SES (Aries & Seider, 2005; Ostrove & Long, 2007), as has social (Avery & Daly, 2010; Stanton-Salazar, 1997) and cultural capital (Walpole, 2003). Recommendations for improving the success of low SES students have emphasized the importance of campus culture (Langhout et al., 2009; Ostrove & Long, 2007). The importance of connecting minorities with

institutional agents has also been detailed (Stanton-Salazar, 1997). The variables that contribute to the SES of a student and how they individually correlate to academic outcomes have also been recommended for future research (Johnson et al., 2011). So it would reason that programs offering support, similar to what has been recommended within the literature, might already have established best practices that could be generalized across different institutions.

A full examination of the literature reveals the presence of gaps when it comes to access and outcomes for low SES students, in addition to gaps within the research itself. These gaps are problems that require attention. Table one demonstrates how a more complete study of SES is needed. Given the overlapping areas of study, there is a need for additional research. More research and information gathering must occur in order to better understand how the persistence, grade point averages, units earned, and graduation of low SES students can be supported and improved, particularly at highly selective, private, colleges and universities.

Table 1 reveals a need for research that examines a more complete array of the key issues and components related to SES in higher education. As example, a study could not be located that examined the actual pre-college SAT scores and HSGPA, financial aid information, and college outcomes data for individual students. As such, there are questions left unanswered by the existing research. For instance, how are low SES students performing when compared to other students with similar SAT scores and HSGPA? Are low SES students of a different race/ethnicity achieving similar outcomes? Do student support programs improve outcomes? These questions and many others remain unanswered.

Purpose

The purpose of this study was to assess how entering freshmen of various socioeconomic backgrounds performed academically at a highly selective, private, research university.

Researchers have examined equity, institutional efficiency, pre-college variables, financial aid, sense of belonging, social capital, cultural capital, and student support programs and all signs indicate that low SES students are struggling to gain admission and earn degrees at the highly selective colleges and universities that may be beneficial to their future. This study further examined this situation and extends the research further.

The study attempted to account for demographics, pre-college variables, and other inputs such as choice of major and financial aid. Examining the descriptive statistics based on these variables made it possible to answer multiple questions. For instance, did the lower SES population have a different composition of race/ethnicity and/or pre-college high school grade point average and/or test scores? How also did SES impact the major pursued by students? Research that answers all of these basic questions has not been found in the literature.

A student support program was also examined to determine whether students within the program perform differently when compared to similar students outside of the program. By comparing the academic outcomes of participants to non-participants, the study aimed to learn whether the additional support impacted academic outcomes differently based on the SES of the student. For instance, did the academic outcomes of low SES participants compare well to the outcomes of low SES non-participants?

Existing data from three consecutive freshmen cohorts were assessed. The data included students from the entering freshmen cohort of 2007 through to the cohort of 2009. Persistence rates, cumulative grade point average (GPA), units earned, and graduation rates were examined. Demographics such as gender, race/ethnicity, and first-generation college student status were also included. Pre-college variables consisted of best SAT scores, high school GPA (HSGPA), and adjusted HSGPA. These pre-college variables were used to form a composite range of

academic preparedness. For the research questions the key differences between groups were based on SES, academic preparedness, or participation in the support program.

Research Questions

There are two primary research questions for this study.

1. For first-time freshmen, what differences exist when the persistence, grade point average, units earned, and degree completion are compared for students required to participate in a support program and non-participants of similar socioeconomic status and academic preparedness?

   a. What other differences between the participants in the support program and non-participants can be found when additionally examining first-generation status, gender, ethnicity, and pursued major?

2. For the general population of non-participants outside of the support program, how did socioeconomic status and academic preparedness impact the persistence, grade point average, units earned, and degree completion of first-time freshmen?

   a. When also examining first-generation status, gender, ethnicity, and major, were differences found when comparing students of similar SES and academic preparedness?

   b. If there were differences in persistence, grade point average, units earned, and degree completion for students within particular SES and academic preparedness ranges, were these differences similar to those found for participants of the support program population?

Significance of the Study

This study is significant because the literature related to SES and academic outcomes research is limited (Reason, 2009; Walpole, 2003). The knowledge generated from this study is beneficial to university administrators, researchers, and student affairs practitioners. Bensimon (2005, 2007) has noted that practitioners can benefit from participating in the collection and analysis of research data. Harper and Kuh (2007) provide argument that faculty within higher education should use more qualitative methods in their research. The opposite, as Bensimon proposes for student support practitioners, is also likely true in that student affairs practitioners should be more familiar with the quantitative data regarding the students they are serving.

Practitioners already working closely with students could benefit from gaining more specifics regarding the performance of low SES students. The increased knowledge could help provide understanding and motivation that aid feelings of belonging, scheduling of more appropriate event programming, and productive discourse on how SES relates to campus climate. Possible adjustments to the costs of certain activities could also further promote a campus climate that is more understanding of socioeconomic differences.

Admission and financial aid officers are capable of examining the data and background information within this study to decide how current practices match the mission and execution of goals at the university. In theory, admission and financial aid offices do not work in a vacuum. Communication and collaboration with the rest of the university is vital, especially when it comes to the educational outcomes of students. If a certain population is struggling, then perhaps they could be better directed to support services upon admission.

Senior level administrators could use the knowledge generated in this study to think about how fees and mandatory deposits might influence whether students feel they can afford to

attend and persist. The concept of students following different paths within higher education

based on their SES should be tangible to senior level administrators. In the increasingly

capitalistic world of higher education (Giroux, 2002), where students are viewed as consumers

with discretionary money to spend, how much do schools value a low SES student who arrives

with a smaller wallet? What impact would the completion agenda efforts of Obama have if low

SES students were not valued by the emerging capitalistic system? This study is significant

because it points out how the goals and direction of higher education may not be aligned.

Limitations

There were multiple limitations within this study. Educational outcomes were only

examined for entering freshmen at one particular university. Applicants who applied but were

denied admission, as well as those who were admitted but chose not to attend, were not included

in the study. An analysis of freshmen applicants who did not attend the university would

certainly provide for greater learning, but that was not possible in this study. Carnevale and

Rose (2003) even recommend that researchers look at the academic outcomes of students with

similar characteristics who attend colleges and universities of different quality. For this study

though, that data was not accessible. There also were a small number of students with missing or

incomplete data. Some students may have also had incorrect data. For instance, a transfer

student may have been coded as a freshman, or vice versa.

The fall entering first-time freshman cohort years of 2007, 2008, and 2009 were analyzed

because that data and the graduation status for those students were available. The peak of the

financial crisis of 2007 and 2008 likely had a significant impact on the students within this study,

as well as on the students that decided not to attend the university during that time period. There

likely were students that entered prior to the economic crisis that needed to withdraw later on for

financial reasons. The entire admission to matriculation process after 2007 for students, families, and the university likely also changed along with the economic conditions of the time.

Delimitations

Delimitations within this study can be found with the calculation of SES. Whereas previous studies have relied on survey data completed by students (Aries & Seider, 2005; Astin & Oseguera, 2004; Carnevale & Rose, 2003; Goldrick-Rab, 2006; Walpole, 2003), the calculation of SES in this study will be reflective of the internally calculated expected family contribution totals used by the university for the first academic year of attendance. Although parental work occupation data were accessible, it was not used. The applicant provided occupation of parents, found within the admission applications, can be too inconsistent and often times vague. It is also uncertain how much communication occurs between applicants and their parents when answering questions about parental occupation. Attempting to measure social class from this data would be troublesome. Figuring out how to weigh this information to determine SES would also be complicated. For these reasons, the parental occupations reported by students within their college application were not used and the internally calculated expected family contribution for the first academic year was relied upon instead. A known delimitation related to this calculation in the expected family contribution of a student may have changed from year to year due to changes in family income and assets. These changes could have impacted whether a student was able to persist at the university.

There are other decisions that were made for this study that are also delimitations. Academic preparedness consisted of the composite score for high school grade point average (HSGPA), internally adjusted HSGPA, and standardized test scores. Even though research has demonstrated that high school grade point average has been a better predictor of college success

(Geiser, 2007; Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008; Zwick & Sklar, 2005), these same authors have also recommended that HSGPA be used together with standardized test scores when it comes to predicting the academic preparedness of a student and making decisions regarding admission.

The degree programs pursued by students were also combined into categories. Pursued degree programs were placed into a category, with the options being architecture, arts, business, communication, engineering, humanities, natural sciences, social sciences, and undecided. For instance, fine arts majors and theatre majors were both placed into the arts category. Biology and mathematics majors were categorized within natural sciences. The pursued degree program for students at the end of their first semester of enrollment was used in the analysis. There most certainly were students that changed their degree program later on, even those that double-majored within different categories. This delimitation accepted the reality of this challenge within the research methodology.

This study also focused solely on domestic students. International students have an enormous impact on colleges and universities, particularly when it comes to impacting the campus environment and culture. The international population also heavily influences the economic capabilities and strategies of an institution. International students are not eligible for financial aid, however, and present a complication when it comes to analyzing SES. This study did not fully examine the data for international students. Descriptive data was provided on the international student population to provide a better context of the campus environment, but further analysis was not performed.

Additional students were also excluded from the full analysis. Student athletes were not included due to their wide variance in aid packages, academic preparedness, time committed to

extracurricular activities, and support available to them. Students pursuing an intensive five year

architecture degree program were also excluded. The remaining exclusions were the result of

insufficient or missing data. For instance, students with missing high school grade point

averages or standardized test scores were removed from the full analysis.

Definitions

Academic Outcomes – Grade point average, units earned, persistence, and degree completion.

Academic Preparedness – The composite score of high school grade point average, adjusted high

school grade point average, and best standardized test score.

Classism – Prejudice, discrimination, and/or the unfair treatment of a person or group of people

based on their social and/or economic class

Federal Expected Family Contribution (EFC) – According to the Free Application for Federal

Student Aid (FAFSA) website the Expected Family Contribution (EFC) is a measure of your

family's financial strength based on a formula that includes taxed and untaxed income, assets,

benefits, family size, and number of family members attending college during a particular year

(http://www.fafsa.ed.gov/help/fftoc01g.htm).

Institutional Expected Family Contribution (IEFC) – This is similar to the Federal EFC, but the

internal calculation by the school also accounts for additional family assets, such as home equity,

when figuring what each family will be expected to contribute financially.

First Generation College Student – Generally defined as the first generation within a family to attend a college or university.

Highly Selective Colleges or Universities – Institutions that generally admit the lowest percentage of freshman applicants. These schools are thus highly selective in regards to admitting students.

High School Grade Point Average (HSGPA) – For this study and site, a 4.0 HSGPA refers to the maximum score of an "A" in every high school course.

Adjusted HSGPA – For this study and site, the adjusted HSGPA accounts for rigor of the school and coursework, including AP and IB coursework, and the maximum score is equal to a 4.7.

Net Cost of Attending – This is the yearly price that students are responsible for paying. Scholarships and grants are deducted from the full cost of tuition, room, board, books, and other expected expenses. Loans and work-study amounts do not impact the net cost of attending because this is money the student and/or family will either have to pay off or earn.

Social Mobility – Typically related to an increase in social class and family income, as opposed to a decrease.

Socioeconomic Status (SES) – Although the calculation of SES varies, it generally refers to a combination of family income and social class.

Conclusion

This introductory chapter has presented the problem. Evidence has been shown that the needs and opportunities of low SES students require further understanding and support. If social mobility is the primary goal of achieving a college degree, and attending a highly selective college or university offers the greatest opportunity for upward mobility in this country, then what purpose will the completion agenda of Obama solve if qualified low SES students continue to be underrepresented and continue to underachieve at highly selective institutions? Will highly selective institutions become an increasingly stringent filter that further divides and reciprocates the division of wealth? This study seeks to further measure the validity of this concern while also exploring the assistance that support programs can offer to improve the situation. Chapter Two reviews and elaborates on the literature related to the problem and frames it within a theoretical perspective.

Chapter 2: Literature Review

The previous chapter introduced the need for colleges and universities to better understand and assess the impact that socioeconomic status (SES) has on academic outcomes such as persistence and graduation. This has become necessary given the need to improve the college graduation rates of students. The United States has fallen behind other countries when it comes to citizens aged 25 to 34 earning an associate degree or higher. According to the 2010 Progress Report by the College Board (Lee & Rawls, 2010), Canada led the world in 2007 with a 55.8% of its population completing a postsecondary degree and the United States trailed considerably with only a 40.4% of its citizens aged 25 to 34 with an associate degree or higher. In response, President Obama has increased national expectations in an environment already riled by longstanding competition between institutions for respect, prestige, quality of students, and money (Brewer, Gates, & Goldman, 2002). The goal for the United States is to increase the percentage of 25 to 34 year olds with an associate degree or higher to 55 percent by 2025 (Lee & Rawls, 2010). The future demands have already led to concerns over how these national goals will be assessed (Humphreys, 2012; Schneider, 2012) and whether students will be negatively impacted by the shifts in strategies likely to occur (Evenbeck & Johnson, 2012; Kelderman, 2011; Walters, 2012). In a review of persistence research, Reason (2009) finds that students from low SES backgrounds are underrepresented in the current research and the impact of SES must be further explored in future studies.

Driscoll, Comm, and Mathaisel (2013) reported that the American higher education system needs to become more accessible and sustainable due to rising costs, tuition, class sizes, and the continued exclusion of poor and minority students. The authors, in their review, identified availability, dependability, capability, affordability, and marketability as the five areas

requiring attention in order to improve the sustainability of higher education. Availability brings people to a university and provides access to technology, materials, facilities, tools, and relationships with others. Dependability impacts whether students, faculty, and staff persist. Capability insists that proper assessment measures are taken. Affordability requires that schools examine their financial assets and consider how costs can be lowered without extensively sacrificing quality. In marketability, an institution needs to understand its advantages and properly communicate them as part of a marketing plan. Collectively, these five areas (Driscoll et al., 2013) capture the core business components of higher education. These abilities are also vital when it comes to understanding SES at a highly selective, private, research university.

This chapter will examine how student success is typically measured at four year universities. The research related to the impact of SES on academic outcomes will then be synthesized, particularly at highly selective, private, institutions. Theoretical frameworks will then be connected to the literature findings to offer additional perspectives and guidance. The aim will be to present the current condition of the problem and the necessity for additional research.

The Need for Quality Assessment

Much of the research on retention and graduation can be separated into three areas. Each of these three types of studies offers a distinct viewpoint for understanding the impact of SES. There is research that looks to better predict graduation rates based on input variables (Astin, 1997; Reason, 2003; Reason, 2009), there are those that explore the equity within the populations and outcomes (Alon & Tienda, 2005; Bensimon, 2005; Hoffman & Lowitzki, 2005), and there are examinations of overall institutional efficiency (Goenner & Snaith, 2003; Jones-White, Radcliffe, Huesman, & Kellogg, 2010; Kokkelenberg, Sinha, Porder, & Blose, 2008; Kuh

& Pascarella, 2004; Ryan, 2004; Sanford & Hunter, 2011; Webber & Ehrenberg, 2010;

Wellman, Johnson, & Steele, 2012).

Predictive

Astin (1997) called for the evaluation of student inputs to better predict retention in the

study titled "How 'good' is your institution's retention rate?" The student inputs described

consisted of high school grades, admission test scores, race, and gender. The question posed is

whether a university's performance data, such as average retention and graduation rates, tell the

full story of what actually happened. For instance, does a high or low retention and graduation

rate reflect the quality of a school or the quality of the students attending? As such, the author

obtained data from a national sample of 365 baccalaureate-granting institutions through a 1985

Cooperative Institutional Research Program (CIRP) survey and a follow up with the registrar's

office of each school in the summer of 1989. A model was developed using high school grades,

SAT scores, gender, and race to calculate an expected retention rate. Institutions considered to

be successful would have a higher actual retention rate than that which the prediction model

would expect. Even though Astin (1997) did not include SES in this study, the need to examine

additional variables was demonstrated.

Astin (1993) previously identified the importance of SES. Student segregation by SES

within peer groups was prevalent at the undergraduate level and Astin claimed that segregation

by SES on college campuses was influenced more by the structures and policies of the institution

than that of the choices of an individual student. High SES students were more likely to attend

institutions with large numbers of their high SES peers. Meanwhile, low SES students primarily

attended schools with a wider mix of students by SES.

Research examining the predictive quality of high school grade point average (HSGPA) and standardized test scores, such as the SAT, have been relatively uniform in declaring that HSGPA is a better predictor of academic success in college when compared to standardized test scores such as the SAT (Geiser, 2007; Kobrin et al, 2009; Zwick & Sklar, 2005), but that both should be used together in combination. Acknowledging that differences between high schools make it challenging for college admission offices to compare HSGPA between schools, Geiser (2007) identified HSGPA, particularly in college-preparatory class-work, as being superior to standardized test scores when it comes to the prediction of college grades. Kobrin, et al (2009) found that the best combination for predicting first-year college GPA utilized both HSGPA and SAT scores. Similarly, Zwick and Sklar (2005) examined how HSGPA and SAT scores predicted college grades and graduation for students of difference ethnic backgrounds and first language. They found that looking at HSGPA and test scores together allowed them to account for a larger variance in first year GPA when compared to looking at the variables separately.

For many of the studies examining HSGPA, it is not clear whether a pure HSGPA on a 4.0 scale was used or an adjusted HSGPA that accounted for advanced placement and honors coursework. For instance, Sadler and Tai (2007) have examined how honors and advanced placement (AP) courses are regularly examined by college admission offices when weighing HSGPA. They noted how high schools do not follow any standard weighting system, so there is pressure placed on college admission offices to figure out how to compare HSGPA for different students from the same high school and also for students from various different high schools. Sadler and Tai (2007) found that students who earned a B in an AP course at the end of high school do not do better in the same college subject when compared to students that received an A in the regular high school course. Additionally, a student that received a grade of C in an AP

course performed significantly worse when compared to students that received an A in the same regular high school class. Overall though, Sadler and Tai (2007) claimed that additional weight added to HSGPA is reasonable for AP coursework, but they found that honors coursework was not as consistent or impactful.

Reason (2003; 2009) has thoroughly examined research on persistence. Reason (2009) acknowledged that research on student persistence occurs at multiple institutions but that efforts to improve persistence must still be institutionally specific. In a review of persistence studies published between 1990 and 2002, Reason (2003) found that the changing demographics within higher education made it important to further examine how the increasing diversity would impact the predictive capability of certain demographic variables. For instance, the literature reviewed by Reason revealed that predictor variables such as SES, race/ethnicity, and gender should continue to be used. Over time though, significant changes in the percentage of students on a campus of a particular SES, race/ethnicity, or gender, as examples, would not only impact the campus climate, but also potentially influence the relationship the variable has on persistence. It is uncertain though whether these continued changes to the campus climate will increase or decrease persistence and graduation rates. What is clear, however, is that the variables previously found to have an impact on retention must constantly be examined, especially as the diversity of a campus climate changes.

Equity Driven

Studies focused on equity acknowledge the complications from using a purely predictive approach because some variables are not addressed. Furthermore, it is not just a matter of which variables are more predictive of success and which are not. Equity research seeks to understand why the results are what they are and to gain perspective on what could and should be happening

instead. Bensimon (2005) addressed disparate outcomes for underrepresented minority students, calling for the disaggregation of student outcome data by race, ethnicity, and gender. Taking a qualitative approach, Bensimon examined the attitudes, values, and actions of faculty members, administrators, and other employees. Bensimon learned that practitioners within higher education would need to see the disaggregated data, and even participate in the collecting, before they could accept the reality of the achievement gap and become more equity minded. The need for organizational learning by those closest to the problems was identified as an overall finding (Bensimon, 2005). Only by participating in the search for a solution did professionals shift from viewing underrepresented students from a deficit model, blaming them for their own problems, to that of an equity perspective that sought fairness and a deeper understanding of the problem.

Concerns over equity have also led to research that challenges variables traditionally considered predictors of success. Hoffman and Lowitzki (2005) found support that HSGPA was a better predictor of academic achievement than SAT scores at a predominantly White Lutheran university, particularly for students of color. Using data from 522 full-time degree seeking students who completed coursework during the fall semester of 2000, the authors found that HSGPA was a stronger predictor of academic achievement than SAT scores for all types of students and that HSGPA was also a significant predictor of retention for Latino students. Hoffman and Lowitzki (2005) used correlations and a priori path analysis model to find their results. Niu and Tienda (2011) found that class rank is a better predictor of college performance than test scores at five Texas universities. Niu and Tienda accounted for how the economic composition of high schools could impact test scores and discussed the implications of residential segregation along class and racial lines.

A section on equity cannot be complete without addressing affirmative action. Some of the research related to SES stems from and has been in direct response to the court battles addressing affirmative action in the last decade (Alon & Tienda, 2005; Carnevale & Rose, 2003; Hoffman & Lowitzki, 2005; Park, Denson, & Bowman, 2012). Although affirmative action can be closely linked with SES (Carnevale & Rose, 2003) this paper will aim to keep the focus on SES and the factors related to it.

Alon and Tienda (2005) studied the mismatch hypothesis that believed minority students who attended selective colleges and universities would have lower graduation rates than those that went to less selective institutions. The authors looked at same-group student comparisons across institutions of varying selectivity. Their findings suggest that the mismatch hypothesis should be rejected because the likelihood of graduation for minority students increases when the selectivity of the school is higher. As part of the findings, the authors acknowledge the overall graduation rates for underrepresented populations remain lower and that more must be done to help disadvantaged students at all types of colleges and universities.

Park, Denson, and Bowman (2012) tried to identify whether socioeconomic diversity on a campus made a difference. Their aim was to understand if admission preferences based on SES as opposed to race could offer some of the same benefits that race-conscious admission policies provided. Using data from the Cooperative Institutional Research Program (CIRP) at the Higher Education Research Institute at the University of California, Los Angeles, the authors examined the 2003 Student Information Form (SIF) and the 2007 College Student Survey (CSS). These methods made it possible for them to gather pre and post college entrance data on 14,894 students from 88 different institutions. The authors found that engagement with racial diversity is influenced by socioeconomic diversity. They also found that students who engaged in high

levels of cross-class interactions were more likely to experience co-curricular diversity and

cross-racial interactions. With these findings, the authors suggest that selective and highly

selective institutions could improve racial diversity and cross-racial interactions by more

aggressively attracting academically talented low income students of all races. They do,

however, acknowledge that admission preferences made by SES instead of race may possibly

reduce the racial diversity that is provided through race-conscious admission practices. For this

reason, they argue that universities should understand there are benefits to having both racial and

socioeconomic diversity.

Institutional Efficiency

The bulk of research examining institutional efficiency is similar to the predictive studies,

but is typically focused on expenditures in relation to persistence and/or graduation rates at the

initial institution (Ryan, 2004; Sanford & Hunter, 2011; Webber & Ehrenberg, 2010). Whether

students transfer to and graduate from another institution (Jones-White et al., 2009) and the

complication with evaluating the quality of a college without accounting for selectivity (Kuh &

Pascarella, 2004) are also included in this section. As opposed to predictive studies, research

addressing institutional efficiency pays more attention to how schools are directing resources and

reaching expected goals.

Goenner and Snaith (2003) examined institutional factors along with student

characteristics in connection with graduation rates. They focused their study on 258 doctoral

universities and found that positive correlates to graduation included high school class rankings,

standardized-test scores, and the percentage of out-of-state students. The institutional factors

easily linked with improved graduation rates were student-faculty ratios, percentage of full-time

faculty, total expenditures, and tuition and fees helped predict student outcomes. In sum,

however, the authors essentially provided evidence that an institution could increase its

graduation rates by charging more, spending more, and changing admission policies so that

enrollment is more highly composed of students that are better prepared.

According to Kuh and Pascarella (2004), selective institutions have high graduation rates

and are positively connected to better earnings after college. They point out that university

ranking publications tend to demonstrate which schools are most selective rather than most

effective. When it comes to gauging the quality of an institution, the authors suggest that more

should be done to show what happens to students during college. This supports the notion that

an institution should account for the selectivity of its student population when assessing

institutional efficiency.

Hoping to fill a gap in the literature, Ryan (2004) examined the connection of

institutional expenditures to six year graduation rates at 363 Carnegie-classified Baccalaureate I

and II institutions. Ryan aimed to address five questions.

1) Is there a relationship between expenditures and persistence to degree attainment?

2) Does support for student services, academic support and instruction help to explain

    variations in persistence to degree?

3) Do the findings clarify contradicting claims about expenditure effects?

4) Do the findings warrant further investigation?

5) What are the potential implications for the development of theories of student

    persistence, institutional decision making and public policy? (pp. 8-9)

Utilizing the IPEDS Peer Analysis System, the researcher obtained data from 363

institutions (Ryan, 2004). Using a non-experimental, applied research design, the expenditures

per full-time equivalent student at each institution was examined for the areas of instruction,

academic support, student services, and institutional support. The findings by Ryan suggest that

expenditures do impact graduation, particularly instructional and academic support expenditures.

Spending on student services, despite the literature connecting this expenditure to student

development, did not appear to have an effect on degree attainment. A complication with the

study by Ryan though, is that colleges and universities are organized differently. The offices and

programs that are classified as student services or academic support oriented might vary

depending on how each institution is organized. Thus, the attempt of Ryan to find results that

can be generalized for all colleges and universities is somewhat negated because it looks at the

forest and assumes that each tree has the same branches serving the same purposes.

Webber and Ehrenberg (2010) sought to find out whether expenditures other than those

on instruction affect graduation and persistence rates in American higher education. The authors

looked to see if increasing tuition, especially with lagging graduation rates of young Americans,

is a reflection of inefficiency or if the expenditures outside of instruction do have an impact on

graduation. The four expenditure categories that received focus were instructional, academic

support, student services, and research. The findings within this study, in contrast to that of

Ryan (2004), provide evidence that student services expenditures influence graduation and first-

year persistence rates. The impact is more prominent at schools with lower entrance test scores

and/or a larger number of Pell Grant dollars per undergraduate student. Pell Grant eligibility is

commonly used as a measure of financial need for undergraduate students. A campus with a

high rate of Pell eligible students reflects a generally low SES. It should be noted though that the

specifics within these expenditures and how that is different between institutions is unknown.

Increasing levels of instructional and/or research expenditures in this study appeared to have a

negative effect on graduation rates. So there appears to be a tipping point where too much

money spent on instruction and/or research at a college could negatively impact the balance. There also is the concern that an institution might spend money specifically with the hope of increasing selectivity and ranking, but in ways that run counter-intuitive to the needs of current students at the university.

Jones-White et al. (2009) obtained the student records of three cohorts of entering freshmen at the University of Minnesota-Twin Cities through the National Student Clearinghouse and looked for students who either received a baccalaureate degree from their home institution, from another institution, or earned an associate degree/certificate from another school. The authors point out that a college or university should not be judged solely on its retention and graduation rates, but that it should also be examined for whether students that departed eventually graduated from another college or university.

A limitation of the study by Jones-White et al. (2009) is how it can be generalized because it focused on a single institution. The exclusion of socio-psychological factors, the potential for students graduating outside of the National Student Clearinghouse net, and the focus solely on student outcomes are also limitations. The findings allow for a more complete measurement of graduation and suggest that institutions should strive for having a high rate of students make successful progress toward a degree, even if it is received elsewhere (Jones-White et al., 2009).

Socioeconomic Status

In comparison to research on racial/ethnic disparities within higher education, the research that focuses on the relationship between socioeconomic status (SES) and educational attainment is limited. Goldrick-Rab (2006) looked at 12th graders in the United States who graduated in 1992 and found that only five percent of students from the lowest SES started

college at a four-year institution of any tier. Carnevale and Rose (2003) examined 1988 data and found that students from the lowest SES only accounted for three percent of the total student population within the highest rated tier of colleges and universities, whereas 74% of students at the same institutions consisted of individuals from the highest SES. These findings, and others found within the literature, point to the importance of understanding variations in how SES is calculated, the impact of financial aid, support programs, and the value of attending a highly selective private institutions.

Calculating Socioeconomic Status

The method of calculating SES in a study can have an immense effect on the results and the significance of any findings. A review of the literature revealed discrepancies not just in the calculation of SES but also in how students were grouped by SES for comparison. The methods of calculating SES within the literature reviewed were limited by their reliance on student reported survey data since students do not always have an accurate understanding of family income and finances. The process used by multiple authors to standardize the data and create a normal distribution curve for the analysis of different SES groups also has limitations.

Aries and Seider (2005) began their qualitative study on 30 students using parental income as the determinant of class but as they learned more about their interview subjects they decided to also include parental education because they hoped to learn more about the role of cultural capital. Parental income and education also determined SES for Astin and Oseguera (2004). They took all of the survey participants that matched the criteria for their study and grouped the population into quartiles by parental income. They classified parental education as follows: no college attended; both parents received a degree; or some college attended and/or one parent with a degree.

In addition to parental income and educational attainment, the occupations of parents have also been used to calculate socioeconomic status (Carnevale & Rose, 2003; Goldrick-Rab, 2006; Walpole, 2003). These studies, similar to Astin and Oseguera, rely on financial data reported by students. The self-reporting of parental income ranges by students is not considered reliable, but the additional variables of parental education and occupation add more data to the findings. How capable traditional college aged freshman are when it comes to answering questions related to the income of their family is not addressed.

Goldrick-Rab (2006) calculated SES for high school seniors and coded the data quintiles with the lowest quintile considered low SES, the highest quintile high SES, and the three quintiles in between classified as middle SES. Walpole (2003) used the lowest and highest quintiles to represent low and high SES. Johnson et al. (2011) also relied on student reported survey data within their study on a single institution, using students with household income ranges from the U.S. Census of less than $25,000; $25,001-$40,000; $40,001-$70,000; $70,001-$90,000; and $90,001 and above. These researchers based socioeconomic status solely on the range reported within the student survey.

Lee and Kramer (2012) also based their study on a single institution. Utilizing a multi-method approach, they used data connected to their own institution from a national survey and then connected it with their own survey and interview data. This allowed them to email all students with reported family incomes of less than $80,000 per year at their school. They found 29 respondents who were classified as either low-income, working class, or lower-middle class. The authors considered low-income status to be parental income below $40,000 per year, with neither parent achieving a four-year college degree. Working class status consisted of parental income above $40,000 with parent(s) working a blue-collar job and neither parent achieving a

four-year college degree. The requirements for lower-middle class status were reported family

income below $80,000 with only one parent having a degree from a four-year college. The

authors do not address whether the parental income used is student reported and details regarding

how they received the email addresses for students matching the income criteria is unclear.

Titus (2006) used survey data and defined SES as the composite of standardized parental

income and education. It was measured as a continuous and categorical variable with four

quartiles from lowest SES to highest SES. Similar to the quintiles used by Walpole (2003), the

quartiles used by Titus had a standardized normal distribution. In both of these cases the normal

distribution produced through standardization allowed for a more thorough statistical analysis.

The process of forcing a normal distribution upon the data potentially skews the results,

however.

Walpole (2003) recoded the SES related data into a variable with a normal distribution

and frequency to produce low SES and high SES subsamples each with approximately 2,400

students. The actual distribution of low and high SES students at any tier of four-year

institutions based on Carnevale and Rose (2003) did not have a normal distribution. So, for

Walpole (2003) to achieve approximately equal subsamples, the study would either need to use

only a fraction of the high SES students or the recoded low SES group would need to contain

students from more than just the lowest SES quintile. This is further complicated by the use of

surveys in which the income data comes in the form of a range. As such, it may be advantageous

for future research to explore the collection of actual parental income figures reported to

financial aid offices because the student reported ranges of "under $25,000,"- as well as "more

than $90,000,"- are wide ranging and ambiguous. When also considering the overreliance on

student reported data, a lesson learned from the literature is that the calculation of SES is inconsistent and the method of calculation tremendously impacts how the data is analyzed.

Impact of Financial Aid

In general terms, financial aid is calculated by using the full cost of attending the institution and the expected family contribution. The full cost of attending is estimated by adding the tuition, housing, meals, and other necessary expenses related to the yearly cost of enrolling at that college. The expected family contribution is based on a combination of family variables such as family income, assets, number of children, number of children in college, age of the older parent, and unusual expenses. Just as the full cost of attending one college or university can vary immensely with another, so too can a family's expected contribution. As such, the expected family contribution can be substantially greater than or less than the full cost of attending an institution. The financial aid eligibility for a student is determined by subtracting the expected family contribution from the full cost of attending. Additionally, whereas the federal calculation of the expected family contribution determines eligibility for federal and state based aid, an institution can use its own method to determine the amount of institutional need-based aid that is offered. In both instances, the resulting need-based financial aid amount is offered via three different and unequal methods.

Grants, loans, and work-study are the three forms of financial aid within higher education. Students typically receive grants based on merit or financial need from the institution, federal government, or state government. This form of aid is most advantageous for students because it does not need to be paid back (Hill, Winston, & Boyd, 2005). It should also be noted that merit aid differs from need-based aid because it is not associated with the expected family

contribution of the student. Thus, a student can receive merit aid that reduces the designated expected family contribution.

Loans are either subsidized or unsubsidized. The United States Department of Education pays the interest on subsidized loans while the recipient student is enrolled at least half-time or during a grace period or deferment. Only students with lower expected family contributions are eligible for subsidized loans. Most all students are eligible for unsubsidized loans, even if their expected family contribution is greater than the full cost of attending.

Aid in the form of work-study requires a student to work before receiving the funding. To better understand how this relates to SES, it should be understood that low SES students, depending on calculation, tend to be eligible for grants, loans, and work-study. High SES students are traditionally only eligible for merit-based aid in the forms of grants because they are not eligible for need-based aid grants or work-study funds. Unsubsidized loans would be the exception for high SES students.

Alon (2005) found that researchers must distinguish additional factors between merit and need-based aid when examining the resulting graduation rates of students. At face value, merit-aid can be connected with high graduation rates and need-based aid with lower graduation rates. The literature reviewed by Alon contained inconsistent findings and the overall interpretation was that grant-aid had a neutral effect on persistence and graduation. Alon contends that it cannot be assumed that merit and need-based grant aid recipients are comparable. When accounting for SES, low-income students who are reliant on grants are more likely to drop out due to their economic challenges. Increases in the grant money available to low-income students though, according to Alon (2005) can help promote their persistence to graduation. Chen (2008) also found that the effects of aid amounts vary because racial/ethnic minorities may be less likely

to take on more loans. So it appears that grant money is the best stimulator for low SES students.

Longanecker (2002) found that increases in merit-based aid at public institutions across the country between 1994 and 1999 did not result in decreases in need-based aid. It is unclear whether the monetary increases in merit-based aid would have otherwise gone to need-based aid. Long and Riley (2007) examined 2004 data from the National Center for Education Statistics and demonstrated that low SES students attending full-time faced higher amounts of unmet financial need each academic year when compared to higher SES counterparts. They calculated unmet need as the total cost of attending minus the Expected Family Contribution (EFC) and all grants received. The EFC is based on a federal formula determined by variables such as family income, assets, size of family, number of family members attending college, age of the oldest parent, and the income and assets of the student attending. Long and Riley also discussed how after adjusting for inflation the average amount of a Pell grant, the largest federal need-based aid program, has decreased over time. With the purchasing power of the Pell grant subsiding and the cost of tuition rising, it is not a surprise that low SES students are the ones being squeezed. They have the largest amount of financial need and most institutions do not have the financial capacity to meet it.

DesJardins and McCall (2010) examined 12,648 students who entered a large research university as first-time freshmen in the fall terms of 1984, 1986, and 1991. They tracked these students for a period of more than six years and sought to explore the effects of financial aid on stop-out, periods of reenrollment spells, and graduation. A stop-out was defined as an interruption in enrollment with the potential of the student not returning. An enrollment spell was listed as time period or episode where a student is alternately enrolled or not enrolled.

Students in the study who did not stop-out graduated at a rate of 76% compared to the 9.4% rate for students with at least one stop-out, with the initial stop-out potentially followed by enrollment spells (DesJardins & McCall, 2010). The authors found that all types of aid reduced the chances of a first stop-out and promoted higher rates of graduation. They also provided a critique of two financial aid strategies. Front-loading is the process of enticing students with higher amounts of aid during the first two years and then declining the amount in later years as the student has become more likely to persist to graduation. The authors found this problematic and ineffective. Princeton University offers a different approach, which eliminates the need for loans by offering institutional grants or scholarships. The authors simulated the effects of this policy and determined it would increase graduation rates. The funding necessary to achieve the Princeton approach, however, is not realistic at most institutions.

Kim, DesJardins, and McCall (2009) and Van Der Klaauw (2003) focused on the impact of financial aid on choice of university. The financial aid package offered to the admitted student greatly impacted whether the student could afford to enroll. Van Der Klaauw (2003) examined the early enrollment decisions at an East Coast college and found that financial aid is an effective method of competing with other schools for students. Kim et al. (2009) studied the expectations students had for aid and how those expectations impacted enrollment at the University of Iowa during the admission years of 1997 to 1998. The authors found that the same levels of aid offered to low income Whites and Asians did not lead to equal rates of enrollment when offered to African Americans and Hispanics. This finding relates to that of Chen's (2008) in that minority students of similar income levels were less likely to take on similar levels of loans when compared to their non-minority peers. For each study, the sub-populations within each racial/ethnic group were not examined. For instance, SES was not examined within a racial

ethnic group and the ethnic sub-groups within the Asian and Lation/a populations were also not compared for differences. Either way, it appears that although the amount of financial aid offered to a student influences whether they enroll in a college or university, the influence can vary based on the individual characteristics, including race/ethnicity, of each student.

Dwyer, McCloud, and Hodson (2012) examined how debt impacts graduation in American universities. They used the National Longitudinal Survey of Youth 1997 (NLSY97) Cohort with individuals born between the years of 1980-1984 and focused on individuals who were age 25 and higher as of 2007. Fifty percent of the respondents within the sample studied earned their college degree by 2007. Also examining class status, the authors found that the educational attainment of parents had a positive effect on college graduation similarly to parental income. Overall, the authors found that debt taken on in the form of student loans up to ten thousand dollars over an academic career had a positive effect on graduation rates at public colleges, but that debt more than ten thousand dollars had a negative effect on graduation rates. Student debt exceeding ten thousand dollars at private colleges surprisingly did not have a negative effect on graduation. The authors did not present an explanation why student debt above ten thousand dollars was not as much of a hindrance on graduation rates at private institutions, but they did argue that higher education as a whole must be kept affordable if the nation aims to raise graduation rates and minimize the increasing debt of students.

Hill and Winston (2006) demonstrated how grant aid decisions impact the net price of attending a highly selective private college. They analyzed financial aid decisions for all students who applied over a period of 14 years, from 1988-89 to 2001-02, at Williams College in Massachusetts. Financial aid recipients represented 39-44% of the student population and the net price was calculated by deducting grant aid from the full, published annual cost of attendance.

The yearly cost of attending a college is based on the combined costs of tuition, room board, and fees. In 2001-02, students from the family income range of $0 to $24,000 had a median income of $15,347 and paid a net price of $931 for the year. Financial aid recipients during the same year with family incomes of $91,701 or higher (with a median income of $113,689) were responsible for paying $22,829 of the $32,470 cost of attendance. For the first thirteen years prior to 2001-02, students from the lowest income bracket paid an average net price of $5,924 after adjusting to 2001-02 dollars, and those receiving aid from the highest bracket paid $22,499. In providing this detail, they acknowledged that Williams had recently made the college substantially more affordable for low income students without raising the net cost of attending for others.

Hill and Winston (2006) claimed that the college offered almost no preferential packaging, often referred to as merit based aid, so the grant aid amounts were based predominantly on financial need. The significant changes in net price for low income students occurred shortly after economist Morton Schapiro was appointed president of Williams College in 2000. Even though these changes made Williams tremendously more affordable to low SES students, those from the low and low-middle income ranges of $0 to $24,000 and $24,001 to $41,000 still only represented 8% of the student body in 2001-02. This finding is similar to those of other studies (Carnevale and Rose; 2003; Goldrick-Rab, 2006; Walpole, 2003) in that low SES students are not attending highly selective colleges and universities in great numbers.

Hill, Winston, and Boyd (2005), accessing data from 28 of the 31 colleges and universities that compose the Consortium on Financing Higher Education, otherwise known as COFHE, were further able to identify how affordable some of the most highly selective private institutions in the country were for low SES students. Only 4.7% of the 108,721 students in the

study had family incomes of $24,000 or less in academic year 2001-02 and only 17.6% had

family incomes less than $61,379. Just over 55% were wealthy enough to pay the full cost of

attending without financial aid and an additional 14.6% had family incomes of greater than

$91,700. So the disparity in access between the low and high SES is evident, but not to the

degree reported by Carnevale and Rose (2003). This is a positive sign that the most highly

selective private institutions are making an effort to be affordable to lower SES students,

although Hill et al. (2005) reveal that the full cost of attending after grant based aid at COFHE

institutions ranges considerably. Among the 28 schools, students with family incomes of

$24,000 or less were charged a net price of attending that ranged from $800 a year to $11,390 for

colleges and universities with an average cost of attendance of $33,831. The average net price

after grant aid of $7,553 for the lowest income students equated to 49% of the median family

income for students from that range. Meanwhile, the students with higher family incomes were

charged a much lower percentage, indicating that the actual cost of attendance for low SES

students equaled a disproportionately higher percentage of their family income in comparison to

their higher income peers.

Impact of Support Programs

Research on the impact that student support programs have on low SES college students'

retention and graduation is limited (Rhoades, 2006). There has been research on the impact of a

summer bridge program (Strayhorn, 2010), the influence of peer support on underrepresented

and first-generation college students (Dennis et al., 2005; Grant-Vallone et al., 2003), and the

success of students in a support program for those considered disadvantaged (Braunstein, Lesser,

& Pescatrice, 2008). Each of these studies had limitations that reduced their significance and

ability to generalize the findings.

Strayhorn (2010) examined a summer bridge program at a single institution after acknowledging that similar programs in higher education had become popular despite a lack of empirical evidence to demonstrate their success. The purpose of the study by Strayhorn was to measure the impact of the summer bridge program on economically disadvantaged students of color at a highly selective, predominantly White, research, institution. The focus was on the influence the program had on students' academic self-efficacy, sense of belonging, academic skills, and social skills. Students for the five week program were selected and required to participate because they were considered to be at risk of failure due to criteria such as low HSGPA and test scores, first-generation status, and/or low income racial/ethnic minority status at the college of approximately 30,000 undergraduate and graduates. In the summer bridge program the students took an academic skills/career planning seminar and an English composition class, with both counting for degree credit. The sample consisted of 55 first year students in a single cohort. They were surveyed prior to the start of the summer bridge program and also at the beginning and conclusion of the fall term.

The Summer Institute Survey developed for the study by Strayhorn (2010) consisted of 83 items designed to measure academic self-efficacy, sense of belonging, academic skills, and social skills. The mean age of the population was 18 and 69.8% were female. The HSGPA of the sample ranged from 2.45 to 4.57, with a mean of 3.61. The mean ACT scores were 20.92 for English and 19.13 for math. The group had a mean college GPA of 3.53 after completion of the summer program, yet only 2.35 after their first term. Strayhorn used a paired-samples t test to compare whether the survey results changed after participation in the program. Participants were found to have statistically significant gains in the areas of academic self-efficacy and academic skills after the program. Additionally, hierarchical linear regression techniques were used to

examine the relationship between GPA after the fall term and posttest scores for the survey subsets. High school GPA and academic self-efficacy were found to be significant predictors of college GPA after the first term.

Although the findings of Strayhorn (2010) are noteworthy, there were limitations. Strayhorn acknowledged that the data used came from a relatively small sample at a single institution. The reliance on self-assessments and the assumption that changes in mean scores between the pretest and posttest were the result solely of the summer bridge program were also claimed as limitations.

Given the small sample of 55 participants and the wide range of HSGPA from 2.45 to 4.57, with a mean of 3.61 nearly exactly in between, Strayhorn (2010) did not address the possibility of the sample consisting of more than one subgroup within. For instance, a large share of the sample could have been at-risk student athletes with lower mean HSGPA, test scores, and overall levels of academic preparedness when compared to the non-athletes within the sample. Whether this was the case, or if there were separate differences that led to the composition of more than one group within the sample, then the groups should have been looked at separately. The use of a survey questionnaire developed by the author also raised concerns and would have better been validated had it been tested on more than one cohort sample of students. The findings might also have been further substantiated had the same surveys been sent out prior to and after the fall term to a similar group of students at the institution that did not participate in the summer bridge program. Additionally when it came to the findings, the positive influence of HSGPA on first-semester GPA in college had already been established (Reason, 2003; 2009). Strayhorn's finding that gains in academic self-efficacy were positively related to college GPA after the first semester should not be surprising. A student within an at-

risk population required to participate in a summer bridge program should have high levels of academic self-efficacy if they complete their summer course work and first fall semester in college with a high GPA.

In a literature review of multiple summer bridge program studies and the first generation college students that participated, Otewalt (2013) noted several flaws within the research. Similar to the study by Strayhorn (2010), much of the research did not measure outcomes past the freshman year. Most of the research examined did not contain control groups for comparison and/or use a quantitative approach to measure the outcomes. In sum, Otewalt (2013) argued that there is a continued need for longitudinal, quantitative assessments of summer bridge programs and their impact on participating students.

Braunstein et al. (2007) studied the impact of a student support services program on entering freshmen at a medium sized college. The authors compared the participants in the student support services program to the entire freshmen cohort. The combined total over a three year period were examined. On average, students in the support program had lower SAT scores, lower HSGPA, and lower family incomes. The groups had very similar first to second year retention rates though, 76.4% for all freshmen over the three year period compared to 76.2% for those within the support group. Braunstein et al. (2007) argued that this provided evidence that the support program was benefitting the most at-risk students at the university. The authors, however, did not provide details regarding graduation rates, college GPA, units earned, or racial/ethnic differences between the two groups. So it cannot be determined whether the similar retention rate for the student support program students led to further successful outcomes.

The positive influence that peer support has on students from low SES backgrounds is another finding (Dennis et al., 2005; Grant-Vallone et al., 2003) that relates to student support

programs. Grant-Vallone et al. (2003) sought to measure the impact that supportive relationships

have on individuals that are first generation college students and/or financially disadvantaged.

Two separate surveys were mailed to juniors and seniors that were current members of the Equal

Opportunity Program (EOP), Academic Support Program for Intellectual Rewards and

Enhancement (ASPIRE), or the Faculty Mentoring Program (FMP) at California State

University, San Marcos. In order to participate in these programs members would need to be

financially disadvantaged and/or a first generation college student. The first survey dealt with

questions related to demographics, adjustment to the university, and support networks. The

second survey focused on experiences with the student support service programs they were

members of. The authors received 118 responses to the first survey and 73 for the second. The

authors did not indicate how many students completed both surveys. For students who

completed the demographic questions within the first survey, 76% were female, 59% were

single, 53% lived alone off-campus, 60% worked an average of 20 hours per week, and the

average age of the participants was 32 years old. According to the authors, 33% of the

participants in the study were Mexican-American/Hispanic, 25% were Caucasian, 7% African-

Americans (non-Hispanic), and 6% were Asian/Pacific Islanders. The specifics for the

remaining 29% could not be located within the publication.

Grant-Vallone et al. (2003) reported that participants who reported higher levels of self-

esteem and peer support were more likely to also report high levels of academic and social

adjustment. However, even though the study focused on financially disadvantaged and/or first

generation college students, there were many factors that limit how much the findings could be

generalized. There was a small sample size at a single institution. The methodology and

findings were unclear. Additionally, the average age of the population was 32 years old. A

question would be how well the findings could be compared to a primarily traditional aged group of entering freshman at a private, research, university.

Dennis et al. (2005) examined how motivation, parental support, and peer support impacted the academic success of ethnic minority first generation college students. Similar to Grant-Vallone et al. (2003), Dennis et al. also found a connection between peer support and college GPA. Students lacking peer support also had a lower college GPA by the spring of their second year. There were 100 participants in the short-term longitudinal study by Dennis et al. (2005), all of whom were ethnic minorities, at a university that predominantly serves ethnic minority students from lower and lower-middle class backgrounds.

Dennis et al. (2005) collected HSGPA, ethnicity, gender, and SES for the participating students. The surveys were used to measure motivation, family support, and peer support. The college GPA of the participants at the end of the spring of their second year was used as the outcome variable in the study. The authors used *t-test*s to determine if there were any significant differences between the ethnic groups within the study and found that the only significant differences were that the Asian students had a higher average HSGPA and college GPA. Using regression analysis, Dennis et al. (2005) found evidence showing that career and personal motivation as well as peer support can predict college grades and adjustment. The limited sample population and uniqueness of the location for the study, however, make it difficult to generalize the findings.

Padgett and Reid (2002) used a quasi-experimental design to answer their question regarding how the at-risk participants in the Student Diversity Program (SDP) at California State University, Fullerton, were performing academically when compared to a similar group of students outside of the program. After eliminating one student from the study, they examined 40

total SDP participants. Nine were from the spring 1994 cohort, ten from fall of 1994, five from

spring of 1995, and 15 from the fall of 1995. All of the participants were considered at-risk, and

many of them were also student-athletes. The authors did not provide details on the specifics,

however, regarding how they were considered at-risk or how many were student-athletes. For

the comparison group in the quasi-experimental design, matches were found for each student in

the SDP based on the following seven questions. What semester they first entered the

university? Ethnic group? Sex? Was there age within two years of the student they would be

matched with? Were they a first time freshmen or a transfer student? Did they have a similar

GPA after one semester at the university? Were they similarly still enrolled in classes? Overall,

Padgett and Reid (2002) used these questions to find between four to 54 comparable students for

each SDP participant. It seems that some of these comparable students though joined SDP after

poor academic performance and thus were removed from the study. The authors then examined

the eventual GPA and graduation rates for the SDP and comparison groups. For each cohort the

SDP students had a higher graduation rate that was statistically significant when all of the

cohorts were combined. The SDP group also had a higher college GPA.

There were flaws in the study, however. Due to the methodology and use of first

semester GPA in the match criteria instead of HSGPA, and the characteristics of unique Student

Diversity Program, Padget and Reid (2002) did not answer their research question in the way

they anticipated. What they found was that at-risk students that either started in the program or

joined the program after struggling academically graduated at a significantly higher rate than

students that achieved a low first semester GPA but did not decide to receive support from the

SDP. Within the discussion section the authors seemingly acknowledged this. What they did

not detail in their findings or discussion, however, was how their methodology could lead to an

erroneous composed comparison group. For the 39 SDP students in the study, there were 21

African American males, one African male, one Turkish male, twelve African American

females, one Hispanic female, one Anglo-American female, one Anglo-American male, and one

Asian female. Considering the other six criteria used for matching and the acknowledged fact

that there were anywhere from four to 54 matches for each individual SDP student, the final

composites for each group could have been completely different by the time they were

compared. As example, if 38 of the 39 SDP students only had one matching student for the

comparison group, but the 39th student in the SDP had 50 matches then the comparison group is

going to mostly resemble the characteristics of the 39th SDP student rather than the entire SDP

group.

The largest research study examined that pertained to the impact of a student support

program was completed by Angrist, Lang, and Oreopoulos (2009). They created a Student

Achievement and Retention (STAR) project at one of the satellite campuses of a large Canadian

university that was primarily considered a commuter school because around 80 percent of the

students in the sample lived at home. The project randomly assigned 250 entering freshmen into

one of two treatment groups, and an additional 150 students into a third treatment group. The

Student Support Program (SSP) offered students access to peer-advising and supplemental

instruction. The peer advisors emailed the group participants regularly and were available to

meet at the STAR office. The second group, the Student Fellowship Program (SFP), was an

incentive program where students had the opportunity to win merit scholarships of $5,000 or

$1,000 if they were able to reach certain targets with their first year GPA, with the targets

available based on the individual HSGPA of each participant. Lastly, the third treatment group,

referred to as SFSP, offered the students the support of the SSP group and also the financial

incentives of the SFP group. The remaining entering freshmen that were not randomly assigned into a treatment group and had no contact with the STAR program other than a baseline survey sent to all entering freshmen consisted of 1,006 students that became the control group. For each of the treatment groups, the students that were randomly assigned were asked to provide consent by signing up for the program. The SFP group received the highest rate of sign-ups, 87 percent, followed by 79 percent for the SFSP group, and 55 percent for the SSP group. Females agreed to sign up at a higher rate than males for each of the treatment groups, 61 percent compared to 46 percent.

Angrist et al. (2009) determined the results of their study by looking at the average GPA of the participants at the end of the first semester and first year. Participants in the SFP and SFSP fellowship programs, with the opportunity to earn a merit scholarship, achieved a higher first year GPA than the control group. The SSP group performed similarly to the control group. When examining the overall results, the authors pointed out that females participating in the SFSP group benefitted the most, particularly the ones who were first generation college students. In their conclusion, Angrist et al. (2009) shared that peer advising was more popular than supplemental instruction for both sexes. They also acknowledged that the higher response rates of women required attention. Participation in the treatment groups was optional and the pursuit of support and merit scholarships within each group was also optional. Females were more likely to participate, receive support, and benefit.

In summary, the literature reviewed in relation to the impact of student support programs on academic outcomes is indeed limited. The majority of the studies examined had limitations due to a small sample size, brief time period of the study, reliance on surveys, absence of an

adequate control group, and/or poor methodology. This demonstrates a need for further research in the area.

Value of Attending a Highly Selective Private Institution

Brand and Xie (2010) have pointed out that the individuals that could benefit the most from attending college are also the least likely to attend. From there, very few have the opportunity to attend a highly selective private college or university. Although the definition of "highly selective" or "most selective" varies, these institutions admit only a select number of applicants. According to the U.S. News & World Report (2011) guide to colleges, the 100 public and private schools with the lowest acceptance rates using 2011 data ranged from 3.2% to 33.1% This means that over two thirds of freshmen applicants are denied admission. There is also the increased cost of a private institution. Based on 2009-10 data, the average price of attendance before financial aid at a private, non-profit college or university was $32,689 per year, although those with a yearly family income of $75,000 or less received more than a 50% discount on average, after accounting for grants and scholarships (Knapp, Kelley-Reid, & Ginder, 2012).

Fox (1993) examined high school seniors from 1980 who went on to graduate from college by 1986 in an attempt to determine if students who graduated from an elite private college had higher earnings than students that graduated from a lesser selective public institution. The difference in tuition prices invested between the types of schools was also accounted for in order to get a better sense of which type of school offered the most value. Fox found that students graduating from an elite private college had a rate of return on their investment that was comparable, if not higher, in respect to the lesser selective public colleges. This was calculated by observing net earnings minus the costs of tuition. Students who attended either type of

institution who did not graduate by 1986 were excluded from the study. Fox acknowledged the omission but did not elaborate on how future earnings could be impacted by differences in graduation rate by type of institution. As example, if an elite private university had a six-year graduation rate of 90% then only 10% would be excluded from the study by Fox. It could be assumed that the excluded students who did not graduate would lack the earnings minus cost potential when compared to those that did graduate. Meanwhile, a lesser selective public university might have a six year graduation of 65%, with 35% representing a larger percentage of students excluded from the study and also likely having lower earnings minus cost potential. In sum, the less selective university option would have a higher rate of exclusions and that would skew the findings. The methodology also did not account for the considerably higher amounts of aid students receive at private universities or how instances of out-of-state tuition costs at the lesser selective public universities might have applied. The predominance of high SES students attending elite private colleges is also not addressed. Even though the author found attendance at an elite private college to be more valuable, there were many limitations within the study. Without these limitations, the comparable value of the elite private college could have been even greater.

Brewer, Eide, and Ehrenberg (1999) similarly researched the rate of return for those attending an elite private college. The authors examined data from high school seniors from the class of 1972, college attendance, and professional earnings through 1986. The authors categorized the four-year colleges as either private or public, as well as by selectivity into the groups elite, very competitive, and noncompetitive. Differing from Fox (1993), Brewer et al. (1999) focused on the students who attended a four-year college and did not exclude those that did not graduate. They accounted for gender, ethnicity, family size, family income, parental

education, financial aid, test scores, HSGPA, and details regarding the type of high school. Out-of-state tuition differences were also calculated, as was the likelihood for high ability students to attend more selective schools. The authors found that attending an elite private institution had a high rate of return, middle-rated private college and bottom-rated public universities had a lower rate of return, and attending an elite public university had the weakest rate of return.

Thomas and Zhang (2005) conducted their own study on the earnings of four-year college graduates. They factored in multiple variables such as race, gender, college quality, family income, and major. The earnings of students who received their college degrees in 1992 or 1993 were examined in 1994 and in 1997. The authors found that the gap in earnings between students attending highly selective private colleges versus that of less-selective public institutions increased from 7% in 1994 to 20% in 1997. This suggested that the earnings of graduates from better schools increased over time at higher rates on average than those from less-selective schools. As such, the quality of the school attended positively influenced earnings later in the career more significantly than the observable differences immediately after graduation.

So how much of a role does higher education play in the facilitation of social mobility? Haveman and Smeeding (2006) argue that the number of low SES students qualified to attend selective institutions is far greater than the amount actually enrolled. Hill et al. (2005) have already shown that the lowest SES students are charged a net price on average that equates to a higher percentage of yearly family income than any other group. So it is not a surprise that many low SES students are choosing to attend colleges and universities that are below what their abilities could allow. In their review of the literature and national statistics, Haveman and Smeeding (2006) made multiple recommendations to improve the inequalities. Among these

recommendations, they called for the tuition at public institutions to be raised to better match the

actual costs. Higher income students at public universities are otherwise benefitting from the

equivalent of a government subsidy and are charged what essentially becomes a discounted rate.

The authors contend that government assistance should go to the individual students with

financial need, rather than the university. Without that type of direct assistance, low SES

students have trouble finding fair value at private and public four-year institutions.

Theoretical Framework

Langhout, et al. (2009) examined classism in the university setting and found that

students who experienced classism were less likely to feel like they belonged on campus. In

addition to promoting access for low SES students, the authors argued that campuses must also

do more to help these students feel welcomed. They also recommended that universities

examine and understand how their infrastructure, policies, and procedures might directly or

indirectly impact campus climate. These de facto types of classism may exist through additional

fees or other expected expenditures for classes and organizations that add even further challenges

to lower SES students.

Highly selective private universities are predominantly attended by higher SES students

whose families pay the full cost of attending (Hill et al., 2005). So the findings discussed in this

chapter so far should not be surprising. Lower SES students are expected to adjust to the upper-

middle class norms and policies of the university while also coping with the prevailing wealth of

the peers around them. This section examines sense of belonging as well as social and cultural

capital.

Sense of Belonging

Baumeister and Leary (1995) define sense of belonging as a need to form and maintain a minimum quantity of interpersonal relationships. They reviewed the empirical literature of social and personality psychology related to belongingness and argued that sense of belonging should be considered a fundamental human emotion. The research they reviewed repeatedly included evidence of a desire to form social attachments with others sharing common traits or experiences. Whereas the forming or solidifying of social attachments would have a positive effect on emotion and well-being, the opposite could be found for those lacking an adequate sense of belonging. The ill-effects extended to psychological and physical health problems.

Ostrove and Long (2007) studied social class and sense of belonging at a small liberal arts college in the Midwest. The authors randomly selected 800 non-international students to contact for the study. Of the 322 students that participated, 80 were freshmen, 105 were sophomores, 54 were juniors, and 82 were juniors. An overwhelming majority of participants were White (267) and female (234). Social class was determined subjectively and objectively (Ostrove and Long, 2007). For the subjective calculation, students self-selected whether they were poor (5%), working class (9.4%), lower-middle class (15.8%), middle class (38.8%), upper middle class (25.2%), upper class (3.6%), or other (2.1%). For the objective calculation of social class each student selected a range that best matched their family income and indicated the educational level and occupation of their parents. These yearly income ranges and results were less than $10,000 (.4%), $10,001 to $20,000 (2.9%), $20,001 to $40,000 (13.8%), $40,001 to $60,000 (16.3%), $60,001 to $80,000 (18.8%), $80,001 to $100,000 (13.3%), $100,001 to $150,000 (17.1%), and more than $150,000 (17.6%). For parental education and occupation, the results found by Ostrove and Long (2007) indicated that an overwhelming majority of the

participating students came from educated families with parents working administrative, minor professional, or major professional upper class positions.

In their study, Ostrove and Long (2007) found that both subjective and objective social class background significantly correlated with sense of belonging, academic adjustment to college and social adjustment to college. They also used linear regression, path analyses, and meditational analyses to determine that social class background strongly related to sense of belonging which then could be found to predict social and academic adjustment to college.

Ostrove and Long (2007) offered several recommendations with their findings. They encouraged institutions to think about how welcoming their campus, norms, beliefs, and policies are to underrepresented groups. The authors also recommended that existing programs that might have a positive effect on low SES students be further assessed. Even though administrators may not be able to change the social class background of a student, Ostove and Long (2007) argued that the sense of belonging of a student could be changed.

The widely studied academic and social integration model of Vincent Tinto (1975) relates well to the sense of belonging of a student (Hausmann, Schofield, & Woods, 2007; Hurtado & Carter, 1997). Family background, individual attributes, and pre-college schooling inputs impact the initial levels of commitment of a student. The goal and institutional commitment levels, and how they change, are vital to integration and whether the student persists or drops out (Tinto, 1975). Terenzini and Pascarella (1977) analyzed the Tinto model and found support for the predictive validity of both social and academic integration. Tinto (2006-2007) has acknowledged in recent years that students from different backgrounds often have different experiences in college and that much more work needs to be dedicated to research on the persistence of low-income students. Tinto's acknowledgement, in relation to low SES students at

a highly selective private institution, validates the challenges that are faced. Additional research (Munro, 1981; Pascarella & Terenzini, 1983) also previously found that the experiences of students once they arrive on a college campus have a greater impact on their persistence than the HSGPA and test scores they previously achieved.

Hurtado and Carter (1997) examined sense of belonging in relation to Tinto's social and academic integration model. The authors raised concerns over the complexity students from diverse groups face when expected to integrate into the university setting. Examining sense of belonging at different points along the path to graduation for Latino students, the authors found a strong positive relationship between students' sense of belonging and reports of frequent out of class discussion of course content with other students. They also found membership in social organizations to be positively related to sense of belonging. A potential limitation with the study is the perspective taken by the authors. They present their findings in a way that implies that the sense of belonging a student feels is impacted by their academic and social integration. As such, they discount the possibility that sense of belonging is potentially the cause for the integration rather than the effect.

Building off the work of Hurtado and Carter (1997), additional researchers examined the relationship between sense of belonging and diversity. Locks, Hurtado, Bowman, and Oseguera (2008) looked at survey data from ten public universities and found that positive interactions a student has with diverse peers resulted in an increased sense of belonging. Once again though, the authors failed to consider that sense of belonging might be the cause rather than the effect, or at least that sense of belonging and interactions with diverse peers might have a cyclical relationship. Locks et al. (2008) also did not examine any role that SES might have played in the findings.

Johnson, Soldner, Leonard, Alvarez, Inkelas, Rowan-Kenyon, and Longerbeam (2007) used survey data from a national sample of 2,967 first-year students and found that African American, Hispanic/Latino, and Asian Pacific American students reported a sense of belonging that was lower than that of White/Caucasian students. Only Multiracial/Multiethnic students reported a higher sense of belonging than White/Caucasian students. The most powerful predictor of sense of belonging found by the authors came from the college environment. Students from all of the ethnic groups, except Multiracial/Multiethnic, that claimed their residence hall was socially supportive reported high levels of sense of belonging. The authors indicated that SES was examined as part of the student background characteristics, but they did not indicate how they defined it or whether there were impactful differences in SES between the racial/ethnic groups.

Freeman, Anderman, and Jensen (2007) distributed a survey to investigate the relationship between sense of belonging and academic motivation. The 238 first semester freshmen who participated in the study at a public university in the Southeastern United States were primarily White and female, and they were registered in non-major biology, psychology, and English classes. The authors found evidence that sense of belonging within those courses was associated with their in-class academic motivation and efficacy. Attempts to further understand sense of belonging at the campus level proved to be more complex for the authors though.

Pittman and Richmond (2008) studied university belonging, friendship quality, and psychological adjustment. They collected questionnaire data for 79 freshmen during two separate time points within their freshman year. The authors found that students who

experienced positive changes in university belonging also had positive changes in how they thought about themselves.

Hausmann, Schofield, and Woods (2007) conducted three surveys throughout the freshman year at a predominantly White university as part of a longitudinal experimental design where White and African American participants were randomly assigned to either a treatment group or one of two control groups. Members of the treatment group received messages and gifts from university administrators designed to help the students feel valued. They were told that their cooperation and completed surveys would be used to help the campus. Members of both control groups only received messages from a professor in the Psychology department requesting them to complete the surveys. While controlling for variables such as race, gender, financial difficulty, and SAT; Hausmann et al. (2007) found that sense of belonging positively associated with institutional commitment and intentions to persist.

Furthermore, the findings of Hausmann et al. (2007) suggest that sense of belonging was most impacted by early interactions with peers and others at the university and did not change as much as they expected over time. The authors established this by surveying students. Three surveys were sent out during the first year. The first was mailed during the second week of the fall semester. The second survey was mailed out during the first week of the spring semester. The final survey was sent near the conclusion of the spring semester. Once the survey responses were received, some students were randomly assigned to either an intervention group designed to enhance their sense of belonging or one of the two control groups. Within the study, sense of belonging values from the first survey positively predicted intentions to persist and were not related to race, gender, SAT scores, or financial difficulty. During the first year, sense of belonging significantly declined for the control group that didn't receive gifts and intentions to

persist significantly declined for all groups. This suggests that sense of belonging should receive more attention and with increased attention placed on the period from college admission through the first couple of weeks on campus. According to Hausmann et al. (2007), their study shows strong evidence that the pre-college period and first few weeks of enrollment are vital for establishing high levels of sense of belonging which then predict intention to persist.

Types of Capital

Just as starting a business requires capital, so too does a college education. Bourdieu (2008) describes three types of capital. Economic capital describes belongings that can immediately be converted into financial currency. Cultural capital within the field of education is generally considered the knowledge and skills that can benefit a person within a specific environment. Social capital generally refers to the potential or actual resources available for a person to give or receive through their network of connections. This section will focus primarily on social and cultural capital

According to Coleman (1988), social capital is found in the relationships between persons and can result from all types of social relations and social structures. Physical capital is described by Coleman (1988) as the physical tools that can be invested in and used to create financial capital. An example of physical capital could be the materials and tools necessary to build a house. Once they are purchased and used properly, the end result is something that can be more easily exchanged for an amount greater than the original cost. Human capital, similar to physical capital, is the investment in internal knowledge, skills, and capabilities. Coleman posits that social capital in the community and the family aids in the formation of human capital that increases the likelihood of remaining in high school through to graduation.

Stanton-Salazar (1997) defined social capital as the relationships between people and the networks that weave them into units. In relationship to education, Stanton-Salazar discussed the importance of having a relationship with institutional agents that can provide support. Seven funds of knowledge are described as being available through institutional support.

1. Institutional sanctioned discourses (i.e., socially acceptable ways of using language and communicating).

2. Academic task-specific knowledge (e.g., subject-area knowledge)

3. Organizational/bureaucratic funds of knowledge (e.g., knowledge of how bureaucracies operate – chains of command, resources competition among various branches of bureaucracy).

4. Network development (i.e., knowledge leading to skillful networking behavior; e.g., knowledge of how to negotiate with various gatekeepers and agents within and outside of the school environment; knowledge of how to develop supportive/cooperative ties with peers who are well integrated in the school's high-status academic circles)

5. Technical funds of knowledge (e.g., computer literacy, study skills, test-taking skills, time-management skills, decision making skills)

6. Knowledge of labor and educational markets (e.g., job and educational opportunities, requisites and barriers to entrée; knowledge of how to fulfill requisites and how to overcome barriers)

7. Problem-solving knowledge (i.e., knowing how to integrate the first six knowledge forms above for the purpose of solving school-related problems, making sound decisions, and reaching personal or collective goals). (pp. 11-12).

According to Stanton-Salazar (1997), minorities have problems developing social capital with institutional agents that are capable of offering support and knowledge. The problem is blamed on a combination of psychological and institutional forces that limit the development of essential relationships. These negative forces can be decreased if the minority student is able to decode the system and learn the rules of the dominant culture. This relates back to the classism that exists within the upper-middle class culture of higher education (Langhout et al., 2009).

Avery and Daly (2010) similarly define social capital as the investment into social relations that can lead to an increase in available resources. Within a college setting, social capital can be accumulated through relationships with fellow students, faculty, administrators, and others at the institution. In their qualitative study on eight college students, the authors found that social capital is connected to engagement and that resiliency is connected with self-efficacy. Resilience, within this study, is defined as the characteristics that allow a student to persist through adversity.

Lareau and Weininger (2003) review how Bourdieu's concept of cultural capital has been interpreted within the literature. According to the authors there are two central premises of the dominant interpretation that has emerged. The first is that cultural capital "is assumed to denote knowledge of or competence with "highbrow" aesthetic culture (such as fine art and classical music,)"; and the second is that "researchers assume the effects of cultural capital must be partitioned from those of properly educational "skills,"; "ability," or "achievement"" (p. 568). Lareau and Weininger challenge that this interpretation is inadequate. Upon their literature review and subsequent study, they define their view of cultural capital to be "the direct or indirect "imposition" of evaluative norms favoring the children or families of a particular social milieu" (pp. 597-8). The authors argue that this definition, despite being abstract, is broader and

more capable of including the impact of academic skills while also allowing for flexibility in that a particular social milieu is not explicitly favored. In relation to education, their definition means that certain students would have gained skills from their family and others that would be useful in a school environment whereas others might not have. As such, low SES students attending a private, highly selective, research university are not disadvantaged because they are lacking cultural capital. They are disadvantaged because the cultural capital they possess does not prepare them for the upper-middle class norms and beliefs of the campus climate they have entered.

Revisiting the study by Walpole (2003), low SES students work more, study less, are less involved, and report a lower grade point average than high SES students at four-year schools. Walpole shows evidence that low SES students possess different types of cultural capital when compared to high SES peers. The author does not use the words "lesser" or "more" for cultural capital, but rather chooses to use the word "different." Achieving a college degree allows a low SES student to reach a higher social status than a low SES student who does not attend college, but the high SES graduate will continue to be more advantaged. It should be safe to assume, based on the research of Walpole, that the advantages of a high SES student has more to do with economic and social capital than that of cultural capital. For instance, the high SES student has more resources and support at their disposal while seeking to acquire the knowledge and skills that promote success at a private, highly selective, research university. Meanwhile, the lower SES student may have to work more, losing opportunities for engagement as result of their lack of financial resources.

The findings of Aries and Seider (2005) further demonstrate this point. The authors pose that both economic capital and cultural capital are impacted by social class in higher education.

They believe that administrators at prestigious colleges and universities need to understand that low SES students, particularly of first generation status, will not possess the cultural capital relevant to their campus climate. Once again, assuming that a university's campus climate conforms to upper-middle class norms and values, the environmental need to adjust is faced by students from both the lowest and highest SES backgrounds. Those from high SES backgrounds, however, have more economic and social capital available to help them adjust to the upper-middle class norms and nuanced expectations within the collegial environment. That luxury is not available to low SES students.

Methodology

There is value in understanding how SES impacts academic outcomes at a highly selective, private, research university. An analysis of existing data could provide a better description of the issues faced in relation to SES. This type of study could help verify previous findings that show that students from low SES backgrounds are underrepresented and potentially struggling to achieve the same academic success when compared to higher SES peers (Walpole, 2003).

There are also existing programs that offer college students support related to the recommendations suggested in the literature. Learning if the support offered by a program positively impacts students of various SES backgrounds could be of great value when it comes to identifying potential best practices. If a support program actively sought to increase the sense of belonging, social capital, and institutionally relevant cultural capital of its participants then it would reason that these students would outperform peers of similar SES and other pre-college characteristics. A study examining the academic outcomes based on this assumption could offer instruction as to how best to offer support to students from low SES backgrounds.

Significance

The literature demonstrates that the impact of SES must be further understood in order for the degree achievement rates of 25 to 34 year olds to be improved in the United States. Reason (2009) has pointed out that research on persistence is informative, but that improvement will look different on each campus. From a scholarly standpoint, this study will aim to add further knowledge to the literature. From a practical standpoint, this study will hope to be significant when it comes to guiding improvement of the university where the research is conducted.

Conclusion

In this chapter, the desire to increase the percentage of citizens in this country with an associate degree or higher has been established (Lee & Rawls, 2010). The relevance of SES in relation to access and success in higher education has been covered (Carnevale & Rose, 2003; Walpole, 2003). The relationship between social mobility and attending a highly selective institution (Haveman & Smeeding, 2006; Hill et al., 2005) has been discussed. The relevance of sense of belonging (Aries & Seider, 2005; Ostrove & Long, 2007), social capital (Avery & Daly, 2010; Stanton-Salazar, 1997), and cultural capital (Walpole, 2003) has also been identified. Low SES students also face additional challenges when adjusting to the upper middle class norms of a highly selective, private, university (Langhout et al., 2009). So it would make sense to wonder how many low SES students are attending a highly selective, private, university. Information regarding the performance of these students and whether support programs have bolstered their academic outcomes would also be useful. The next chapter will detail how a study might acquire this information.

Chapter 3: Methodology

The previous chapters offered an in depth look at the concerns faced by lower SES students at a highly selective, private, research university. Considering the completion agenda goals of the Obama administration when it comes to increasing the percentage of 25 to 34 year olds in the country with an associate degree or higher (Lee & Rawls, 2010), it is quite surprising that SES has not received more attention. According to Brewer, Eide, and Ehrenberg (1999), students who graduate from an elite private institution were able to achieve the highest rate of return on their investment. Students from low SES backgrounds have also been found to be severely underrepresented at these highly selective, private, institutions (Carnevale & Rose, 2003). Given upward social mobility is the primary goal of earning a college degree (Haveman & Smeeding, 2006; Hill et al., 2005), it makes sense that low SES students have the most to gain from attending a highly selective university (Brand & Xie, 2010).

As established within the first two chapters, the purpose of this study was to further learn about the academic progress of entering freshmen of various SES backgrounds at a particular highly selective, private, research university. Whether there were differences in college GPA, persistence, and graduation for students of different SES backgrounds was determined. The study additionally examined whether a student support program had a positive impact on the academic outcomes of students, especially low SES students. Within the literature, researchers found that sense of belonging (Aries & Seider, 2005; Ostrove & Long, 2007), social capital (Avery & Daly, 2010; Stanton-Salazar, 1997), and cultural capital (Walpole, 2003) have an important influence on the educational outcomes of low SES students. So it would reason that the educational outcomes of low SES students that participated in a support program could be compared to similar students who did not participate in the program.

The goal of this chapter is to describe the research design that was used to analyze the impact of SES on college GPA, persistence, and graduation at a highly selective, private, research university. The reasoning behind the research questions and methodology are further explained within this chapter. The population and sample, data collection procedures, data analysis, and limitations are also detailed in hopes of establishing a clear rationale for the methods of this study.

Research Methodology

This exploratory study took place at a single institution and used existing data from multiple cohorts. The entire first-time freshman cohorts that entered the university in the fall of 2007, 2008, and 2009 were examined. The persistence, grade point average, units earned, and graduation status through the summer of 2013 were accounted for. Four year graduation rates were available for each cohort, five year graduation rates were available for the 2007 and 2008 cohorts, and the six year graduation rate was available for the 2007 cohort. The focus for this study, however, was on four year graduation rates.

The expected family contribution (EFC) calculated internally by the financial aid office of the institution was used to determine SES for this study. High school grade point average and standardized test scores were used together through the use of a composite score to measure academic preparedness. Majors of study were combined into categories such as engineering, social sciences, and the arts. The specifics regarding the calculation of SES, use of HSGPA and test scores, and categorization of majors is provided in more detail later in this chapter.

The first focus of the study was to incorporate an exploratory design to measure the impact of a student support program on academic outcomes. This examination compared participants of the support program to non-participants. The goal was to determine whether there

were differences in grade point average, persistence, units earned, and/or graduation. The analysis had both a general and specific focus. For instance, the study sought to learn how the students within the program performed academically when compared to a similar group of students outside of the support program. For each comparison of means between the two groups analyzed for this part of the study, the single difference was whether students participated in the support program.

How ranges of SES impacted academic outcomes was then examined. Using the first year expected family contribution calculated internally (IEFC) by the financial aid office at the university, students were placed into one of five categories that described their SES background. The students with an IEFC less than ten percent of the total cost of attending were expected to contribute the least because they demonstrated the highest financial need. The second and third ranges of SES included students with progressively higher IEFC amounts, with the IEFC being less than the full cost of attending. The fourth range consisted of students with an IEFC that was equal to or greater than the full cost of attending. The final range represented students that did not apply for financial aid. The assumption regarding this last group was that their SES was high enough that they were fully capable of paying the full cost of attending.

Use of EFC was not commonly found within the literature. A reason for this was that the majority of authors studying SES relied on survey data instead of actual financial aid data. This was likely due to challenges in accessing the data. An exploration for research that specifically used EFC revealed an example by Bresciani and Carson (2002), who examined EFC as part of their analysis of financial aid packaging information over a four year period from 1996 to 1999. They found that unmet need had a greater impact than percentage of gift aid on student persistence. Cragg (2009) similarly used EFC as part of an affordability match calculation that

measured unmet need. The total of grants, loans, other aid, and the expected family contribution were deducted from the institution's full cost of attendance. The result was equal to the unmet need, or overabundance of funds, for each individual student when entering the university. In addition to this affordability match, the author also examined an academic match calculation based on SAT scores to determine how well a student fit in with the rest of the student population. According to Cragg (2009), the academic match was significantly related to graduation, but the affordability match was not. Wohlgemuth, Whalen, Sullivan, Nading, Shelley, and Wang (2007), however, found that financial aid was a positive predictor when they studied the financial, academic, and environmental influences on retention and graduation at a Midwestern research university. They particularly found that gift aid and work study were positively linked with first to second year retention. Their analysis used EFC and types of aid received in combination with demographic characteristics, high school rank, and test scores.

As result of the multiple ranges of SES within this study, each analysis compared the means of the five groups. The null hypothesis was that the GPA, persistence, units earned, and graduation rates would be the same for each of the five groups. The analysis then drilled down deeper and added additional characteristics such as race/ethnicity and academic preparedness. For instance, the study sought to find out if the academic outcomes varied for students of different SES levels when they were from the same race/ethnicity and had similar academic preparedness scores.

The final part of the SES focused research question measured whether the impact of SES on academic outcomes for students within the support program was similar to that of students that did not participate in the support program. As example, if there were large differences in the graduation rates of low and high SES students that did not participate in the support program,

would there also be similar differences in graduation rates between low and high SES students

that did participate in the support program? This analysis could indicate whether the support

program helped mitigate some of the challenges faced by low SES students.

Research Questions

There are two primary research questions for this study.

1. For first-time freshmen, what differences exist when the persistence, grade point average,

   units earned, and degree completion are compared for students required to participate in a

   support program and non-participants of similar socioeconomic status and academic

   preparedness?

   a. What other differences between the participants in the support program and non-

      participants can be found when additionally examining first-generation status,

      gender, ethnicity, and pursued major?

2. For the general population of non-participants outside of the support program, how did

   socioeconomic status and academic preparedness impact the persistence, grade point

   average, units earned, and degree completion of first-time freshmen?

   a. When also examining first-generation status, gender, ethnicity, and major, were

      differences found when comparing students of similar SES and academic

      preparedness?

   b. If there were differences in persistence, grade point average, units earned, and

      degree completion for students within particular SES and academic preparedness

      ranges, were these differences similar to those found for participants of the

      support program population?

Methodology of Other Studies

Research on the impact of SES in higher education has been somewhat limited to date and the methodologies employed by the researchers have been inconsistent. How SES is defined and calculated by the researchers has also varied between the studies based on the data available and the process they were collected. Researchers would often define and categorize SES after they collected their data, using the variables available to them. Variables most commonly used were family income and parental education. The differences in how SES is defined and studied are detailed in chapter two.

Within the research on SES and student support programs, the methodology has also been inconsistent and limited. The critiques and analysis within chapter two has demonstrated this. In sum, the underwhelming quantity and quality of the research on SES and student support programs leads to two conclusions. Accepted standards for researching SES need to be identified and additional research must be conducted in order to identify standards and best practices. Thus, this study further examined SES within higher education and attempted to establish and follow a research methodology appropriate to the questions being asked and the data that were available.

Reasons for Support Program Methodology

Participants in the student support program were selected by the office of admission and were required to participate in the program as a condition of their admission. In addition to participating in the program for two to four semesters on average, students were required to complete a four unit class that focused on learning strategies and motivation. The course counted toward graduation and was generally one of the four classes students would enroll in during their first semester.

According to the office of admission, students selected for the support program were identified because they were believed to be someone that could benefit from the additional support. Even though participants might have been selected for the support program due to possible academic concerns, the selection process was subjective and did not follow any established criteria. The assumption based on this practice would be that students selected for the support program were considered to be more at-risk academically when compared to the generally admitted first-time freshman population. Within each cohort, however, there existed a similar if not greater number of students not selected for the program even though they had similar HSGPA and test scores as those that were selected. Attempts were made to further identify differences between the participants and non-participants of the program. For instance, did the support program population have a higher rate of low SES or first-generation college students when compared to the comparison group of students? Were the support program students more likely to be in a particular major, or not yet have one at all? These answers and others were answered.

The support program participants and comparison population were further broken down into groups based on additional variables, such as academic preparedness, gender, pursued degree program type, ethnicity, and first generation status. The analysis of these additional variables created subpopulations. For instance, looking at the academic achievement of low SES students who also had low HSGPA/test score composites can demonstrate whether students in the support program performed differently in comparison to similar students not participating. By starting with a broad grouping and drilling down to more specific and smaller groupings of students, this study aimed to identify whether there were sub-populations of students that the support program impacted differently. Within these subpopulations, particular focus was given

to the differences in SES background. The data analysis section within this chapter provides further details.

To better understand the differences between two groups of students that are only being tested once, a *t*-test for independent samples is the best method (Salkind, 2000). The hypothesis was that students within the support program will have achieved equal or better grade point average and units earned in comparison to students outside of the program with similar characteristics. Similarly, Chi-square analyses compared the means between the two groups for persistence and graduation. These variables were not continuous and would not be appropriate for *t*-tests for independent samples. The Chi-square analyses answered whether the differences in frequencies would be what you would expect to occur by chance (Salkind, 2000). The null hypotheses for the *t*-tests and Chi-square analyses were that the students outside of the program performed better. This hypothesis was based on the assumption that students were placed into the program because they were considered to be more at-risk academically in comparison to students with similar characteristics not selected by the office of admission for the program. As such, the research hypothesis was directional and a one-tailed test was run (Salkind, 2000).

Reasons for SES Analysis Methodology

There was not a universally accepted process of calculating SES available. This study used the expected family contribution calculated internally by the university (IEFC) for the first year of attendance because it was based on institutionally accepted factual data rather than student reported survey responses. Students with an IEFC less than ten percent of the total cost of attending the university for the year were considered to be of the lowest SES background. As example, if the total cost of attending for the first year was $60,000 then the lowest SES group in this study included students whose families would be expected to be able to contribute up to, but

not greater, than $6,000 toward the full yearly cost of attending the university. An IEFC of ten percent to less than 30% was considered to be low SES. Students with an IEFC of 30% to less than 100% were considered middle SES. An IEFC equal or greater than 100% of the full cost of attending for the year was considered middle to upper SES. Students that did not apply for financial aid were classified as upper to highest SES.

The methodology for research question two focusing on SES was different than that used for research question one. Instead of two groups, there were five groups. Based on the presence of more than two groups, the best way to test for significant differences between the groups would be a one-way analysis of variances (Salkind, 2000). Before conducting the one-way analysis of variance, a multivariate analysis of variance was first ran. A factorial design was also used to test and examine the variables. For instance, a 5 x 4 factorial design consisted of five different groups based on ranges of SES and four different groupings based on ranges of academic preparedness. This allowed for the analysis of more than one treatment variables. The dependent variables for a factorial design need to be continuous and would include GPA and units earned after the first and fourth years. Chi-square analyses were also used to measure differences in graduation rates. Additional details have been provided in the data analysis section within this chapter.

Population

The proposed site and population were selected for multiple reasons. Attending a highly selective university has been linked with social mobility (Haveman & Smeeding, 2006; Hill et al., 2005). The challenges faced by low SES students at highly selective, private, institutions have also been established (Langhout et al., 2009). Research examining the academic outcomes

of students of various SES have been limited (Carnevale & Rose, 2003). There is merit in the examination of a large, highly selective, private university.

The particular university studied matches the criteria listed above. It is a highly selective, private, research university. The undergraduate student population exceeds 16,000. The total cost of attending varies by year and is currently about $60,000. The recently calculated six-year graduation rate at the university is around 90%, similar to other highly selective, private, research universities.

Participants

The existing data from three entire cohorts of students that entered the university as freshmen were examined. These fall entering first-time freshman cohorts arrived at the university in 2007, 2008, and 2009. The size of each fall cohort of first-time freshman ranged from around 2,700 to 3,000 students. The overwhelming majority of students entering the university were traditionally aged, first-time, full-time, freshmen. This study did not focus on the age of the students. Rather than taking a random sample from each cohort, this study started with the entire cohort and excluded only the students that did not fit the questions being asked.

International students, recruited student athletes, and architecture majors were excluded. A small number of students with missing HSGPA, adjusted HSGPA, and/or test scores were also removed. An even smaller amount of students that withdrew from all of their classes during their first term and/or were listed incorrectly for the wrong cohort or were actually transfer students instead of entering freshmen were also excluded.

International students were not eligible for financial aid. The majority of international students attended high school outside the United States. They also faced registration

requirements necessary to stay in the country. For these reasons, they were excluded from this study.

Student athletes at this university were uniquely different when it came to average HSGPA and test scores, time committed to athletics, and aid packages received. Many of the recruited student athletes at the university had HSGPA and test scores far below the average at the university. Student athletes also had access to an office that provided academic support and tutoring not available to the general population. These facts provided enough reason for the exclusion of these students from the study.

The rigorous five-year architecture degree program presented a challenge with comparing major and degree completion status. This program, as opposed to the 128 units typically required for an undergraduate degree at the university, required 158 units and was the only undergraduate degree program at the university with the additional unit requirements. The number of students enrolled in the program was small. This is why the students pursuing this major were also excluded from the study.

For research question one, students in the support program were primarily compared to other students of similar characteristics. For instance, low SES students that participated in the program were compared to low SES students outside of the program. Breaking this down further, low SES program participants were compared to students that did not participate in the program but had similar SES and academic preparedness ranges. Differences in composition by first generation status, gender, race/ethnicity, and pursued major were also examined at this point. This allowed for a comparison of two reasonably similar groups, with participation in the support program existing as the only difference.

Data Collection Procedures

For both research questions, the exploratory study used existing university data that the primary researcher had access to as part of the routine functions of his position at the university. The researcher gained written permission from his supervisor to analyze the data sets and to use them for this study. The researcher also awaited authorization from the university institutional review board (IRB) before beginning the analysis. At that point, once the necessary data had been collected, a spreadsheet lacking student identifiers was created and used for the remainder of the study. Data from the spreadsheet were then used to enter into software, SPSS, to conduct the analysis.

Measurement

In addition to the calculation of SES described in Table 2, there were notable decisions made within this study. It was assumed that HSGPA and standardized test scores are examined together for admission decisions. As such, it was expected that an admitted student with a low HSGPA would likely have a higher test score and vice versa. For this reason, a composite score for each student was put together to measure HSGPA, adjusted HSGPA, and test scores at the same time. This composite score measured the academic preparedness of each student. Table three details the calculation and ranges that were used for this study. Students with a score of less than .80 were considered to have the lowest range of scores, .80 to less than .90 were considered the low middle, .90 to less than 1.00 represented the middle high, and scores greater than or equal to 1.00 were referred to as the highest. Rather than using these broad ranges for every analysis, more specific ranges of scores were also used based on the subgroups examined.

To better understand how academic preparedness scores were tabulated, table four details examples. For instance, a student with a HSGPA of 3.5, an adjusted HSGPA of 3.8, and a best

SAT score of 1900 would produce a score of .8722 for academic preparedness. The maximum

scores of 4.00 for HSGPA, 4.70 for adjusted HSGPA, and 2400 for best SAT score equates to a

score of 1.058 for academic preparedness. Of note, students that completed ACT scores instead

of the SAT had their scores adjusted by the university prior to this study. Students missing either

one of the three scores required to produce the academic preparedness score were excluded from

the full study.

A notable decision regarding differences in the degree program pursued by students were

also made. Rather than looking at each academic major separately, this study collapsed degree

programs into categories. The placing of similar degree programs into categories minimized the

number of levels required for analysis while also increasing the population sizes of each

category. This allowed for a better comparison of students of similar majors. The degree

program pursued used data from the end of the first semester. The possibility for students to

change their major after that point was a limitation of the study, as was the acknowledged

complication of placing uniquely different majors into the same category. As such, these degree

programs were placed into categories based more on their similarities rather than their

differences. Additionally, as previously mentioned, students pursuing the five-year architecture

program were excluded from the full analysis. Table 5 details how certain majors were

categorized.

Data Analysis

Once the data set was collected, the first step was to run descriptive statistics. The

characteristics were provided for each entering fall cohort of students from the fall of 2007

through to the fall of 2009. As detailed further in chapter four, each cohort was examined

separately and a decision was made to examine the three cohorts together as one population.

This decision was made after conducting a multivariate analysis of variance that detailed there were no statistically significant differences between the cohorts for first year GPA, first year units completed, four year GPA, and units completed after the fourth year, $F(8, 13102) = 2.352$, $p = .016$; Wilk's $\Lambda = .997$, partial $\eta^2 = .001$. The persistence rates and four year graduation rates for each cohort were also essentially identical (Table 11).

Research Question One

Once the three cohorts were combined the focus shifted to the research questions. Independent variables included in this descriptive statistical analysis were status within the student support program, SES, gender, race/ethnicity, academic preparedness, first generation status, and pursued degree program type. The majority of students participating in the support program were expected to be in the lower ranges for academic preparedness, particularly in comparison to the general admitted population of non-participants.

Support program participants were also expected to have higher rates of minority students in terms of race/ethnicity and first generation status. Another expected finding was there would be a higher rate of students in the arts and a lower rate of students pursuing engineering degrees within the support program participant population. Detailed in chapter four, these expectations were found.

Correlation coefficients were also examined between the independent and dependent variables. Rather than the categorical ranges for SES and academic preparedness, the correlation analyses used the raw scores for these variables. To best determine a precise correlation coefficient, the continuous variables were examined (Salkind, 2000). This provided a general picture as to which independent variables were significantly related to GPA, and units earned. A

correlation can range in value from -1 to +1, with the value indicating the direction and strength

of the relationship (Salkind, 2000).

Students that participated in the support program and those that were not selected for

participation were then examined to determine whether there were differences in composition

and educational outcomes. The dependent variables examined in relationship to educational

outcomes included persistence to the second year, GPA and units earned after the first and fourth

year, and degree completion after four years. The descriptive data were used to show the

differences in SES, academic preparedness, and educational outcomes between the support

program participants and non-participants. This helped guide the analysis toward the

identification of reasonably comparable groups of support program participants and non-

participants in terms of SES, academic preparedness, gender, first generation status,

race/ethnicity, and pursued major. After comparable sub-groups were identified based on similar

ranges of SES and academic preparedness the additional variables such as gender, first

generation status, race/ethnicity, and pursued major were compared. For the groups that were

selected as being reasonably similar, a multivariate analysis of variance was first conducted to

because there were multiple dependent variables. These continuous dependent variables

consisted of GPA and units completed after the first and fourth year. At this point, the academic

outcomes groups were determined to be statistically similar. A *t*-test for independent samples

was still conducted though for the means between the comparable groups. For example,

participants of the support program with the lowest SES and a particular range of academic

preparedness scores were compared to non-participants of the support program with matching

ranges of SES and academic preparedness.

The subpopulation means were generated and analyzed. The only difference between each group compared was whether the student participated in the support program. For each comparison of means, the research hypothesis was that the support program participants will have achieved equal or better persistence rates, units earned, GPA, and degree attainment when compared to non-participants. The null hypothesis was that the non-participants achieved better academic outcomes than the students required to participate in the support program.

Research Question Two

What differences exist, if any, when the persistence, grade point average, units earned, and degree completion of first-time freshmen of various socioeconomic backgrounds were examined? The analysis of the support program participants and non-participants provided many of the details related to students with lower academic preparedness scores. Instead of a comparison of students based on their participation or non-participation status in the support program though, research question two required a comparison of means for students of different SES ranges. Instead of two groups to compare, there were five groups. Based on the presence of more than two groups, the best way to test for significant differences between the groups would be a one-way analysis of variances (Salkind, 2000). This type of ANOVA is only for continuous variables though, so Chi-square tests were also conducted for graduation rates.

Prior to the one-way analysis of variance, a multivariate analysis of variance was first conducted. This determined that there were statistically significant differences in the dependent variable outcomes based on the SES range of students. It also indicated that the dependent variables consisting of GPA and units completed after the first and fourth year could be examined further through one way analyses of variance.

The distribution of students based on their SES ranges demonstrated whether lower or higher SES students that matriculated into the university were more or less likely to have certain characteristics. For instance, first generation students were more likely to be lower SES at this university. Lower SES students were also slightly more likely to have lower levels of academic preparedness. Additional findings are presented in chapter four.

Similar to the support program analysis, the focus on SES drilled down deeper to find potential differences in educational outcomes for subpopulations. Academic preparedness, first generation status, gender, race/ethnicity, and pursued major were examined in relation to SES. Whereas the support program research question primarily focused on the comparison of similar students that likely had lower ranges of academic preparedness, the SES analysis allowed for a more complete determination of the impact of SES because it included a broader range of academic preparedness and major.

Limitations

All studies have limitations. This particular research study consisted of a great deal of data. The number of students examined likely increased the power of the study. An array of limitations existed though.

The study only examined first time freshmen starting in the fall semester at a single university. Entire freshman cohorts from the fall of 2007, 2008, and 2009 were combined for analysis in the study. Existing educational outcomes through the summer of 2013 were included. Significant events such as the peak years of the financial crisis of 2007 and 2008 likely impacted certain students differently over this period of time.

International students, recruited student-athletes, and other entering freshmen were excluded from the bulk of the analysis. Freshmen that were purposely excluded from the full

study, as well as transfer students, spring admits, and graduate students obviously had an impact on the campus culture. The extent of that impact was not examined.

The degree programs pursued by students examined in the study were categorized based on the declared major during the first semester of enrollment at the university. Students were able to change their major after this first semester. For the sake of analysis though, students were categorized based on their pursued degree program at that time. Additionally, it should be noted that the categorization of degree programs within this study was done as reasonably as possible. If a major was included in the same category as another, this did not mean that the two majors of study were the same.

The population used in the study resulted from students choosing to apply, the university choosing to admit, and the student deciding to attend. Absent within the study were individuals that applied to enter the university as freshmen yet did not attend. These individuals were either accepted and chose to not attend or were denied admission. It should also be known that there were likely many other potential applicants of similar characteristics that chose not to apply.

Students that left the university also presented another limitation. Their reason for leaving was not examined. It also was not known whether students that transferred graduated from other institutions, or if they dropped out of the higher education pool completely.

Participants of the student support program did not have a choice in their participation. They were admitted into the support program. If they wanted to attend the university then they needed to agree to the requirements of the support program. Also, even though there were students outside of the support program with similar pre-college characteristics, the lack of full understanding as to why certain admitted students were selected for the support program was a limitation of the study.

Given the absence of a well-defined calculation of SES, this study added to the variation within the literature. The data used in this study to calculate SES may not be available or relevant at another institution. Similarly, the institution examined within this study likely has a multitude of unique characteristics that minimize how the findings can be generalized.

Academic preparedness within this study was related to the composite of HSGPA, adjusted HSGPA, and best standardized test score. These three variables do not fully indicate the true academic preparedness of a student. For instance, students might have a lower HSGPA or standardized test score because they struggled in math. If the pursued degree program of the student did not require a math class then their academic preparedness score would not accurately have indicated their true preparedness.

Additionally, this research study was conducted by one person. Within the literature examined, the majority of studies were conducted by multiple researchers and often times teams of researchers. As examined at length, the existing literature was limited and riddled with limitations. Although the researcher conducting this study did his best, he is still only one person.

Ethical Considerations

This study used existing data, including that of many students the researcher worked with in the past. The researcher became director of the support program in 2008, and also assisted many students outside of the program. Due to the researcher's connection to this study, certain decisions were made to minimize bias and protect the confidentiality of students. Identifying characteristics of students were removed prior to analysis and the use of a quantitative research methodology helped reduce potential bias. The presentation of the findings also sought to provide a full, transparent, description in order to minimize any concerns that the researcher was

seeking to only show the data that supported his dual role as director of the student support program.

It should also be understood how the variables used only provided a glimpse of the full picture and that students had potentially different experiences that impacted their lives and academic progress. Generalizations about the student experience need to acknowledge that students come from different backgrounds and lead different lives. Correlations should not be confused with causations. Although there were questions that this study hoped to answer, the research produced more questions than answers. The researcher conducting this study did his best to maintain an open and reflective mind. Ideally, any reader of this study will do the same.

Conclusion

This chapter has outlined the methodology used for this study and the rationale behind it. The methodology of other studies has been examined, the reasons for conducting descriptive and inferential statistics has been provided, the population and site have been detailed, and the process for collecting and analyzing the data have been presented. These road maps have hopefully provided a clear direction toward the results and findings that will be presented in chapter four and the concluding summary in chapter five.

Chapter 4: Data and Findings

This chapter provides the data and findings based on the plan established in the previous chapter. Details regarding the data analysis and decision making are presented. The purpose is to learn further about SES and the potential benefits of a support program at a private, highly selective, research university. The data, findings, and challenges of this exploratory study are shared in this chapter.

Comparing Cohort Years.

The fall semester entering freshman cohorts from 2007, 2008, and 2009 were first examined separately. There were 2,965 students in the 2007 cohort, 2,755 for the 2008 cohort and 2,862 for the 2009 cohort. Table six details the breakdown of all students and their SES range determined by their institutional based expected family contribution. The expected family contribution for each student was divided by the full yearly cost of attending the university. As such, a student with an expected family contribution of $10,000 equated to 20% if the full cost of attending that year was $50,000. The use of a percentage allows for a better comparison between cohort years because the full cost of attending the university increased during the three year period.

The total of students that received tuition benefits through a parent or guardian that worked for the university or another qualified school was also identified. The presence of this population was not previously considered. The work of Hill et al. (2005) and Hill and Winston (2006) examined the actual cost of attending for students at highly selective private colleges and universities, similarly breaking down the totals of students by family income ranges, but they did not address whether they found a similarly small number of students who receive free or discounted tuition benefits.

Exclusions

As previously established, there were certain student populations excluded from the full analysis for this study. Student athletes, international students, participants in the intensive five-year architecture program, and others with missing data created challenges that warranted their exclusion. Table seven details how many of these students were found within each cohort. For recruited student athletes, there were 150 for the 2007 cohort, 167 for 2008, and 124 for the 2009 cohort. The totals for international students fluctuated from 202 in 2007, 155 in 2008, and 320 in 2009. The number of students pursuing an architecture degree as of the end of the first semester was relatively stable with a total of 109 for 2007 and 91 for both 2008 and 2009. This amounted to a total of 532 exclusions for 2007, 427 for 2008, and 562 for 2009. The additional exclusions not accounted for in the totals for student athletes, international students, and architecture majors were primarily students with missing data for high school GPA and/or standardized test scores. There also were students who were excluded because they withdrew from all of their classes during their first semester.

Overall, the composition of the three cohorts examined appeared to be quite similar. Of the students excluded from the study, the majority did not apply for financial aid. This was visible when comparing the results of table six with table eight. The percentage of students who did not apply for financial aid decreased from nearly 40% to around 30% for each cohort after removing the excluded populations. Even though international students, not eligible for financial aid, composed a large share of the total exclusions, there were many other excluded students that did not apply for financial aid. Between the three cohorts, 73.9% of the students excluded from the study did not apply for financial aid. For the excluded non-international students, 53% did not apply for aid. This was notably higher than the roughly 30% that did not apply for aid

among the students included in the study. This serves as a reminder that the research findings for students included in the study cannot be generalized across the entire campus.

Upon additional consideration, a decision was made to also remove students receiving tuition benefits from the study. They represented only a small fraction of the overall population and would create a challenge. The majority of these students had their entire tuition covered as a parental benefit. These students and their families, unless they also received merit based scholarships, were still responsible for paying the remaining costs of attending, such as housing, meals, books, and fees. The motivation for applying for financial aid and loans, however, would likely have decreased for many of these students though. For instance, it would be impossible to determine whether a student and their family did not apply for need based aid because they were from a high SES or because they knew that any aid they would be eligible for would be negated by the tuition benefit they were already eligible to receive. Additionally, after the initial exclusions, of the 208 tuition benefit recipients remaining between the three cohorts, only eight were participants of the support program. For these reasons, the tuition benefit recipients were removed and the table detailing the characteristics of the included student population for the study was revised. Tables 9 and 10 provide further details on the composition of each cohort year and table eleven displays how each distinct cohort performed academically.

The overall numbers and percentages for SES did not change much after the removal of the tuition benefit recipients. These are found in Table 9. Also of note, the descriptive ranges for academic preparedness detailed the students in relation to their peers at a highly selective university. Categorizing these ranges as "Lowest" and "Low-Middle" is not meant to belittle the pre-college achievement of these students, but rather is testament to the competition to gain admission into a highly selective, private, university.

There was relative consistency between cohorts and the distribution of students by pursued degree program type, gender, and race/ethnicity. There was not a variable that fluctuated any more than five percent and most were within three percent of each other. In general, these descriptive characteristics, as visible in Table 10, showed support for the ability to combine the three cohorts into one study.

The persistence, four year graduation, grade point average, and units earned for each student was determined for the student population included in the study. It is worth noting that students were required to complete at least 128 units to graduate and could enter the university as freshmen with as many as 32 units from AP, IB, or other coursework taken prior to their enrollment at the university. This is why the average total units completed after four years was roughly 20 units more than the number of units completed within the university after four years (Table 11). Many students brought in AP or IB coursework and were also allowed to take coursework at other academic institutions over the summer.

The findings for academic outcomes revealed that each had a persistence rate of either 96% or 97% for students returning for their second year. Over 80% of students graduated after four years. Additionally, the average GPA for students was around 3.30, which relates to a B+ average.

To determine whether the three cohorts were statistically similar, and to provide further support for combining the three cohorts into one population, multivariate analysis of variance was conducted. This revealed that each of the three cohorts was statistically similar, F (8, 13102) = 2.352, p = .016; Wilk's Λ = .997, partial η^2 = .001. To provide further details, a one way analysis of variance was also run. This is a test that examined differences in the means of more than two groups (Salkind, 2000). The results of this analysis, provided in chart one and

two, did not indicate any statistically significant differences between the academic outcomes of

the cohorts. This was true for first year GPA, $F(2, 6851) = .174$, $p = .840$; first year units

completed, $F(2, 6851) = .086$, $p = .917$; four year GPA, $F(2, 6851) = .962$, $p = .382$; and four

year units completed, $F(2, 6851) = 2.276$, $p = .103$. The data for first to second year persistence

and four-year graduation were not continuous variables because each student either

accomplished that outcome or they did not. The means for persistence and graduation for each

cohort were very similar, however.

Research Question One

For first freshmen, what differences exist when the persistence, grade point average, units

earned, and degree completion are compared for students required to participate in a support

program and non-participants of similar socioeconomic status and academic preparedness?

Before identifying non-participants of similar SES and academic preparedness, the

overall non-participant group was compared to that of the support program participants. This

comparison made it possible to view each population as its own collective. Visible differences

between the participants and non-participants were identified for academic preparedness, SES,

first generation status, race/ethnicity, and the correlations between variables.

Academic Preparedness

As detailed in Table 12, the most notable difference was found in the average academic

preparedness of the students. More than 92% of the support program participants had academic

preparedness scores in the lowest or low-middle ranges. Fewer than 20% of the non-participants

had scores within those ranges.

SES and First Generation College Status

There were also substantial differences when examining SES and first-generation college student status. The support program population had a higher concentration of low SES students. Over 40% of the program participants were from the lowest or low SES ranges compared to fewer than 20% of the non-participants. The percentage of first-generation students, 31.3% to 10.8%, was also nearly three times higher in the support program.

Race and Ethnicity

Substantial differences were also found between the composition of the support program participants and non-participants. These differences, found in Table 13, were particularly apparent for Race/Ethnicity and degree program type. The percentage of Hispanic/Latino students in the support program, 27.6%, was more than double that of the non-participant population, 12.8%. The support program population, with a 24.9% Black/African American composition, was nearly five times that of the 5.5% in the non-participant population. The support program had a lower percentage of Asian students, 12.8% to 29.4%, and the 32.3% compared to 50.1% for White students was also much lower. When it came to the degree pursued, the largest difference was found within the arts, 38.4% for the support program and 15.6% for the non-participants. Much of that difference was balanced out by the non-participant group having around 10% more business and engineering majors.

Correlations

Before analyzing the similarities and differences between these two groups, the correlations between some of the variables warranted attention. Table 14 provides the correlations between SES, academic preparedness, HSGPA, adjusted HSGPA, best test score, first-year GPA, and four-year GPA. For SES and academic preparedness the raw scores were

used as opposed to the categorical ranges. The first finding from this table was the statistically significant relationships between variables. The academic preparedness variable was found as having a stronger positive correlation with first-year and four-year grade point average than HSGPA, adjusted HSGPA, and best test score. This demonstrated the usefulness in combining these three variables into one.

Additional correlations detailing the units completed after the first year, fourth year, and total units within the university and outside it after four years were also conducted. A notable finding was the slightly positive, yet significant, correlation between SES with academic preparedness, first-year GPA, fourth-year GPA, and totals for units completed. As SES increased, so too did averages for academic preparedness scores and academic outcomes at the university (Table 15).

A separate examination of only the support program participants, however, led to a different finding. For this group, SES did not significantly correlate with any of the same variables and academic preparedness actually slightly decreased as SES increased. Charts three and four provide a visual for how SES related to academic preparedness and graduation differently for the support program participants and the non-participants. For the non-participants of the support program, their average academic preparedness scores and graduation rates increased as SES level increased. For all groups it seems the students that did not apply for financial aid were achieving at slightly lower rates when compared to the students in the middle-upper SES range that applied for aid and had an expected family contribution equal to or greater than the full cost of attending the university.

Overall Differences

Considering how different the support program participants and non-participants groups were, it was not surprising to find that the academic progress results were also quite different (Table 16). The average academic preparedness of the support program participants was much lower than the non-participants. This was expected. The highest academic preparedness score of .936 for a student within the support program was lower than the .9386 average score for the non-participants. There were also differences for first year GPA, first year units earned, persistence to the second year, four year graduation, four year GPA, four year units earned, and the total of units earned, including transfer, international baccalaureate, and advanced placement units, after the end of the fourth year. Program participants averaged a 3.00 GPA after four years and a 65% four year graduation rate. Non-participants averaged a 3.37 GPA and 81% graduation rate.

The two major trends that emerged from this comparison data were the differences in academic preparation between the two populations and that the academic outcomes at the university improved as SES increased. Another noticeable difference was seen when comparing units earned at the university with the total number of units earned for graduation after four years. What this means was that the non-participants earned nearly 20 units outside of the university that counted for graduation, while the support program students only earned an average of around eight units. These additional units counting for graduation completed outside of the university were the result of either a combination of AP/IB type units or coursework completed over the summer. Based on the experience of the researcher, the difference in these totals was most likely attributed to advanced placement units. More specifically, the support program participants entered the university with fewer units earned from advanced placement

test scores when compared to the non-participant population. This difference, in addition to lower scores on average for academic preparedness, reflected the notion that the students were placed into the support program because they were considered to be more at-risk academically than the non-participant students.

In the comparison of support program participants to non-participants, attempts were made to account for differences in academic preparedness scores. Looking at the distribution charts for the two populations revealed that there were large differences in scores on average, but that there were likely enough students within the non-participant population that could be compared to the support program participants when looking solely at academic preparedness. The histograms in Chart 5 and 6 reveal that even though the non-participant group had a much higher mean of .939, there still remained students with similar academic preparedness totals as the support program. When reviewing the distribution for the support program, the majority of participants had an academic preparedness score between .800 and .900, and only a small portion of the non-participant population fell within that range. The total number of students within that small portion of non-participants though, still exceeded the total number that participated in the support program.

At the risk of regression toward the mean, the challenge moving forward was establishing how reasonably similar a group of participants and non-participants would need to be in order to fairly compare their academic outcomes. Substantial differences between the two groups overall have already been established for SES, academic preparedness, the correlation between SES and the other dependent variables, first-generation status, race/ethnicity, and pursued degree type. Whether these differences remained when looking at groups of similar SES and academic preparedness required additional analysis. Considering the total number of support program

participants was less than the non-participant group, this study sought to find non-participant

sub-groups of similar academic preparedness and SES for comparison. The distribution of

academic preparedness scores for the support program population revealed a range of .607 to

.936 with .828 as the mean. The 25th percentile was a score of .801, the 50th percentile equaled

.831, and .864 represented the 75th percentile. Considering the 50th percentile score of .831 was

higher than the .828 mean, this demonstrates how the widely dispersed low end of the population

brought down the average academic preparedness score for the participant population. This can

be seen in the distribution histograms in charts five and six.

Finding Reasonably Similar Comparison Groups

This exploratory study examined different cross sections of the support program

population in comparison to non-participants of reasonably similar SES and academic

preparedness scores. Even though the challenges previously mentioned prevented the groups

from being truly matched by the wide array of variables, this study attempted to show many

examples of how the two populations compared. The percentile scores for the support program

academic preparedness scores were used to identify certain groupings. For the groups that

emerged as being of similar compositions, a comparison of means was analyzed for the paired

groups.

Academic preparedness scores of .80 to less than .90. Since the majority of support

program participants had academic preparedness scores within the range of .800 and .900, this

range was first used to compare the support program students with non-participants. Table 17

provides information for the support program students and non-participants with academic

preparedness scores from .800 to less than .900. The support program students matching that

range averaged an academic preparedness score of .8448 and the non-participants produced a

.8699 average. This showed that even when students were selected within a common range, the non-participant group still had a larger average academic preparedness score because most of the students had scores concentrated near the upper end of the range. For this reason, the results were also found for a sub-population of non-participants with an average academic preparation score as closely matched to the support program population as possible. In this particular case, an exact score of .8448 for 487 students was found to match the support program group. This was accomplished by lowering the maximum range for academic preparedness from less than .900 to less than .868 so the averages matched up.

The support program participants achieved lower academic outcomes for first-year GPA, first-year units earned, four-year graduation, four-year GPA, and total units completed at the end of the fourth year when compared to non-participants with the same .80 to less than .90 range for the academic preparedness score. For these two groups though, the support program achieved a higher rate of first to second year persistence and units earned at the university after four years. This occurred despite a lower average academic preparedness score. When data for the support program participants were compared to non-participants with the matching average academic preparedness score the findings become more comparable.

The outcomes between the groups were even more comparable when they were also analyzed based on SES in addition to academic preparedness. The sub-populations listed in table 17 reveal that grade point average and four year graduation numbers tended to improve for students at higher SES ranges. Because the support program participant population had a higher concentration of lower SES students, it was necessary to also account for SES when comparing the populations. When this happened and support program participants were compared with non-participants of similar academic preparedness and SES it became apparent that the

populations achieved similar results. For graduation rates, it also should be noted that the support program population achieved similar rates despite a gap in units earned outside of the university. The support program participants were most likely starting with fewer advanced placement units on average, essentially giving the non-participants an average head start of around four to five units toward the 128 necessary for graduation.

Composition of groups. How groups were composed greatly impacted how reasonably they could be compared. Just as the distribution of students by SES was widely different for the support program participants and non-participants, there were also other differences in the composition of these groups. For students with an academic preparedness score between the range of .80 to less than .90, tables 18 and 19 detail the distribution of certain characteristics. These tables represent the groups previously discussed in table 17. Immediately visible within these tables were the differences in gender, first-generation status, race/ethnicity, and major. The support program participants had substantially higher rates when it came to students that were female, first-generation, Hispanic/Latino, Black/African American, and/or undecided for their pursued degree program.

The differences in composition between the overall groups cannot be further understood without also examining for differences in SES. Tables 20, 21, and 22 provide data that further examined these three groups to determine how their composition for gender, first-generation status, race/ethnicity, and pursued degree program type differed by SES level. This analysis showed that the students with an academic preparedness score of .80 to less than .90 differed tremendously based on their SES. The rate of first-generation status dropped from 79.6% for the lowest SES group to 9.4% for students that did not apply for aid in the support program participant population (Table 20). For the other two comparison groups of non-participants it

dropped from 48.1% to 3.7% for those with an academic preparedness score of .80 to less than

.90 (Table 21), and from 52.3% to 1.3% for the non-participant group with an average score of

.8448 matched to the support program participants (Table 22).

Accounting for differences in SES for these three groups also led to additional findings.

The distribution of males and females remained relatively similar for the support program group.

For the non-participant groups, the rate of more females to males reversed as SES increased. In

opposition to how the rate of first-generation status decreased, the rate of White students

increased with SES for all three groups. The percentage of students pursuing a major in the arts

was also lowest for students from a lower SES background for all three groups.

After reviewing the composition of students found within tables, 20, 21, and 22 it was

easier to understand the challenges of comparing the support program participants to the non-

participants. Within the five ranges of SES for the three groups, there were only three groups

that were relatively similar. The support program participants with academic preparedness

scores of .80 to less than .90 and SES in the lowest, low, and did not apply for aid ranges related

well to the similar groups with academic preparedness scores of .80 to less than .868 and

identical SES ranges. In addition to SES and academic preparedness, these groups relatively

matched up for gender, race/ethnicity, and pursued degree program type. For the "Lower to

Middle" and "Middle to Upper" ranges for SES, however, there were vast differences between

the support program participant and non-participant groups on demographic composition.

Academic outcomes. The goal of research question one was to compare the academic

outcomes achieved by support programs participants in comparison to similar students that did

not participate in the program. When analyzing the combination of SES and academic

preparedness, it was apparent after analyzing students with academic preparedness scores from

.80 to less than .90 that some subpopulations could not reasonably be compared. In addition to differences in first-generation status, some of these sub-populations had a substantially different rate of males to females, art majors to engineering majors, and students of a different race/ethnicity.

Academic preparedness scores of less than .83139. In order to further compare support program participants to students that did not participate in the program, different levels of academic preparedness scores were also examined. The 50th percentile academic preparedness score for students in the support program population examined was .83139 and students with a score below that level were compared. Tables 23, 24, 25, 26, 27, and 28 provide data on those students similar to that of the .80 to less than .90 students.

When comparing support program participants from the lower 50th percentile of academic preparedness score it quickly became apparent that there were very few non-participants with scores of around or below .80 for academic preparedness. Only 153 non-participants, compared to the 149 support program participants, were found with academic preparedness scores below .83139. When attempting to find a group of non-participants with an average academic preparedness score similar to the .7868 of the support program group, there were only 43 non-participants identified that would combine to equal a similar, yet still higher, mean of .7872. Despite these differences in average academic preparedness though, the academic achievement of the support program participants compared well to the non-participant groupings by SES.

Despite having a lower average academic preparedness score within this range, the support program participants achieved equal or greater academic outcomes in many of the categories examined when compared to non-participants. On average, the program participants in this range of academic preparedness scores earned a higher first year GPA, and completed

more units after four years. The support program participants in the SES low, mid-upper, and

did not apply ranges had the best academic outcomes, particularly when compared to the

students outside of the program. The findings for all of the outcomes can be found in Table 23.

Composition of groups. Prior to fully accounting for SES ranges, the composition of

these three populations were also compared for differences in gender, first generation status,

race/ethnicity, and pursued degree program type. The data in tables 24 and 25 revealed that the

support program participants with academic preparedness scores of less than .83139 had a higher

rate of students of first-generation status, Hispanic/Latino, and pursuing majors in the arts. As

previously discovered in the analysis of students of academic preparedness scores of .80 to less

than .90 though, the differences in distribution of students by SES greatly changed the overall

averages for a population.

For the subpopulations, many of the same trends as that of the .80 to .90 academic

preparedness groupings were found. As SES increased the rate of first-generation status greatly

declined. The percentage of students pursuing majors within the arts also increased with SES.

Due to substantial differences in gender, degree program, and race/ethnicity there were

challenges finding a non-participant group within this academic preparedness range that closely

resembled the support program groups. The most reasonable group with a similar composition

was found for the students that did not apply for financial aid. For that SES level, the support

program participants and non-participants with academic preparedness scores below .83139 had

a very similar composition when it came to gender, first-generation status, race/ethnicity, and

degree program. Even though the non-participants had an average academic preparedness score

of .8082 compared to .7694, the support program students actually achieved slightly better

academic outcomes for most of the variables examined, particularly at certain SES levels. Table 23 contains the academic outcomes for these two groups.

Academic outcomes. The support program participants who did not apply for financial aid had a slightly lower first year GPA, 2.82 to 2.93, and four year GPA, 2.95 to 3.01. The rest of the numbers matched up well, however. Both completed an average of 30.9 units in the first year. The support program participants had a slightly higher first to second year persistence rate of 96% compared to 92%, as well as a four-year graduation rate of 65%, compared to 64%. The most notable difference was in the number of units earned after four years. The support program students completed five more units on average, 116.3 to 111.3, when compared to the non-participants. Meanwhile, the non-participants again had more units earned outside of the university. They had an average of nearly four more units when compared to the program participants.

Academic preparedness scores of .80139 to less than .8664. The next range of students examined were those from the 25th to the 75th percentile for academic preparedness score within the support program population. This equated to a range of .80139 to less than .8664. Tables 29, 30, 31, 32, 33, and 34 examined the performance and composition of these students, particularly in regards to their level of SES.

Composition of groups. There were notable differences in composition by race/ethnicity and pursued degree program type between the groups within this range of academic preparedness scores. There was a lower percentage of White students and a higher rate of Hispanic/Latino students in the support program population. The distributions of students by pursued degree program type were similar other than the support program having a lower rate of engineering and

higher rate of undecided students. Tables 32, 33, and 34 further examined the composition of these three groups and focused on how they looked differently by SES level.

There was one pair of groups that stood out as being similar when comparing the composition of support program participants and non-participants. The compositions were comparable for the support program students who did not apply for financial aid and the non-participants, both with scores of .80139 to less than .8664. These were visible in Tables 32 and 33. Even though the non-participants had a higher average academic preparedness score, .8448 to .8324, the percentages for all of the other variables were within close proximity of each other. When attempting to compare other groups of support program participants and non-participants by SES within the stated range of academic preparedness scores there were greater differences in composition by gender, race/ethnicity, and pursued degree program type.

Academic outcomes. The academic performance outcomes were examined for the support program participants, the non-participants within the same range of academic preparedness scores, and a sub-group of non-participants with a reduced range of scores identified to create a similar average preparedness score. Among the three groups, the support program participants produced lower averages in every category except units at the university after four years. When the results by SES level were compared, the performance indicators of the support program participants compared much better with the non-participant groups. This was because the support program students with academic preparedness scores of .80139 to less than .8664 had a larger composition of students from lower SES levels. Nearly 71% of the support program students in this analysis had an expected family contribution less than the full cost of attending, thus putting them in either the lowest, low, or lower-middle SES range. Only 46% of the non-participants within the same range of academic preparedness scores and 48% of

the matched average score group had expected family contributions less than the full cost of

attending. Table 30 further indicated how the distributions of students by SES for these groups

were different. Additionally, the support program had a slightly higher rate of females and a

first-generation status rate around three times higher than the non-participant groups.

Academic preparedness scores of .83139 to less than .936. Students with academic

preparedness scores from the 50th to 100th percentile for the support program participants ranged

from .83139 to equal to or lesser than .936 for a total of 147 students and a mean score of .8694.

For the non-participants of the same range, their mean was a much higher .9013. For this reason,

for the additional comparison group of non-participants, the upper range of scores was reduced

to .892 in order to produce a similar mean of .8696. This reduction became necessary because

the non-participant group had a higher number of students concentrated near the high score for

the academic preparedness range.

Composition of groups. For this academic preparedness range the support program

population once again had a higher concentration of lower SES students. Nearly 75% of the

support program group had expected family contributions less than the full cost of attending and

nearly 50% were classified as being from the lowest or low SES ranges. The percentages for the

non-participant groups were much lower. This data can be found in Table 36. The support

program group also had a much higher rate of females and first-generation status students.

Differences in race/ethnicity and pursued degree program type also appeared. The

support program population contained higher rates for Hispanic/Latino and Black/African

American students and lower rates for Asian and White students. The non-participant groups

had nearly double the rate of White students. For degree program type pursued, the most notable

difference was the higher rate of undecided students in the support program population, 23.8%

compared to 14.6% and 13.4%.

These differences in composition were further analyzed when also accounting for SES.

The support program subgroups had a much higher rate of females when compared to the similar

SES subgroups of the non-participants. This complicated the ability to reasonably compare the

populations. The only groups that were a strong match for exploring a comparison were the 41

lowest SES support program participants in table 38 and the 84 lowest SES non-participants in

Table 40. The academic preparedness score average, gender, race/ethnicity, and pursued major

composition for these groups were noticeably different for the low SES, lower-middle, mid-

upper, and did not apply categories. Despite these differences though, it should be noted that the

performance of the support program participants, when grouped by academic preparedness and

SES, had similar or better academic performance scores than the non-participants for most every

variable.

Academic outcomes. Similar to the previous findings in the study, the support program

participants achieved a higher average number of units completed at the university after four

years in this comparison of outcomes. The program participants also had fewer units on average

earned outside of the university, indicating they likely arrived with fewer advanced placement

units. The support program students also had excellent average results for first-year units earned

and persistence to the second year. These findings can be found in table 35. Overall, the

achievement results were quite similar, especially when also accounting for SES levels.

Six Reasonably Similar Comparison Groupings Found

In total, after examining and comparing all of the subpopulations, six pairings were

identified for further study. For each of these pairs the non-participant group reasonably

matched that of the support program participants for SES, academic preparedness, gender, race/ethnicity, and pursued degree program type. Table 41 restates the academic outcome data for the groups that were most similar in composition. For students that did not apply for aid and had academic preparedness scores of less than .83139 there were two comparison groups listed due to challenges in finding enough students with an average academic preparedness score equal to that of the support program population. Of note, there were not any pairings of groups found for students from the "Lower-Middle" or "Mid-Upper" SES ranges. All of those groups, when examined for academic preparedness and SES, had substantially different compositions based on gender, first-generation status, race/ethnicity, and/or pursued degree program type.

The academic outcomes between these pairs of groups seems to reveal that even though the non-participant groups tended to have a higher average academic preparedness score, the support program participants performed equally well or better. For all but one pairing, the support program group earned more units at the university after four years. The four-year graduation numbers also indicated the success of the support program despite gaps in units earned outside of the university. Future research will need to examine how advanced placement units impact graduation rates for the general population, and how SES relates to that. For this study, it appeared that the support program participants graduated after four years at rates comparable with similar non-participants that likely entered the university with a higher average total of advanced placement units.

A multivariate analysis of variance was performed for each of these pairings. There were multiple dependent variables that had their means compared. The multivariate analyses helped indicate whether there were problems continuing with the t-tests for independent samples because it determined if there were any overall differences between the academic achievements

of the groups. The outcomes analyzed consisted of first-year GPA, first-year units earned, first to second year persistence, four-year graduation, GPA after four years, and units earned at the university after four years.

The first pairing of students from the lowest SES had an academic preparation range of .80 to less than .90 for the support program participants and a .8488 mean score. The paired group of non-participants had an academic preparation score range of .80 to less than .868 and a .8473 mean. The multivariate analysis of variance revealed that there was not a statistically significant difference between these groups for academic achievement at the university as determined by GPA and units earned after the first and fourth year, F (6, 86) = 1.08, p = ..380; Wilk's Λ = .930, partial η^2 = .070. Similarly, the second pairing of lowest SES participants and non-participants also showed that there were not any statistically significant differences between the groups, F (6, 118) = 1.91, p = .084; Wilk's Λ = .911, partial η^2 = .089. This pairing of lowest SES students had an academic preparation score range of .83139 to less than .936 for the support program participants and a .8711 mean. The non-participants ranged from .83139 to less than .892 with a .8688 mean.

Multivariate analyses of variance were also conducted for the low SES pairing and the paired groups of students that did not apply for aid. For these four pairings there were not any statistically significant differences in academic achievement outcomes found. The low SES support program participants with an academic preparation score range of .80 to less than .90 and a mean of .8445 were compared to the low SES non-participants with a range of .80 to less than .868 and a .8444 mean, F (6, 91) = .528, p = .786; Wilk's Λ = .966, partial η^2 = .034. Support program participants that did not apply for aid with an academic preparedness score range of .80 to less than .90 and a mean of.8386 were compared to similar non-participants with a range of

.80 to less than .868 and a mean score of .8451, F (6, 185) = 1.10, p = .362; Wilk's Λ = .965,

partial η^2 = .035. The support program students that did not apply for aid with academic

preparedness scores of .80139 to less than .8664 were compared to non-participants that also did

not apply for aid and had the same range of scores, F (4, 176) = 1.60, p = .187; Wilk's Λ = .966,

partial η^2 = .070. In total, the multivariate analysis of variance revealed no statistically

significant differences between these groups when it came to viewing academic achievement

outcomes as a whole.

For the comparison of students that did not apply for aid and had an academic preparation

score of less than .83139, representing the lower 50th percentile of the support program

participants, the non-participants within the same range were selected for comparison even

though they had a much higher mean score of .8082 for academic preparedness. There were not

enough students found in the non-participant population with a low enough academic

preparedness score to match with the mean score of .7694 for the support program participants.

Even when searching for students with a range less than .803, the mean for 18 students was

.7856. So, in order to match a similar number of students, the support program students that did

not apply for aid with scores less than .83139, with a mean of .7694, were compared to the non-

participants despite that group having a larger academic preparedness score. Even with this gap

though, the comparison did not reveal any statistically significant differences, F (6, 94) = .504, p

= .804; Wilk's Λ = .969, partial η^2 = .031. So, for the multivariate analyses of variance of each

of the six pairings of reasonably comparable groups there was not a statistically significant

difference when examining academic achievement as a whole.

Even though the multivariate analysis did not indicate any statistically significant

differences between the groups, t-tests for independent samples were still conducted. A chi

square analysis for persistence to the second year and four-year graduation rates was also run to further validate that the support program participants were performing equally well, if not better, when compared to similar non-participants. The null hypothesis for comparing each the eight pairings of groups states that the non-participant group is performing better academically than the support program. If the support program participants were placed into the program instead of other students of similar SES, academic preparedness, first-generation status, gender, race/ethnicity, and pursued degree program type then it would reason that the students chosen for the program were considered to be more at-risk due to reasons not examined in this study. Furthermore, this reasoning implies that the support program participants would not be able to perform as well as, or better, than the non-participants if they did not receive the aid from the support program.

Lowest SES and academic preparedness .80 to less than .90. Support program participants and non-participants from the lowest SES category with an academic preparedness score of .80 to less than .90 were compared. Chart seven provides the data from the comparison of means. The range of SES for the non-participant group was adjusted to that of .80 to less than .886 so that the averages better matched the program participant average. The results indicated that none of the academic outcomes for the non-participants were significantly better than the support program participants. The *t*-test for independent samples did not show any statistically significant differences between the support program participants and the non-participants for academic preparedness (t (91) = -0.34, p = 0.735), first-year GPA (t (91) = 0.24, p = 0.808), first-year units completed at the university (t (91) = 0.27, p = 0.787), four-year GPA (t (91) = 1.14, p = 0.258), and units completed at the university after four years (t (91) = 0.20, p = 0.840). These results provided a trend supporting that the support program participants nearly had a statistically

significant difference with their higher first to second year persistence and the higher four-year

GPA for the non-participants was nearly statistically significant.

Additionally, a chi square test of independence was conducted to further assess first to

second year persistence and four-year graduation rates. The persistence rate of 100% for the

support program participants was higher than the 95.5% rate of the non-participants, but the

difference was not statistically significant ($X^2(1) = 2.28$, p= .131). The four-year graduation

rates of 51% for the participants and 52.3% for the non-participants were very similar and the

minor difference was not statistically significant ($X^2(1) = 0.15$, p= .904).

Lowest SES and academic preparedness .83139 to .936. Independent samples tests

were also conducted to compare the means of the lowest SES support program participants with

academic preparedness scores from .83139 to .936 to that of the lowest SES non-participants

with academic preparedness scores of .83139 to less than .892. The results indicated that these

two groups achieved similar academic outcomes at the university. The support program students

earned statistically significantly more units earned after the first year, 34.1 to 31.6 (t (123) = -3.1,

p = 0.003). For the other variables, even though the support program participants outperformed

the non-participants in every area there were no other statistically significant differences for first-

year GPA (t (123) = -1.4, p = 0.152), four-year GPA (t (123) = -0.54, p = 0.587), and units

completed at the university after four years (t (123) = --1.8, p = 0.084). These results indicated

that the differences in first-year GPA, persistence to the second year, and units earned after four

years were almost statistically significant in showing the support program participants

outperformed the non-participants.

When comparing persistence and graduation rates, there were minimal differences

between the two groups. Participants had a persistence rate to the second year of 100%

compared to 97.6%. This minor difference was not statistically significant ($X^2(1) = 0.992$, p= .319). The differences between four-year graduation rates were also not statistically significant between the 58.5% for the participants and 57.1% for the non-participants ($X^2(1) = 0.022$, p= .882).

Low SES and academic preparedness .80 to less than .90. The results from the independent samples test for low SES support program participants with academic preparedness scores of .80 to less than .90 and low SES non-participants with scores of .80 to less than .868 were provided in chart nine. This comparison of means indicated that even though there was a trend where the support program participants academically outperformed the non-participant group in essentially every area analyzed in the study, the differences were not statistically significant. This was found for first-year GPA (t (96) = -1.2, p = 0.245), first-year units earned (t (96) = -0.31, p = 0.759), four-year GPA (t (96) = -0.23, p = 0.816), and units earned at the university after four years (t (96) = -0.97, p = 0.332). Differences in persistence and graduation rates were also found to not be statistically significant. Participants persisted to the second year at a rate of 100% compared to 98.2% for the non-participants ($X^2(1) = 0.727$, p= .394). The four-year graduation rates, 70.7% for the participants and 66.7% for the non-participants, also did not prove to be statistically significant in their difference ($X^2(1) = 0.182$, p= .669).

Did not apply for aid and academic preparedness .80 to less than .90. The results for the independent samples test in chart 10 similarly did not reveal any statistically significant differences between the support program students and the non-participants. The non-participants in this analysis had a higher average academic preparedness score, .8451 to .8386, but the difference was not statistically significant (t (190) = 1.43, p = 0.160). Additionally, the differences were not statistically significant for first-year GPA (t (190) = 1.07, p = 0.288), units

completed at the university after the first year (t (190) = 0.133, p = 0.894), four-year GPA (t

(190) = 0.803, p = 0.423), and units earned at the university after four years (t (190) = -1.2, p =

0.216). Persistence to the second year (X^2(1) = 0.338, p= .561) and four-year graduation rates

were also found to not be statistically significant (X^2(1) = 0.127, p= .721).

Did not apply for aid and academic preparedness less than .83139. There was a

challenge with comparing support program participants to non-participants that had academic

preparedness scores of less than .83139 and did not apply for financial aid. This was visible in

chart 11. Even when both groups were below a certain cut off score for academic preparedness,

the non-participants had a higher mean score that was statistically significant (t (99) = 5.12, p =

0.000). Despite this significant difference in academic preparedness, the support program

students achieved similar academic results for first-year GPA (t (99) = .859, p = 0.392), units

earned at the university after the first year (t (99) = 0.005, p = 0.996), four-year GPA (t (99) =

0.562, p = 0.576), and units earned at the university after four years (t (99) = -0.83, p = 0.408).

Chi square analysis also revealed that the differences in persistence to the second year rate of

95.8% for the participants and 92.5% for the non-participants was not statistically significant

(X^2(1) = 0.515, p= .473). The four-year graduate rate of 64.6% for the support program

participants was nearly identical to the 64.2% rate for the non-participants.

Did not apply for aid and academic preparedness of .80139 to less than .8664. A

comparison of means was conducted between support program students and non-participants that

did not apply for aid and had academic preparedness scores of .80139 to less than .8664,

representing the 25th to 75th percentile scores of the support program participants. The results

can be found in chart 12. For this analysis, the non-participants had a higher mean academic

preparedness score, .8448 to .8324, that was statistically significant (t (179) = 3.43, p = 0.001).

The comparison of academic achievement outcomes revealed similar results between the two

groups for first-year GPA (t (179) = 1.25, p = 0.212), units earned at the university after the first

year (t (179) = -0.45, p = 0.657), four-year graduation (t (179) = 0.386, p = 0.700), and units

completed at the university after four years (t (179) = -1.5, p = 0.125). For persistence to the

second year, the higher rate of the support program participants, 100% to 94.8%, was not

statistically significant (X^2(1) = 1.404, p= .236). Differences between four-year graduation rates

for the participants, 69.2%, and non-participants, 72.9%, were also not statistically significant

(X^2(1) = 0.150, p= .698). These findings showed additional evidence that the support program

students achieved similar or better academic outcomes when compared to non-participants of the

same SES and academic preparedness.

Data Analysis Summary for Research Question One

Overall, the support program participants were outperformed academically by their non-

participant peers. When comparisons were made between students of similar SES and academic

preparedness though, the findings changed. When the support program participants were

compared to non-participants of similar SES and academic preparedness they were found to have

performed equally well academically. These support program participants were not chosen

randomly, but selected rather because they were considered to be potentially more at-risk than

the students of similar SES and academic preparedness that were not selected to receive the

additional support. So these findings supported the notion that the extra assistance helped.

Finding similar groups based on academic preparedness, SES, gender, race/ethnicity, and

pursued degree program that could be paired for comparison was a challenge. Only six groups

with relatively similar compositions were identified. When considering the different sub-

sections of the support program population that were examined based on academic preparedness

scores and SES, there were twenty different sub-groups examined. This means that for fourteen

of the support program sub-groups the non-participants of similar SES and academic

preparedness score had very different compositions of students by gender, race/ethnicity, and

pursued degree program. Unfortunately, there were not any reasonably comparable groups

found for lower-middle or mid-upper SES students.

For the six pairs of groups that had their means compared, the findings verified that the

support program participants achieved similar, if not greater, academic outcomes that were

statistically significant when compared to non-participants of the same SES and academic

preparedness ranges. Without support, the expectation would be that the students identified as

being more at-risk would not perform as well. So it was noteworthy that the support program

participants had comparable results, even during instances when the non-participants had

statistically significantly higher average academic preparedness scores and also likely started at

the university with a head start toward graduation due to additional advanced placement units on

average.

Research Question Two

Trends regarding the impact of SES have already emerged from the analysis of the

support program participants and comparable non-participants. It is important to remember

though that the entire population in the study contained a much larger range of students by

academic preparedness than that used in the comparison of support program participants. The

highest academic preparedness score found within the support program was still lower than the

mean score for the non-participant population. For the second research question the entire group

of non-participants was examined and the data for the support program participants was set

aside.

The analysis of SES and the impact it had on academic achievement followed some of the same steps as used for the first research question. The descriptive statistics, primarily detailing the distribution and achievement outcomes, were examined. Sub-populations and their distribution and achievements were also identified. Lastly, trends and specific findings were further explored.

Composition of Non-Participants

The breakdown by SES for the 6,557 non-participants of the support program can be found in Table 42. Similar to what was seen previously within the support program examination; there were certain trends that were quite visible. The lowest and low SES groups had the highest rate of females, 62% and 58.3% when compared to 54.1%, 50.6%, and 51.9%. The percentage of students that were the first generation in their family to attend college substantially decreased from 46.6% to 3.4% as SES increased. The percentage of White students increased from 17.3% to 65.3% as SES increased and the percentage for all other race/ethnicity categories other than "Unknown" decreased.

Academic Outcomes

The academic outcomes of students when categorized by SES can be found in Table 43. Also compared were students within the lower and higher 50th percentiles for academic preparedness score. The trend of lower SES students being outperformed academically by their higher SES peers was clearly visible. To further understand these differences, a multivariate analysis of variances was conducted. This found that there were statistically different GPA and units completed outcomes after the first and fourth year for the different ranges of SES, $F(16, 20008.163) = 5.84$, $p < .0005$; Wilk's $\Lambda = .986$, partial $\eta^2 = .004$. This finding indicated a need to further examine the differences through a one way analysis of variance.

The differences in four-year graduation rates by SES range for the 6,557 non-participants were found to be statistically significant ($X^2(4) = 71.141$, p= .000). A means plot for four-year graduation rates of the 6,557 students in chart 13 revealed the differences in rate by SES level. Chart 14 shows statistically significant differences resulting from a one way analysis of variance between the groups for first-year GPA (F (4,6552) = 16.656, p= .000), first-year units completed (F(4,6552) = 6.799, p= .000), and fourth year GPA (F (4,6552) = 16.667, p= .000). Differences between groups for units completed after the fourth year were not found to be statistically significant (F (4,6552) = 1.779, p= .130). The reason why units completed at the university after the fourth year were not significant is because students only needed to reach 128 units to graduate and the students who brought in more advanced placement related units did not need to earn as many units.

A four by five factorial design was used to measure how SES and academic preparedness levels impacted GPA and units earned after the first and fourth years for the 6,557 non-participants. For GPA after the first year, the main effect of academic preparedness was statistically significant (F (1, 6537) = 175.308, p = .000) and the effect of SES approached significance (F (1, 6537) = 2.048, p = .085). The interaction between academic preparedness and SES for GPA after the first year was not significant (F (1, 6537) = 1.401, p = .157). The results for GPA after the fourth year were similar in that the effect of academic preparedness was significant (F (1, 6537) = 182.041, p = .000), SES did not have a significant effect (F (1, 6537) = 1.146, p = .333), and the interaction between SES and academic preparedness was not significant (F (1, 6537) = 1.237, p = .251). Much like the effect on GPA, academic preparedness had a significant impact on units completed after the first (F (1, 6537) = 20.386, p = .000) and fourth year (F (1, 6537) = 12.729, p = .000). Meanwhile the effect of SES on units completed after the

first (F (1, 6537) = 0.880, p = .475) and fourth year (F (1, 6537) = 1.069, p = .370) was not

statistically significant. The interaction between SES and academic preparedness on units

completed after the first (F (1, 6537) = 1.106, p = .350) and fourth year (F (1, 6537) = 1.227, p =

.257) was also not statistically significant. Together, when also considering the findings for four

year graduation rates, the data suggests that academic preparedness and SES significantly

impacts four-year graduation, but only academic preparedness has a statistically significant effect

on GPA and units completed after the first and fourth year.

SES and Academic Preparedness

The relationship between academic preparedness score and SES was examined further in

Table 44. The academic outcomes for students with academic preparedness scores from three

distinct ranges, in addition to their SES subgroups, were provided. These findings revealed the

same trends as previously identified. Even when academic preparedness scores were similar,

academic achievement results increased with SES. For the groups within Table 44, the four-year

graduation rates of the lowest SES and mid-upper SES groups differed by as much as 34%.

These differences in four-year graduation rates between SES ranges were found to be statistically

significantly different for students with academic preparedness scores from .80 to less than .90

(X^2(4) = 13.040, p= .011), scores from .90 to less than 1.0 (X^2(4) = 41.883, p= .000), and greater

than 1.0 (X^2(4) = 15.544, p= .004).

These results provided further evidence that academic preparedness scores and SES had a

significant impact on rates of academic success at the university level. The next three tables

further detail the distribution of students within three academic preparedness range scores. Table

45 focuses on students with academic preparedness scores of .80 to less than .90. Students with

scores of .90 to less than 1.00 were detailed in Table 46. The information on highly prepared

students with scores of 1.00 and higher is provided in Table 47. In addition to details regarding

gender, first-generation status, race/ethnicity, and pursued degree program type, these tables also

list the averages for the expected family contribution calculated as a percentage of the full cost of

attending. The average percentage of the full cost of attending students will have covered

through their expected family contribution, need-based aid, and merit-based aid is also listed.

For instance, an EFC percentage of 5.8% and an EFC + Aid percentage of 88.5% would indicate

that a student received need and merit based aid accounting for 82.7% of the full cost of

attending. After the expected family contribution of 5.8%, the student would be responsible for

paying for the remaining 11.5% through loans and work-study earnings.

For table 45, examining students with an academic preparedness score of .80 to less than

.90, many of the same trends for the overall population were found. Nearly 50% of the lowest

SES group came to the university as a first generation college student. Only 3.7% of the group

that did not apply for aid identified as being the first generation in their family to attend college.

Additionally, the higher rate of females within the lower SES groups and White students in the

higher SES groups were visible. Even more pronounced than the overall population, the upper

SES groups had a higher percentage of students pursuing majors in the arts and the lowest SES

students were around twice as likely to have an undecided major.

In addition to statistically significant differences in four-year graduation rates by SES for

students with academic preparedness scores of .80 to less than .90, there were also statistically

significant differences found for GPA after the first ($F(4,1233) = 4.902$, $p= .001$) and fourth year

($F(4,1233) = 5.065$, $p= .000$). Differences between SES ranges for units completed after the first

($F(4,1233) = 0.745$, $p= .561$) and fourth year ($F(4,1233) = 0.924$, $p= .449$) were not statistically

significant for students within this preparedness range of .80 to less than .90 (Chart 15).

The descriptive composition statistics for students within the academic preparedness score range of .90 to less than 1.00 are listed in Table 46. These findings continue to show that the lowest SES groups have the highest percentage of females and first-generation students. The percentage of White students increased with SES as the rates for all of the other groups decreased. For the students within this range of academic preparedness scores, .90 to less than 1.00, the degree programs pursued by students of different SES were much more similar to each other. This was not found for students within different academic preparedness ranges.

A one way analysis of variance was conducted for the students outside of the support program with academic preparedness scores of .90 to less than 1.00. The details in chart 16 show statistically significant differences between the groups for first-year GPA (F (4, 4761) = 5.673, p= .000), first-year units completed (F (4, 4761) = 4.464, p= .001), and fourth year GPA (F (4, 4761) = 7.536, p= .000). Differences between groups for units completed after the fourth year were not found to be statistically significant (F (4, 4761) = 0.754, p= .555).

There were fewer students with an exceptional academic preparedness score of 1.00 or higher, detailed in table 47. The overwhelming majority of these students were not lower SES. Additionally, most all of the students within this group were either Asian or White. However, some of the same trends were found. The lower SES groups had the highest percentage of females and first-generation students. For pursued degree program it was more challenging to compare students by SES level because there were so few students in the lowest and low SES ranges. This is why a one-way ANOVA was not conducted.

Data Analysis for Research Question Two

In review of the information presented thus far, there are particular trends that have repeatedly been identified. Academic preparedness scores and SES seem to both have a

profound impact on academic success. When academic scores remain consistent, academic achievement outcomes increased with SES. However, the distribution of race/ethnicity also changed as SES increased. This pattern is further analyzed with Table 26 detailing the academic outcomes for all non-participants of the support program. Visible in this table are the lower achievement outcomes found for Hispanic/Latino and Black/African American students. These populations also had lower average academic preparedness scores.

        Race/Ethnicity. Students of the same race/ethnicity and academic preparedness ranges were then isolated to determine if academic achievement similarly increased with SES. Students identified as Asian, Black/African American, Hispanic/Latino, and White represented the largest race/ethnicity groups within the study. An examination of the academic preparedness scores and SES distribution revealed differences. The mean academic preparedness score for the 1,930 Asians in the study that did not participate in the support program was .9496 and the majority of the students had scores between .9 and 1.0 (Chart 17). For Asians, the majority of students were from middle to upper SES backgrounds (Chart 21). The mean academic preparedness score for the 359 Black/African American students was .8918 with most students falling between the range of .85 and .95 (Chart 18). For SES, there was a near bell curve distribution between the levels for Black/African American students with lower SES representing the dominant side (Chart 21). Similar to the Black/African American population, most of the 840 Hispanic/Latino students had academic preparedness scores between .85 and .95 with the mean equaling .9201 (Chart 19). The distribution of SES levels among Hispanic/Latino students fairly even, with the highest numbers found for the lower to middle and middle to upper levels (Chart 21). The 3,283 White students had a mean academic preparedness score of .9426 and most fell between .90 and

1.0 (Chart 20). For SES, White students had the most noticeable distribution. As SES level

increased, the number of White students substantially increased (Chart 21).

Considering most Black/African American and Hispanic/Latino students had academic

preparedness scores of .85 to .95, this range was examined more closely. Chart 22 provides a

visual and Chart 23 details the data for the four year graduation rates by SES and race/ethnicity

for students with academic preparedness scores of .85 to less than .95. The visual data are

provided for students identified as American Indian/Alaskan Native and Unknown even though

each SES level for these racial/ethnic groups had fewer than 20 students. For the four other

racial/ethnic groups, it became clear that when academic preparedness scores and SES levels

were similar, the four-year graduation rates of students of different race/ethnicity were relatively

similar. Even without accounting for SES level, only examining the similar range of academic

preparedness score of .85 to less than .95, the four-year graduation rates for these four

racial/ethnic groups were all within five percentage points of each other. When SES is also

factored in then the data shows that the lowest SES group had the lowest four-year graduation

rate. Hence, when comparing students of a different race/ethnicity, this data shows that SES and

academic preparedness need to be accounted for.

Additional variables. Gender, first-generation status, and pursued major were also

individually examined to gain better understanding of their impact on academic achievement.

Females at all SES levels outperformed their male counterparts. Table 51 details the results for

average academic preparedness scores, expected family contribution percentage, GPA and units

earned after the first year, second year persistence, four-year graduation rates, and totals for

GPA, units, and total units after four years.

Gender. Females slightly outperformed the males for every variable except second year persistence. Average academic preparedness scores for the females and males were fairly similar overall and at each SES level. The female and male populations were not examined further for differences in first-generation status, pursued major, and race/ethnicity. However, this cursory examination shows evidence that females achieved slightly better academic outcomes at the university. These results also further support the evidence showing the impact of SES. For males and females, achievement outcomes increased as did SES.

First generation status. The academic outcomes for all first-generation college students in the study were compared to that of their non-first-generation peers. Table 52 provides the data from this analysis. Overall, the first-generation students did not perform as well. They had a lower average GPA after the first year and fourth year, did not earn as many units, and graduated at a lower rate after four years. However, these disparate outcomes were likely the result of different distributions of SES and unequal average academic preparedness scores between the groups. The first-generation college student population had a higher concentration of lower SES students, 62.9% compared to 15% were identified as lowest or low SES, and also had lower average academic preparedness scores, .9167 to .9361, when compared to students who were not the first generation in their family to attend college. Despite the differences in academic preparedness, the first-generation population achieved similar academic outcomes when SES was accounted for.

Pursued major type. For all majors, the lowest SES group had the lowest four year graduation rate. Chart 24 illustrates the differences in four year graduation rates for students pursuing different majors, and details the results by SES. For the most part, graduation rates climbed as SES increased, with only a slight dip for the students that did not apply for financial

aid. Overall, Business, 87%, and Communication majors, 88%, had the highest four year

graduation rates. Engineering, at 74%, had the lowest rate. These majors were identified at the

conclusion of the first semester.

For students from the lowest SES range, graduation rates were concerning for

Engineering at 57%, and Natural Sciences at 65%. Students that were Undecided at the end of

their first semester, with a 62% four year graduation rate, were also below average. For all

students from the lowest SES range, the average four year graduation rate was 67%. Students

from the lowest SES level pursuing Business achieved a four-year graduation rate of 78%, as did

Communication majors. The gap of 21% between the lowest graduation rate, Engineering, and

highest rates for Business and Communication was alarming. Similarly, for students in the low

SES range, the gap between Engineering at 64% and Humanities at 69% when compared to

Business at 92% and Social Sciences at 89% was also concerning. For all other SES levels and

pursued majors, the four year graduation rate was between 75% and 90%. So, when it came to

differences in the graduation rate by major, SES appears have played a vital role. This is

particularly true in that the gap in four year graduation rates between lowest SES and middle to

upper SES students in the same major was 10% or greater for all majors, with the gap exceeding

20% for Engineering, Natural Sciences, and Undecided.

Summary for Research Question Two

In summary of the findings for research question two, SES and academic preparedness

appear to have had the greatest effect on academic achievement at the university. This was

particularly true for four year graduation rates. When all pre-college variables were similar,

other than SES, the higher SES students performed better on average academically than their

lower SES peers. This was also found for students that participated in the support program, but

to a lesser degree. Chart 25 provides a visual for how support program participants with

academic preparedness scores of .80 to less than .90 compared to non-participants with scores of

.80 to less than .868. The chart shows the fluctuation in graduation rates by SES level.

Even though the higher SES support program participants tended to outperform their

lower SES peers, there were not statistically significant differences found for first-year GPA (F

$(4, 292) = 0.773$, $p= .543$), units completed after the first year (F $(4, 292) = 1.519$, $p= .197$),

fourth year GPA (F $(4, 292) = 1.505$, $p= .201$), and units completed after the fourth year (F $(4,$

$292) = 0.995$, $p= .410$). The differences in graduation rates between the support program

participants of different SES ranges were statistically significant ($X^2(4) = 9.489$, $p= .050$). When

focusing on students with academic preparedness scores of .80 to less than .90, the differences

in four-year graduation rates by SES levels was not statistically significant for the support

program population ($X^2(4) = 7.621$, $p= .107$), meanwhile the differences by SES for the non-

participants were statistically significant ($X^2(4) = 13.040$, $p= .011$). Similarly, for support

program students with the same range of preparedness scores of .80 to less than .90, there were

no statistical differences between SES ranges for first-year GPA (F $(4, 197) = 0.961$, $p= .430$),

units completed after the first year (F $(4, 197) = 0.427$, $p= .789$), fourth year GPA (F $(4, 197) =$

1.971, $p= .100$), and units completed after the fourth year (F $(4, 197) = 0.919$, $p= .454$). For the

non-participants though, the differences in first year GPA (F $(4, 1233) = 4.902$, $p= .001$) and

fourth year GPA (F $(4, 1233) = 5.065$, $p= .000$) by SES were found to be statistically significant,

but the units completed after the first (F $(4, 1233) = 0.745$, $p= .561$) and fourth year were not (F

$(4, 1233) = 0.924$, $p= .449$). This provides some evidence supporting the notion that differences

in academic achievement by SES could have been partially reduced via the assistance provided

by the support program. The differences in population size, however, also could have resulted in these differences.

Overall, when academic preparedness was adjusted, it appeared that the lowest and low SES groups were struggling the most academically. Charts 26 and 27 provide the visual image and data on the four-year graduation rates by SES and academic preparedness levels for non-participants of the support program. These charts clearly show the impact of SES and academic preparedness levels. Whether the support program helped minimize the effects of SES on academic outcomes, particularly four-year graduation, is inconclusive. The data does, however, show that lower SES students could likely benefit from extra support. Chapter five will further address the entirety of findings presented in this chapter.

Chapter 5: Conclusions and Implications

The first four chapters introduced the need to learn more about the impact of SES,

provided background information on research and literature, detailed the methodology of this

study, and examined the data. The goal of this chapter is to tie it all together. This will require a

summary of the study, a discussion about what the findings mean, conclusions related to the

literature, and implications for the future.

Summary

Literature related to assessment practices, financial aid, support programs, highly

selective institutions, and theoretical perspectives related to SES were examined in the previous

chapters. The purpose of this study was to identify how and why the impact of SES matters.

With the goal of President Obama to increase the percentage of citizens in the United States

between the ages of 25 and 34 with a college degree to 55% by the year 2025 (Lee & Rawls,

2010), it is important to understand that low SES students struggle the most with access and

success in higher education (Carnevale & Rose, 2003; Walpole, 2003). Identifying practices that

increase graduate rates for low SES students is imperative.

Degree achievement percentages, rates of return on investment, and social mobility are

highest at the most selective colleges and universities (Haveman & Smeeding, 2006; Hill et al.,

2005). More specifically, the most highly selective, private, colleges and universities have the

highest rate of return (Brewer, Eide, & Ehrenberg, 1999; Thomas & Zhang, 2005). There is

evidence to suggest the benefits of increasing the access and degree attainment for low SES

students at highly selective, private, institutions.

Researchers have already provided details regarding the academic achievement gaps

between low and high SES students (Carnevale & Rose, 2003; Walpole, 2003). The findings of

this study further clarify the struggles of low SES students. When all things were similar except for SES, the academic outcomes of lower SES students were less than that of higher SES peers.

Research Question One

For first time freshmen, what differences exist when the persistence, grade point average, units earned, and degree completion are compared for students required to participate in a support program and non-participants of similar socioeconomic status and academic preparedness? In search of an answer to this question, the academic achievement of students required to participate in a support program were examined and compared to that of non-participants. This proved to be challenging. There were 297 potentially at-risk support program participants compared to the general population of 6,557 students. As indicated in table 24, the program participants had the same first to second year persistence rate of 97% as the non-participants. This finding was similar to that of Braunstein et al. (2007), who also found that students receiving support achieved similar first to second year persistence rates as their peers that had higher HSGPA and test scores. However, a similar first to second year persistent rate did not produce a similar four year graduation rate. For this study, the non-participants achieved an 81% four year graduation rate and the support program participants combined for 65% even though both populations had a 97% first to second year persistence rate. Braunstein et al. (2007) did not report academic achievement past the first year.

Even when students of similar academic preparedness were found, there remained a question. Why were certain students selected for the support program and others were not?   The assumption was that the students required to participate in the support program were selected by the office of admission because they provided non-quantitative information in their admission

applications that presented them as being more at-risk than other students of similar academic

preparedness.

Based on this reasoning, it would be expected that students in the support program would

not be able to achieve the academic outcomes of their peers without support. So this shaped the

research question. Were support program participants achieving similar, or better, academic

success when compared to non-participants of similar academic preparedness and SES? The

findings reveal that participants in the support program achieved similar educational outcomes

when compared to non-participants of similar academic preparedness and SES. This appeared to

happen despite the support program participants having what appeared to be fewer AP units

transferring in on average. Beyond this general finding though, little more could be found.

Students in the support program proved to be different when examined closely in

comparison with the non-participant population. First of all, there were challenges when finding

students of similar academic preparedness. The program participants had a fairly large range of

scores considering the relatively small size of the population, 297 students. This wide range was

particularly noticed for the lower end of scores. For instance, 202 of the 297 students in the

support program had academic preparedness scores of .80 to less than .90 and they averaged

.8448. Meanwhile, 1,238 of the 6,557 non-participants were found within the same academic

preparedness range with an average score of .8699. Charts five and six provide visual

illustrations for the academic preparedness score distribution for support program participants

and non-participants.   The bell-curve reaches a peak at around .85 for the support program

participants, but does not reach a peak until around .95 for the non-participants. This is why the

non-participants had a higher average. The majority of non-participants with scores of .80 to less

than .90 were concentrated near the upper range.

The participant population also had a much higher rate of low SES students. Over 41% of the support program participants belonged to either the lowest or low SES ranges. Less than 20% of the non-participants were from the lowest or low SES ranges. Additionally, by the time participants were split up by academic preparedness score ranges and SES, there were not many students left to compare to the larger non-participant sub-groups. The tables in chapter four detail these complications.

The challenge of comparing the subgroups of program participants and non-participants became even more difficult when also factoring in differences in the distribution of gender, first-generation status, race/ethnicity, and major. There were only six pairings of groups that appeared to be relatively similar. The comparison of these matched groups revealed that, when the variables examined were relatively similar, the program participants achieved similar or better academic outcomes. This was despite non-participants earning a larger number of units completed outside of the university. Within the data for sub-groups, the non-participants regularly achieved around four to five more units outside of the university. This was found by taking the total of units completed after four years and subtracting the number of units completed at the university. Based on experience, this shows that the non-participant group likely transferred in more advanced placement units than the participant group. When considering the program participants completed more units after four years at the university, it seems the non-participants relied on the additional units outside of the university in order to achieve similar four year graduation results.

In summary, few conclusions or generalizations can be pulled from research question one. Support program participants were assumedly considered to be more at-risk than their non-participant peers of similar SES and academic preparedness. The additional support of the

program hypothetically made it more possible for the participant group to achieve equal, if not slightly better, academic outcomes. Without a true experimental design or the presence of a substantial population size though, these findings are not very reliable or conclusive.

Research Question Two

What differences exist, if any, when examining the persistence, grade point average, units earned, and degree completion of first-time freshmen of various socioeconomic backgrounds? Research addressing gaps in access and success for low SES students has already been addressed (Carnevale & Rose, 2003; Walpole, 2003). The primary goal of this study was to further clarify the problem, particularly at a highly selective, private, research university. In addition to identifying potential differences in the educational outcomes of students of various SES levels, the data was further disaggregated by academic preparedness, first generation status, gender, race/ethnicity, and pursued major. As the findings show, SES was found to have had a profound impact on academic achievement.

Lower SES students, on average, arrived with lower academic preparedness scores and went on to earn lower first and fourth year cumulative GPAs, had fewer units completed after the first and fourth year, and lower four year graduation rates. The first to second year persistence rates of low SES students were comparable or better to higher SES peers, but that did not translate into comparable graduation rates. Even when grouping students with similar academic preparedness scores, academic outcomes remained better for the higher SES students. For the entire study, academic preparedness scores and SES emerged as overwhelmingly significant predictors of success. Low SES students with lower academic preparedness scores were substantially outperformed by upper SES students with high academic preparedness scores.

In addition to having lower average academic preparedness scores, lower SES students were also more likely to be the first in their family to attend college, female, and from a racial/ethnic minority group. There were vast differences in student composition found for students of various SES ranges and the stark uniformity was surprisingly consistent. For instance, as SES increased the percentage of White students rose from 17.3% to 35.6% to 42.8% to 55.0% to 65.3%. Meanwhile, the percentage of first-generation college students dropped from 46.6% to 3.4%, Hispanic/Latino students dropped from 28.9% to 7.6%, Asians from 39.0% to 23.6%, and Black/African Americans from 11.8% to 1.5%. This demonstrates resounding differences between the lower and upper SES levels.

When the differences between racial/ethnic groups were further analyzed, Asian American and White students had achieved better academic outcomes when compared to Hispanic/Latino and Black/African American students. The academic achievement gaps, however, were primarily the result of differences in SES and academic preparedness. The Asian and White populations had higher average academic preparedness scores and a larger concentration of upper SES students. The outcome results were different when SES levels and a common range of .85 to less than .95 for academic preparedness scores were additionally accounted for. Asian American and White students still had higher average academic preparedness scores within this range, but the numbers were more similar to that of Hispanic/Latino and Black/African American students. The differences in GPA, units earned, and graduation rates between the racial/ethnic groups became minimal when factoring in SES within this range of academic preparedness.

Females at all SES levels performed slightly better academically when compared to males. Both male and female students from the lowest SES range were the most at risk, as seen

in table 36. Lowest SES males achieved a 63% four year graduation rate compared to the 83% rate of mid-upper SES males. Lowest SES females achieved a 70% four year graduation rate compared to the 87% rate of mid-upper SES females.

First generation college students were outperformed academically by their non-first generation college peers. This was found for all outcome variables except first to second year persistence. The primary causes of these achievement gaps seem to be SES and academic preparedness. The gap appeared to be minimized when students were disaggregated by SES. In reviewing the academic preparedness scores for each group, it also appears that first generation college students also had much lower average academic preparedness scores. In other words, if SES and academic preparedness were both accounted for, then the differences in academic achievement between first generation and non-first generation students would likely be minimal or non-existent based on the data.

The lowest SES students in all majors achieved the lowest four year graduation rate. Overall, the findings illustrate a need for institutions to disaggregate their data by pursued major. This need for disaggregation was previously called for by Bensimon (2005). Certain majors in this study, such as business and communication, achieved much higher rates when compared to engineering and undecided students. There were not tremendous differences in the distribution of pursued major between SES levels. This means that lower and upper SES students were not more or less likely to have pursued a particular major. It was still important to examine if students of a certain SES were underperforming in a particular major. An achievement gap between the lowest and higher SES students was found for students that were undecided or pursuing engineering, humanities, natural sciences, and social sciences.

Limitations and Delimitations

Due to the exploratory nature of this study and the research design there were multiple limitations and delimitations. These were primarily the result of the time period, population, and other decisions that were made. Many of these were expected. As the research was conducted though, additional limitations were discovered.

First-time freshmen that entered a single university in the fall of 2007, 2008, and 2009 were examined. The researcher combined these cohorts into a single population for the study and made decisions related to the calculation of SES, academic preparedness, and pursued degree program. The expected family contribution produced internally by the university was used to determine SES within the study. It is not known how the outcomes of the research would have differed had other variables been used in addition to or instead of EFC. Even though this measurement for SES proved to be significantly linked with academic success, this cannot be generalized across other calculations for SES or other institutions. Similarly, the method of calculating academic preparedness was found to be significantly related to academic success. Different determinations for academic preparedness and/or studies at other universities would like produce different outcomes. For the categorization of majors into pursued degree program types, efforts were made to organize majors in a reasonable fashion. The types of major, as well as the respect and prestige of each major, varies at different colleges and universities. Just as one major can be very different with another in the same category, the same major can also be very different at another university. So, attempts to compare how students pursuing majors in the arts at one university to that of another would be challenging. Thus, the findings of this study are limited to the university where it was conducted.

An additional limitation resulted from the fact that participation was required for students in the support program. If they wanted to attend the university then they needed to accept the admission office decision and placement into the program. Some students embraced the extra support available to them. Others resented the decision, viewed it as a stigma, and/or were non-cooperative with the additional requirements. Considering that students outside of the program were capable of seeking and receiving comparable support from the same office and staff, there very well could have been unhappy program participants that utilized the support far less than the eager non-participants wanting to take advantage of everything available to them. This was a known complication that did not receive much attention during the study.

In addition to discovering the complication presented by tuition benefit recipients, there were other limitations discovered during the process of the research. Advanced placement units seemed to play a role in the comparison of support program participants and non-participants. This variable was not included in the study so it was not known why participants of the support program had fewer units earned outside the university when compared to non-participants. It was assumed that this was due to non-participants arriving at the university with a larger number of transferrable advanced placement units, even when academic preparedness levels were similar. This assumption was made solely based on the experience of the researcher and would require additional research to determine whether this was true. Even then, this very specific finding could likely not be generalized across other programs or universities.

The study also found that the percentages of female and first generation college students were higher within the support program. These differences, particularly for gender, made it challenging to find reasonably comparable subpopulations of support program participants and non-participants. Additional steps could have been made for females in the support program to

be compared to non-participant females, and the same for males to males, but that was not pursued. As result, these smaller subpopulations, that could have perhaps been reasonably comparable, were not examined.

The higher rate of low SES students found within the support program was also a newly discovered complication. As result, there were challenges finding enough low SES students of similar academic preparedness in the non-participant population. Another reason for this challenge was the discovered relationship between SES and academic preparedness for the different populations. As SES levels increased within the support program population the average academic preparedness scores declined. Meanwhile, academic preparedness scores increased with the rise of SES levels within the non-participant population. These differences were not expected and created additional challenges when trying to reasonably compare participants to non-participants.

Discussion

The statistically significant correlation between academic preparedness scores and academic achievement was somewhat unexpected. The academic preparedness variable was created out of the assumption that high school GPA and standardized test scores are examined by admission offices in connection with each other. For instance, a student with a lower high school GPA might warrant consideration for admission if their test scores are high. For this study, the primary goal of using an academic preparedness variable that would combine the results for HSGPA, adjusted HSGPA, and best SAT score was to more easily group students into levels of academic preparedness. The finding that this variable also was a more statistically significant predictor of academic success than either of its three component variables was unexpected.

Based on previous research, it was expected that lower SES students would likely have lower achievement outcomes than their upper SES peers. Both Walpole (2003) and Carnevale and Rose (2003) had previously shown the achievement gap between lower and upper SES students. Langhout, et al. (2009) provided examples of de facto types of classism and how they impact campus culture sense of acceptance for lower SES students. Ostrove and Long (2007) also found that class background impacted sense of belonging, academic adjustment, and social adjustment. Different types of capital have also been connected to the challenges faced by low SES college students. Economic capital deficits are obvious. According to Stanton-Salazar (1997), a combination of psychosocial and institutional forces limits the development of relationships and social capital that minorities need with institutional agents. According to Lareau and Weininger (2003), the types of cultural capital acquired by low SES students do not typically transfer over to the upper-middle class norms and beliefs of a college campus. Essentially, lower SES students face a multitude of challenges when they attend college. This is especially true at a highly selective, private, research university.

The findings regarding the impact of the support program were somewhat expected. Published research on support programs was scarce and the literature that was found had limitations and results that did not show the full picture. Braunstein et al. (2007) showed that participants in a student support services program achieved similar first to second year persistence rates despite having lower SAT scores, lower HSGPA, and lower family incomes. Academic achievement outcomes other than persistence were not detailed though. Angrist et al. (2009) examined the impact of support on entering freshman and found that participants that received additional opportunities achieved a higher first year GPA than the control group. The researchers did not examine results past the first year though.

Due to the absence of information in the literature detailing the academic achievement of support program participants past the first year, the researcher decided to report as much data as possible in the study. This choice was also made because the research was conducted by the director of the support program. The goal was to be as transparent as possible in order to reduce the risk of bias. As such, table 24 provides an example of these details. Students in the support program from the lowest and low SES ranges, despite much lower average academic preparedness scores, were more likely to persist to the second year, completed the same number of units at the university after the first year, and earned a similar number of units at the university after four years. The lowest and low SES participants of the support program persisted to the second year at a rate of 100%, completed an average of 32.4 and 32.6 units after the first year, and averaged 115.0 and 121.8 units respectively after the fourth year. This compared well to the 97% persistence rate of the non-participants, 32.4 and 32.5 units after the first year, and 118.8 and 119.7 units completed after the fourth year. This data alone does not tell the whole story. The lowest and low SES non-participants achieved substantially higher GPA and four year graduation rates (Table 24). The outcomes were also varied for students of different SES levels. This example illustrates why the complete data was provided in this study and also why there was a need to compare support program participants to non-participants of similar academic preparedness and SES.

When participants were compared to non-participants of similar SES and academic preparedness the academic achievement results between the groups were quite similar (Tables 45, 48, 49, and 28a). These tables detail how participants of similar SES and academic preparedness achieved academically when compared to non-participants and especially non-participants that more closely matched the average academic preparedness scores of the support

program participant group. A question that remained however was how reasonably similar

should groups be in order to compare them. Many of the participant and non-participant groups

of similar academic preparedness and SES had differences in composition when examining

gender, race/ethnicity, and pursued major. Academic outcomes were found to be quite similar

for the six pairings of participant and non-participant groups with similar academic preparedness

scores, SES, and composition (Table 52). Even though the outcomes for the other fourteen

pairings had similar academic outcomes, the composition by gender, race/ethnicity, and pursued

major were quite different.

Conclusions

Academic preparedness and the SES of a student profoundly impacted academic success

at the university level. The comparison of support program participants to non-participants

proved to be complicated. Furthermore, whether the support program minimized the impact of

SES could not be determined. This section will provide further details on the key findings of this

study.

Academic Preparedness

The academic preparedness score variable created for this study used a combination of

best test score, HSGPA on a 4.0 scale, and adjusted HSGPA on a 4.7 scale. The initial

correlations showed that academic preparedness scores had a statistically significant positive

correlation with GPA earned after the first (.406**) and fourth year (.410**) at the university

(Table 42). This positive correlation was stronger than that of HSGPA (.363** and .376**),

adjusted HSGPA (.376** and .393**), and best test score (.240** and .221**). Academic

preparedness scores had a statistically significant positive correlation with units completed at the

university after the first (.172**) and fourth year (.126**), in addition to total degree eligible

units completed after the fourth year (.297**). These findings were statistically significant at the 0.01 level (Table 43). The descriptive statistics throughout the study provided examples of how higher academic preparedness scores equated to higher academic achievement scores on average. The academic achievement outcomes increased for students of increasingly better academic preparedness score ranges. Additionally, these differences were maintained when SES was accounted for.

The statistical significance of this finding was unexpected. Previous research examining SES did not fully account for the impact of academic preparedness on academic outcomes at the college level. Carnevale and Rose (2003) identified the connection of SES to SAT-equivalent scores and also to graduation rates, but they did not examine whether the relationship between SES and graduation rates was also influenced by differences in SAT-equivalent scores or other types of academic preparedness. As such, the findings in this study show that there is a need for future research on SES to account also for academic preparedness. Low SES students in this study tended to also have lower levels of academic preparedness. For this reason, it is best to account for potential differences in academic preparedness before examining for differences in academic outcomes by SES level.

SES

The expected family contribution (EFC) for the first year calculated internally by the university was converted to a percentage of the full cost of attendance for the first year. The resulting output was used to quantify SES. The range and specific number of this variable and its relationship with academic outcomes was the central focus of the study.

Overall, SES had a statistically significant positive correlation with university GPA and units earned (Table 43). The differences in four year graduation rates by SES range were also

statistically significant for the 6,557 non-participants of the support program. A one way

analysis of variance by SES groups was also examined for the non-participants of the support

program. The findings showed that differences in first year GPA, first year units completed at

the university, and fourth year GPA, were statistically significant based on SES level.

These findings for SES connected well with previous research. Walpole (2003) found

differences in graduation rates by SES quartile. What separated this study from previous

research was that the impact of SES on academic outcomes was further isolated. Other variables

such as academic preparedness, gender, and race/ethnicity were also accounted for.

Gender

Descriptive statistics showed that female students at all SES levels performed slightly

better than males. This was found for all outcome variables except persistence to the second

year. The 3,162 males in the study averaged a four year graduation rate of 78% and a GPA after

the fourth year of 3.28. The 3,692 female students averaged 83% and 3.41. Academic

preparedness scores on average were relatively similar for males and females. When also

accounting for SES, it was discovered that females of similar academic preparedness and SES

performed slightly better than males. Although this finding was revealing, it was not further

examined because the primary focus of the study was on SES.

First Generation Status

First generation college students had a substantially higher rate of students from lower

SES backgrounds and were expected to have lower academic achievement outcomes. This was

found to be true, but most of the gap in achievement was the result of SES (Table 52). The 6,053

students in the study that were not the first generation in their family to attend college achieved a

four year graduation rate of 82% and a GPA after the fourth year of 3.37. These outcomes were

higher than the 73% four year graduation rate and 3.22 GPA after the fourth year for first

generation college students (Table 52). Additionally, the first generation college students had

lower average academic preparedness scores. Although steps were not taken to further compare

first generation college students to non-first generation students of similar academic

preparedness, the data found was enough to assume that much of the difference in achievement

outcomes resulted from differences in academic preparedness and SES.

Race/Ethnicity

White and Asian American students achieved higher GPA and four year graduation rates

when compared to Hispanic/Latino and Black/African American students. When these

populations were examined more closely, however, the achievement gaps were greatly

minimized after accounting for differences in the distribution of students by SES and academic

preparedness. The Hispanic/Latino and Black/African American populations had lower

academic preparedness scores on average. There also were substantial differences in the

distribution of students by SES between these racial/ethnic groups.

The majority of Hispanic/Latino and Black/African American students had academic

preparedness scores between .85 and .95. Most White and Asian students had scores between

.90 and 1.0. In order to better compare the academic achievement of these four largest

racial/ethnic groups, focus was given to students with academic preparedness scores of .85 to

less than .95. Hispanic/Latino and Black/African American students with scores within this

range would have an average of around .90. Due to a higher number of students with scores near

the high point of this range, .95, the White and Asian populations still had higher average

academic preparedness scores. The average scores between groups, however, were much more

similar when examining this range of scores.

By focusing solely on students with academic preparedness scores of .85 to less than .95, it became possible to more reasonably compare the academic achievement of the four largest racial/ethnic populations (Tables 49 and 50). Both SES and academic preparedness were accounted for. As result, there were no statistically significant differences in four-year graduation rates. In sum, the overall differences in degree completion between racial/ethnic populations were primarily the result of differences in the distribution of SES and academic preparedness.

Due to the exploratory nature of this study, these findings related to race/ethnicity were not expected. It is not known how or if these findings connected to prior research conducted by others because the literature reviewed prior to this study was primarily related to SES. The findings, however, do suggest a need for future research.

Pursued Major Type

An analysis of academic achievement for students of different pursued degree programs revealed disparities. Students pursuing majors in business, communication, and social sciences at the conclusion of their first semester would go on to achieve higher four year graduation rates (Chart 24). Engineering majors had the lowest four year graduation rates. For all pursued majors, lowest SES students had the lowest four-year graduation rates. Even though there are differences between specific majors and categorical types of majors, it is troubling to see that students from the lowest SES struggled.

Support Program

Participants of the support program achieved similar academic outcomes when compared to non-participants of reasonably similar SES, academic preparedness, gender, first generation status, race/ethnicity, and pursued major. This leads to the conclusion that the support program

successfully helped students that were considered to be more at risk than their peers of similar

academic preparedness and SES. However, there were challenges identifying reasonably

comparable students to compare with the program participants. Only six of the twenty groupings

examined were deemed reasonably comparable when examining for SES, academic

preparedness, gender, first generation status, and pursued major. There also remained the

question as to why the support program participants were considered to be more at-risk than

peers that were found to be reasonably similar.

The overall findings and challenges related to the analysis of the support program were

inconclusive. Rather than detailing only the findings that favored the support program, all of the

data was presented within this study with the aim of being as transparent as possible. Evidence

was found that suggested that the extra support was valuable. In relation to the overall focus on

SES, it seems that extra support and guidance could best benefit low SES students and others

with lower academic preparedness scores.

Persistence

The findings of this study repeatedly demonstrated that persistence from the first year to

the second was not predictive of four year graduation rates. Low SES subpopulations regularly

had higher first to second year persistence rates. This did not relate to higher graduation rates.

Considering persistence research has received a lot of attention (Reason, 2003; 2009), it should

be important to remember that degree attainment is the primary goal.

Implications

Throughout the review of the research literature and the findings within this study there

were themes that continued to emerge. The three most prominent themes were acceptance,

belonging, and capital. Each of these three areas intersects and nurtures each other. The

following recommendations for action and understanding have been developed by the researcher

based on what was learned through the completion of this study.

Acceptance

Acceptance relates to more than simply the opportunity for low SES students to attend

highly selective, private, colleges and universities. It also equates to an understanding that the

goals of the completion agenda likely cannot be met in a meaningful way if only a select few

token low SES students make it through the filter of the education system and into a highly

selective, private, college or university. The 55% goal of the completion agenda (Lee & Rawls,

2010) could be met without increasing the percentage of qualified low SES students at highly

selective institutions, but it is doubtful that would improve the economic stability or disparities

between the rich and the poor within this country.

Low SES children need to feel that attending a highly selective, private, university is

possible. Information and success stories need to be shared. Colleges and universities have an

opportunity to form partnerships and coalitions to help facilitate this. Successful examples

include the Posse Foundation, Questbridge, and the Neighborhood Academic Initiative program.

To further accomplish the goal of increasing socioeconomic diversity, Williams College

was one of a handful of schools to adopt a need-blind admission policy (Hill & Winston, 2006).

The financial aid costs associated with doing this and the challenges with balancing the overall

budget, however, are de-motivators for doing this. For this reason, there needs to be additional

motivations for colleges and universities to pursue socioeconomic diversity and a commitment to

meeting the financial needs of students. University ranking publications and systems provide

ample motivation. If the more popular ranking publications were to reward schools for enrolling

a socioeconomically diverse student body and for graduating high rates of low SES students then that would be a step in the right direction.

Belonging

Low SES students are already underrepresented in higher education (Haveman & Smeeding, 2006) and face a multitude of challenges when they are admitted. In addition to needing to conform to the upper-class norms of the university culture, there are also policies and fees that serve as a de facto form of classism (Langhout et al, 2009). More should be done to develop and nurture the sense of belonging of low SES students. Just as Aries and Seider (2005) suggested, additional programs and services could benefit low SES students. Careful consideration should be given during the creation of any support program designed to assist low SES students. For instance, a diversity office at a smaller college might be able to integrate the goals of promoting and supporting socioeconomic diversity. This type of integration may not be possible at larger universities where diversity initiatives have typically been decentralized into a variety of programs and services related to areas such as race/ethnicity, LGBTQ, and ability.

Additionally, if students were required to participate in a socioeconomic diversity program then that too may create a negative reaction. However, if staff members are not able to form valuable relationships or generate motivation for students to utilize their support then many low SES students might continue to slip through the cracks. This complexity requires that each university individually explore how best to provide support to low SES students until best practices have been identified. Here is one example that could potentially improve these concerns.

Merit-based aid often comes in the form of presidential, trustee, dean, or other prestigiously titled scholarships. Each of these titled examples produces a sense of pride and

prestige. Recipients of this titled merit aid feel wanted. Meanwhile the need-based university

grants are typically nameless. To improve this, a university could take the need-based university

grant money received by the lowest SES students and title this aid after an accomplished person

affiliated with the university that overcame their low SES. Furthermore, this naming could even

be used as an opportunity to seek out donors willing to dedicate funding to the financial aid

office earmarked specifically for low SES students. Then, as admitted students are offered this

titled need-based aid, they will feel more wanted and curious about the unique name. As they

learn more about the name they will become even more invested in the possibility of similarly

achieving success at the university. This is where each of these students could also learn about a

program that offers support specifically to recipients of this named need-based aid for low SES

students. Instead of feeling stigmatized, the students will feel more wanted and likely have more

motivation to take advantage of the support available to them. Additional peer mentoring and

networking with upperclassmen receiving the same need-based aid can also be made available as

new students transition into and begin their first year. As such, this example would work to

improve the acceptance, belonging, and capital of low SES students.

The timing of additional support offered to low SES students is also of importance. Once

low SES students are admitted there needs to be additional communication coming from the

university. Prior to the certification deadline and throughout the summer, staff members

representing various programs have the opportunity to proactively reach out to incoming students

in order to nourish the development of positive relationships. Low SES students would greatly

benefit from this outreach because they might not be able to afford a campus visit prior to move-

in day. Additionally, once low SES students arrive on campus there needs to be organized

activities and/or meetings to help minimize the culture shock and spreading of misinformation

among nervous freshmen. The first month or two of college can be overwhelming. Welcome

weeks often kick off the beginning of the year at many colleges and universities. Purposeful

follow-ups and outreach must be maintained though. These can consist of guest speakers,

special events, support group meetings, field trips, and one-on-one guidance appointments. The

main thing is for each student to feel accepted and like they belong. And, if they do not, then

they should know a staff person that they can turn to for support.

Social and Cultural Capital

Relationships formed with student peers and staff at the college level lead to more than

just an increased sense of belonging; they also help promote social and cultural capital. Low

SES students often arrive with social and cultural capital that is not transferrable to the upper

middle class norms of the college campus. This is especially true at highly selective, private,

universities. For these reasons, it is important for institutional agents to reach out to help bridge

the gap. This support can come in many forms, but typically entails a staff member providing

the student with information, guidance, intervention, and/or simply just someone trustworthy to

talk to.

Information. When information is distributed to new students there needs to be

additional consideration given to how the information is received. Otherwise students will be

more likely have challenges understanding and applying it. In relation to social and cultural

capital, students might not have the right information or know who or where to turn to for advice

and guidance. Paper forms and mailings are often lost or thrown away. Email messages are

regularly not opened, deleted, misplaced, and/or misunderstood. Accurate information posted

online is often hard to find and when offices and programs are decentralized then there are often

incorrect links or rabbit holes leading to old information. These issues are especially

complicating to low SES students because they are least likely to have someone to turn to for correct information and often have the most to lose.

The distribution of information needs to be collaborative and multifaceted. Colleges and universities should assess and discover more about the success rate of information being received. Rather than operating within silos, each launching their own email blasts, more should be accomplished in unison. For instance, approved updates could be emailed out each week from a single address and posted online on a unique page for updates. Social media could also be used with potentially five feeds created for potential undergraduates, current undergraduates, potential graduate students, current graduate students, and faculty/staff. Anyone with questions regarding critical information could peruse this site to learn new things or refresh their understanding. Everything would be in one place. Once each month, students in the residence halls could also discuss the meaning of the information distributed with their resident advisor. As example, perhaps there is a financial aid or housing deadline approaching or possibly a class registration period. The resident advisor, in a group setting, could inform residents of the importance of the deadlines and information. They could also read through prepared examples to further illustrate the intended message. The main point from this example is that critical information can and should be more successfully distributed.

Guidance. Once a student receives critical information they then can benefit from receiving additional guidance before decisions and actions are made. For instance, timely group workshops and/or individual meetings typically occur before students register for classes. These exist so students can learn more about what they should do and also how to do it. Considering what has been learned about low SES students, similar outreach leading to group or individual meetings could be organized during other important time periods. For instance, during welcome

week there could be workshops providing guidance and advice regarding the purchasing of

textbooks. Similar offerings later in the year could also address housing options and costs.

These examples would be especially helpful to low SES students, particularly if the guidance

was provided by a trusted person on campus, or a referral from one was given.

   Intervention. No matter the information and guidance available, some students will still

have challenges. These struggles might be personal, academic, social, and/or environmental. To

help minimize these struggles, and to intervene when necessary, it is important that relationships

with support staff be established early. If outreach and additional support is not delivered until

after a student goes on academic probation then that would be too late. Considering the

challenges faced by low SES students, a proactive approach is much more appropriate.

   Trusted partners. Low SES students would benefit the most from having at least one

person on campus that they can turn to for support and guidance. Preferably, they have a

network of people they can turn to. This network of trusted partners would consist of peers,

faculty, and staff. Ideally, these networks would collaborate and receive information from an

office familiar with the issues at hand. Furthermore, this type of office could work to facilitate

the matching of low SES students to individuals and networks based on common interests and

pursued majors.

Economic capital

   When considering the full cost of attending, all potential fees and charges need to be

accounted for. This includes both the costs for the student, as well as those that are

recommended for parents and guardians. Low SES students might not be familiar with what

costs can or cannot be covered by financial aid. More simplified information and examples

should be distributed to students and staff. Expenses that cannot be included into the full cost of

attending and covered by financial aid require further thought. For instance, when family

members are encouraged to attend orientation but are charged an amount that they cannot afford

then the implicit message sent is that they do not belong at the orientation. Instead of sending

this message, there are opportunities to do things differently. Financial aid offices are typically

aware of low SES students by the time the orientation sessions begin. If the university were to

set aside funds or raise money so that at least one family member could attend orientation for

students meeting a certain threshold then that would send a more appropriate message to low

SES families. And this same process could likely be duplicated for other costs faced by the

student or their families.

Re-envisioning work-study jobs. Most every low SES student has the opportunity to

receive work-study funds. This creates a further challenge. In addition to adapting to the culture

shock of the campus and academic expectations, they also need to find a job. Even with the

presence of work-study job fairs, much of the responsibility is on the student. Additionally,

students that successfully find a position will be at their work-study job an upwards of 10, 15, or

even 20 hours each week. Whether a student is able to find a position, as well as any

relationships they form as result of it, likely produce profound effects. In most cases, too much

of this is left to chance. This process could be overhauled to produce better results.

A university could integrate the hiring of new work-study students with the admission

timeline. Similar to how many graduate students pursuing higher education programs seek out

internships and campus jobs related to their studies before they select which college they commit

to, some of the same processes can be adopted on the undergraduate level. If a work-study

location with an expected open position had access to information on potential incoming work-

study students then they would have the ability to proactively contact students. When

considering the findings of this and other research, it should be accepted that a stand-alone single day work-study job fair is insufficient.

Future Research

The findings of this study point to directions where additional research could be beneficial. The relationship and examination of SES and academic preparedness needs to be further examined at other institutions, particularly at other highly selective, private, colleges and universities. Even if the calculation of SES and academic preparedness might be inconsistent within other studies, the importance is figuring out whether there are differences in the educational outcomes of students of similar academic preparedness by SES level. Only then can the problem be fleshed out. For instance, the educational outcome gaps found within this study might be minimal compared to that of other universities, or the opposite. Until additional research has been conducted it will be challenging to identify best practices.

There was enough evidence within this study to suggest the further examination of the impact of Advanced Placement (AP) examination credit. It would be interesting to see whether students of similar academic preparedness, SES, and pursued major graduate at similar rates when they arrive with higher or lower amounts of AP credit. Further, considering admission offices internally calculate the adjusted HSGPA of applicants based on the rigor of their coursework, it would be revealing to see if students of certain high schools achieved low scores on their AP examinations despite being rewarded during the admission process. This examination could reveal the possibility of high school grade inflation. An example of potential grade inflation could be found if a high number of students from a particular high school tended to have favorably high adjusted HSGPA based on the rigor of their coursework but low success rates on the actual AP examinations in comparison to students from other high schools.

When accounting for both academic preparedness and SES, there were noteworthy findings within this study for race/ethnicity, gender, first generation status, and pursued major. Although the findings for these variables were not as profound as that for academic preparedness and SES, they do warrant further consideration. Additional research could expand the knowledge regarding these findings.

Closing

In summary, colleges and universities need to make decisions regarding how low SES students fit into their missions and strategic plans. Acceptance, belonging, and capital are three crucial areas that could benefit low SES students. As colleges and universities identify how or if they will be providing support to low SES students, additional information will need to be appropriately shared with the families of potential applicants. Only then can the completion agenda be delivered in a way that minimizes the economic inequalities in this country.

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Tables

Table 1
Prominent Studies and Their Connection to SES

Authors	Equity	Inst.Eff	PCV	DataCol	FinAid	Belong	Capital	Support
Astin (1997)	Yes	Yes	Yes	Both	No	No	No	No
Brewer et al. (1999)	Yes	Yes	Yes	Survey	Yes	No	No	No
Carnevale & Rose (2003)	Yes	No	Yes	Survey	Yes	No	No	No
Goldrick-Rab (2006)	Yes	No	Yes	Both	No	No	No	No
Hausmann et al. (2007)	Yes	No	Yes	Survey	Yes	Yes	No	No
Hill et al. (2005)	No	No	No	Actual	Yes	No	No	No
Johnson et al. (2011)	Yes	No	No	Survey	No	Yes	No	No
Langhout et al. (2009)	No	No	No	Survey	No	Yes	Yes	No
Ostrove & Long (2007)	No	No	No	Survey	No	Yes	No	No
Ryan (2004)	Avg.'s	Yes	Avg.'s	Actual	No	No	No	Unk
Walpole (2003)	Yes	No	Yes	Both	No	No	Yes	No
Proposed Study (2014)	Yes	Yes	Yes	Actual	Yes	*No	*No	Yes

Note. Inst.Eff = Institutional Efficiency. PCV =Pre-College variables. DataCol = Data Collection methods. Belong = Sense of Belonging. Capital = Economic, Social, and/or Cultural Capital. Support = Support Programs. Avg.'s = Cohort averages used as opposed to specifics for individual students. Unk = Unknown because Student Support Programs were either combined together with "Academic Support Services" which includes curriculum development and libraries, or they were combined with "Student Services" offices such as Admission, Financial Aid, and Student Affairs. *No = The study will not measure belonging or capital, but will be influenced by these theories and will examine a support program that ideally helps promote belonging and social/cultural capital.

Table 2

Ranges of SES as Calculated by Institutional Expected Family Contribution (IEFC)

	Range of IEFC
Lowest SES	Less than 10% of the yearly full cost of attending
Low SES	10% to less than 30%
Middle SES	30% to less than 100%
Middle to upper SES	100% and greater
Upper to highest SES	Did not apply for financial aid

Note: These ranges were decided on prior to the review of the data. These amounts do not directly relate to the net cost of attending after aid has been applied because scholarships and other grant-based aid may vary from student to student. An equal distribution was not expected.

Table 3

Academic Preparedness Composite Score Calculation

	Composite Score range
Lowest	Less than .80
Low middle	.80 to less than .90
Middle high	.90 to less than 1.00
Highest	Equal to or greater than 1.00

Note: These ranges were decided on prior to the review of the data and an equal distribution was not expected. The HSGPA and adjusted HSGPA data were previously internally adjusted by the office of admission so that the HSGPA is out of a total of 4.0 and the adjusted HSGPA has a maximum of ~4.7. The composite score will be based on the following calculation: ((HSGPA/4)+(Adj. HSGPA/4)+(Test Score/Max))/3

Table 4

Academic Preparedness Score Examples

HSGPA	Adj. HSGPA	Best SAT	Academic Preparedness score
2.80	3.10	2100	.7833
3.50	3.80	1900	.8722
3.40	3.40	2300	.8861
4.00	4.10	1860	.9333
3.80	4.10	2250	.9708
4.00	4.70	2400	1.058

Note: Students that were missing a score for their HSGPA, adjusted HSGPA, and/or best SAT score were excluded from the full analysis of this study.

Table 5

Degree Program Categories

	Examples of Majors Included
Architecture*	Architecture
Arts	Animation, Cinema, Fine Arts, Music, Theatre
Business	Accounting, Business
Communication	Communication, Journalism, Public Relations
Engineering	Aerospace, Astronautics, Biomedical, Chemical, Civil, Computer Science, Electrical, Industrial
Humanities	American Studies, Classics, Comparative Literature, East Asian Studies, English, Health and Humanities, History, Philosophy
Natural Sciences	Biochemistry, Biology, Chemistry, Environmental Studies, Global Health, Health Promotion, Mathematics, Neuroscience, Physics
Social Sciences	Anthropology, Economics, International Relations, Occupational Therapy, Political Science, Psychology, Public Policy, Sociology
Undecided	Undecided, Undeclared

Note: *Students in the Architecture degree program were removed from the study.

Table 6

All Students by SES

	2007	*2008*	*2009*
Entire Cohort	2965	2755	2862
-Lowest (<10%)	181 (6.7%)	232 (8.4%)	185 (6.5%)
-Low (10% to <30%)	346 (11.7%)	303 (11.0%)	323 (11.3%)
-Lower to Middle (30% to <100%)	597 (20.1%)	611 (22.2%)	563 (19.7%)
-Middle to Upper (100% +)	585 (19.7%)	544 (19.7%)	662 (23.1%)
-Did Not Apply	1167 (39.4%)	976 (35.4%)	1089 (38.1%)
-Tuition Benefits	89 (3.0%)	89 (3.2%)	40 (1.4%)

Note: These totals were prior to the exclusion of any students.

Table 7
Cohort Details

	2007	*2008*	*2009*
Entire Cohort	2965	2755	2862
-Student Athletes	150	167	124
-International	202	155	320
-Architecture	109	91	91
-Total Exclusions	532	426	562
-Included in Study	2433	2329	2300

Note: After the exclusion of student athletes, international students, and architecture majors, there were additional students excluded solely based on missing information such as HSGPA and test scores. Some overlap between the Student Athletes, International Students, Architecture majors, and other exclusions existed.

Table 8
Students Examined for Study

	2007	*2008*	*2009*
SES			
-Lowest	153 (6.3%)	210 (9%)	171 (7.4%)
-Low	322 (13.2%)	275 (11.8%)	292 (12.7%)
-Lower to Middle	565 (23.2%)	566 (24.3%)	517 (22.5%)
-Middle to Upper	565 (23.2%)	497 (21.3%)	613 (26.7%)
-Did Not Apply	744 (30.6%)	695 (29.8%)	669 (29.1%)
-Tuition Benefits	84 (3.5%)	86 (3.5%)	38 (1.7%)
Academic Preparedness			
-Lowest	36 (1.5%)	51 (2.2%)	27 (1.2%)
-Low-Middle	491 (20.2%)	481 (20.7%)	519 (22.6%)
-Middle-High	1754 (72.1%)	1603 (68.8%)	1568 (68.2%)
-Highest	152 (6.2%)	194 (8.3%)	186 (8.1%)
First Generation Status			
-No	2194 (90.2%)	2061 (88.5%)	1999 (86.9%)
-Yes	239 (9.8%)	268 (11.5%)	301 (13.1%)
Support Program Participation			
-No	2336 (96%)	2221 (95.4%)	2200 (95.7%)
-Yes	97 (4.0%)	108 (4.6%)	100 (4.3%)

Note: The ranges for SES were established based on the institutional derived EFC. Academic preparedness ranges were based on the composite scores of HSGPA, adjusted HSGPA, and test scores.

Table 9

Initial Data on Students in Study

	2007	*2008*	*2009*
SES	2349 total	2243 total	2262 total
-Lowest	153 (6.5%)	210 (9.4%)	171 (7.6%)
-Low	322 (13.7%)	275 (12.3%)	292 (12.9%)
-Lower to Middle	565 (24.1%)	566 (25.2%)	517 (22.9%)
-Middle to Upper	565 (24.1%)	497 (22.2%)	613 (27.1%)
-Did Not Apply	744 (31.7%)	695 (31.0%)	669 (29.6%)
Academic Preparedness			
-Lowest	33 (1.4%)	49 (2.2%)	26 (1.1%)
-Low-Middle	467 (19.9%)	464 (20.7%)	509 (22.5%)
-Middle-High	1701 (72.4%)	1546 (68.9%)	1542 (68.2%)
-Highest	148 (6.3%)	184 (8.2%)	185 (8.2%)
First Generation Status			
-No	2112 (89.9%)	1976 (88.1%)	1965 (86.9%)
-Yes	237 (10.1%)	267 (11.9%)	297 (13.1%)
Support Program Participation			
-No	2256 (96%)	2138 (95.3%)	2163 (95.6%)
-Yes	93 (4.0%)	105 (4.7%)	99 (4.4%)

Note: The ranges for SES were established based on the institutional derived EFC. Academic preparedness ranges were based on the composite scores of HSGPA, adjusted HSGPA, and test scores as detailed in table three.

Table 10
Additional Data on Students in Study

	2007	*2008*	*2009*
Pursued Degree	2349 total	2243 total	2262 total
-Arts	370 (15.8%)	373 (16.6%)	395 (17.5%)
-Business	425 (18.1%)	423 (18.9%)	387 (17.1%)
-Communication	130 (5.5%)	149 (6.6%)	127 (5.6%)
-Engineering	360 (15.3%)	377 (16.8%)	380 (16.8%)
-Humanities	116 (4.9%)	77 (3.4%)	82 (3.6%)
-Natural Sciences	340 (14.5%)	306 (13.6%)	315 (13.9%)
-Social Sciences	239 (10.2%)	215 (9.6%)	226 (10.0%)
-Undecided	369 (15.7%)	323 (14.4%)	350 (15.5%)
Gender			
-Female	1256 (53.5%)	1225 (54.6%)	1211 (53.5%)
-Male	1093 (46.5%)	1018 (45.4%)	1051 (46.5%)
Race/Ethnicity			
-Hispanic or Latino	307 (13.1%)	316 (14.1%)	299 (13.2%)
-American Indian or Alaskan Native	41 (1.7%)	42 (1.9%)	28 (1.2%)
-Asian	629 (26.8%)	660 (29.4%)	680 (30.1%)
-Black or African American	119 (5.1%)	146 (6.5%)	168 (7.4%)
-White	1229 (52.3%)	1066 (47.5%)	1084 (47.9%)
-Unknown	24 (1.0%)	12 (0.5%)	3 (0.1%)
Mixed Race/Ethnicity	244 (10.4%)	243 (10.8%)	234 (10.3%)

Note: Regarding race/ethnicity, students that classified themselves as belonging to more than racial/ethnic group were considered to belong to the group first listed within their admission application. Students belonging to more than one racial/ethnic group were also included within this table as "Mixed Race/Ethnicity" so their total numbers can be accounted for, however, this study did not focus on that group. Native Hawaiians and Pacific Islanders were included in the Asian population.

Table 11
Outcomes for Students in Study

	2007	*2008*	*2009*
Persistence			
-2nd semester registration	99%	99%	99%
-2nd year registration	97%	96%	97%
-3rd year registration	94%	94%	95%
-4th year registration	90%	89%	92%
Graduation			
-4 years	82%	80%	80%
Grade point Average			
-1rst Semester	3.27	3.28	3.29
-1rst Year	3.29	3.29	3.30
-2nd Year	3.32	3.32	3.32
-4th Year	3.36	3.35	3.34
Units earned			
-1rst Semester	16.6	16.6	16.6
-1rst Year	32.9	32.9	32.9
-2nd Year	64.4	64.1	64.6
-4th Year	119.5	118.8	120.3
-Total Units after 4 yrs	139.3	139.2	138.1

Note: A minimum of 128 units were required to graduate. Students were able to transfer in up to 32 units of Advanced Placement (AP) and International Baccalaureate (IB) units.

Table 12

Support Program Totals for SES, Preparedness, and First Generation Status

	Support Program Participants	Non-Participants
Total students	297	6557
SES		
-Lowest	60 (20.2%)	474 (7.2%)
-Low	62 (20.9%)	827 (12.6%)
-Lower to Middle	67 (22.6%)	1581 (24.1%)
-Middle to Upper	38 (12.8%)	1637 (25.0%)
-Did Not Apply for Aid	70 (23.6%)	2038 (31.1%)
Academic Preparedness		
-Lowest	72 (24.2%)	36 (0.5%)
-Low-Middle	202 (68.0%)	1238 (18.9%)
-Middle-High	23 (7.7%)	4766 (72.7%)
-Highest	0	517 (7.9%)
First Generation Status		
-No	204 (68.7%)	5849 (89.2%)
-Yes	93 (31.3%)	708 (10.8%)

Note: The majority of students that participated in the support program were expected to have academic preparedness ranges of "Lowest" and "Low-Middle."

Table 13

Support Program Results for Degree Program Categories

	Support Program Participants	Non-Participants
Total students	297	6557
Gender		
-Female	174 (58.6%)	3518 (53.7%)
-Male	123 (41.4%)	3039 (46.3%)
Race/Ethnicity		
-Hispanic/Latino	82 (27.6%)	840 (12.8%)
-American Indian/ Alaskan Native	5 (1.7%)	106 (1.6%)
-Asian	38 (12.8%)	1931 (29.4%)
-Black/African American	74 (24.9%)	359 (5.5%)
-White	96 (32.3%)	3283 (50.1%)
-Unknown	2 (0.7%)	38 (0.6%)
Degree Program Type		
-Arts	114 (38.4%)	1024 (15.6%)
-Business	26 (8.8%)	1209 (18.4%)
-Communication	14 (4.7%)	392 (6.0%)
-Engineering	18 (6.1%)	1099 (16.8%)
-Humanities	8 (2.7%)	267 (4.1%)
-Natural Sciences	23 (7.7%)	938 (14.3%)
-Social Sciences	39 (13.1%)	641 (9.8%)
-Undecided	55 (18.5%)	987 (15.1%)

Note: Differences in the distribution by race/ethnicity and by major were expected. For instance, the support program participant population was expected to have a higher percentage of Black/African-American, Hispanic/Latino, and students pursuing majors in the arts.

Table 14

Correlations for Independent and Dependent Variables

	SES	AP	HSGPA	Adj HSGPA	Best Test	1yr GPA	4yr GPA
SES	X	.069**	-.004	.049**	.111**	.078**	.074**
Academic Preparedness (AP)	.069**	X	.826**	.906**	.673**	.406**	.410**
HSGPA	-.004	.826**	X	.815**	.201**	.363**	.376**
ADJ HSGPA	.049**	.906**	.815**	X	.377**	.376**	.393**
Best Test score	.111**	.673**	.201**	.377**	X	.240**	.221**
1rst yr GPA (1GPA)	.078**	.406**	.363**	.376**	.240**	X	.845**
GPA after yr 4	.074**	.410**	.376**	.393**	.221**	.845**	X

Note: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 15
Correlations for Independent and Dependent Variables

	SES	*AP*	*1GPA*	*1Units*	*4GPA*	*4Units*	*4TUnits*
SES	X	.069**	.078**	.045**	.074**	.032*	.049**
Academic Preparedness (AP)	.069**	X	.406**	.172**	.410**	.126**	.297**
1rst yr GPA (1GPA)	.078**	.406**	X	.492**	.845**	.330**	.385**
1rst yr Units (1Units)	.045**	.172**	.492**	X	.440**	.485**	.481**
GPA after yr 4	.074**	.410**	.845**	.440**	X	.417**	.457**
Units after yr 4	.032*	.126**	.330**	.485**	.417**	X	.916**
Total units after yr 4	.049**	.297**	.385**	.481**	.457**	.916**	X

Note: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). "1GPA" is equal to GPA after the summer of the first year. "1Units" is equal to units completed after the summer of the first year. "4GPA" and "4Units" are equal to the GPA and units earned at the completion of the summer of the fourth year. "4TUnits" is equal to the total number of units counting toward graduation and also includes units taken elsewhere, such as AP/IB and transfer units.

Table 16
Comparison of Support Program Participant and Non-Participant Outcomes

	AP	1GPA	1Units	1-2	4Grad	4GPA	4Units	4TUnits
Support Program Participation (SPP)								
-No	.9386	3.31	32.9	97%	81%	3.37	119.7	139.5
-Yes	.8282	2.98	31.9	97%	65%	3.00	116.4	124.2
SES								
-Lowest (SPP no)	.9279	3.21	32.4	97%	69%	3.25	118.8	138.1
-Lowest (SPP yes)	.8488	2.92	32.4	100%	50%	2.89	115.0	123.1
-Low (SPP no)	.9357	3.24	32.5	97%	78%	3.32	119.7	138.6
-Low (SPP yes)	.8358	2.97	32.6	100%	68%	2.96	121.8	129.7
-Middle (SPP no)	.9393	3.30	32.9	96%	82%	3.35	118.6	138.9
-Middle (SPP yes)	.8320	3.05	30.8	91%	64%	3.10	112.9	122.4
-Mid-Upper (SPP no)	.9457	3.37	33.2	97%	85%	3.42	120.6	141.7
-Mid-Upper (SPP yes)	.8269	3.03	32.8	97%	79%	3.04	114.8	123.9
-Did Not Apply (SPP no)	.9360	3.31	33.0	97%	82%	3.38	120.0	139.1
-Did Not Apply (SPP yes)	.8008	2.93	31.3	96%	67%	3.02	117.2	122.3

Note: "SPP no" and "SPP yes" are in regards to whether the student participated in the support program. Four year graduation, "4Grad", was focused on within this study due to the assumption that most students and families plan on graduating within four years. 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 17

Comparison of Similar Preparedness Groups (AP .80 to <.90)

	AP	EFC	1GPA	1Units	1-2	4Grad	4GPA	4Units	4TUnits
SPP Yes (.80-.90 AP) – 202 students	**.8448**	**X**	**2.97**	**31.7**	**97%**	**66%**	**3.02**	**116.4**	**125.0**
+SES (Lowest) – 49	.8488	5.1%	2.88	32.0	100%	51%	2.88	113.4	121.4
+SES (Low) – 41	.8445	18.1%	2.92	32.0	100%	71%	2.97	121.8	129.8
+SES (Lower-Middle) – 55	.8460	54.7%	3.06	30.9	89%	67%	3.15	113.7	123.6
+SES (Mid-Upper) – 25	.8425	242%	3.02	32.2	100%	80%	3.05	113.7	123.7
+SES Did not Apply – 32	.8386	N/A	2.96	31.8	97%	69%	3.07	120.7	128.0
SPP No (.80-.90) – 1238 students	**.8699**	**X**	**3.04**	**32.2**	**96%**	**72%**	**3.12**	**115.9**	**129.7**
+SES (Lowest) –106	.8695	5.8%	2.92	31.8	97%	58%	2.99	116.8	130.4
+SES (Low) – 146	.8699	18.2%	2.95	31.9	98%	69%	3.06	118.1	131.2
+SES (Lower-Middle) – 294	.8675	56.8%	3.01	32.0	95%	73%	3.08	113.6	127.8
+SES (Mid-Upper) – 263	.8709	257%	3.06	32.3	97%	75%	3.13	115.9	131.1
+SES Did not Apply – 429	.8710	N/A	3.11	32.4	95%	75%	3.19	116.4	129.4
SPP No (.80-.868) – 487 students	**.8448**	**X**	**2.97**	**31.9**	**95%**	**71%**	**3.06**	**115.0**	**127.1**
+SES (Lowest) –44	.8473	5.8%	2.91	32.3	95%	52%	3.02	114.7	127.5
+SES (Low) – 57	.8444	18.5%	2.80	31.7	98%	67%	2.95	117.7	130.0
+SES (Lower-Middle) – 128	.8432	58.6%	2.92	31.5	95%	74%	3.01	114.5	125.8
+SES (Mid-Upper) – 98	.8453	257%	3.00	32.2	96%	76%	3.06	116.0	129.6
+SES Did not Apply – 160	.8451	N/A	3.07	32.0	94%	72%	3.14	113.9	125.4

Note: SPP no = non-participant in the support program, SPP yes = participant, AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 18

Comparison Totals for SES, Gender, and First Generation Status

	Support Program Participants (.80-.90)	Non-Participants(AP .80-.90)	Non-Participants (AP .80-.868)
Total students	202	1238	487
SES			
-Lowest	49 (24.3%)	106 (8.6%)	44 (9.0%)
-Low	41 (20.3%)	146 (11.8%)	57 (11.7%)
-Lower to Middle	55 (27.2%)	294 (23.7%)	128 (26.3%)
-Middle to Upper	25 (12.4%)	263 (21.2%)	98 (20.1%)
-Did Not Apply	32 (15.8%)	429 (34.7%)	160 (32.9%)
Academic Preparedness	.8448 avg.	.8699 avg.	.8448 avg.
Gender			
-Female	122 (60.4%)	619 (50%)	245 (50.3%)
-Male	80 (39.6%)	619 (50%)	242 (49.7%)
First Generation Status	77 (38.1%)	156 (12.6%)	52 (10.7%)

Note: AP = academic preparedness, .80-.90 = academic preparedness score of .80 to less than .90, 80-.868 = academic preparedness score of .80 to less than .868

Table 19

Comparison Results for Race/Ethnicity and Degree Program Categories

	Support Program Participants (.80-.90)	Non-Participants(AP .80-.90)	Non-Participants (AP .80-.868)
Total students	202	1238	487
Academic Preparedness	.8448 avg.	.8699 avg.	.8448 avg.
Race/Ethnicity			
-Hispanic/Latino	65 (32.2%)	237 (19.1%)	85 (17.5%)
-American Indian/ Alaskan Native	5 (2.5%)	34 (2.7%)	8 (1.6%)
-Asian	26 (12.9%)	231 (18.7%)	76 (15.6%)
-Black/African American	54 (32.2%)	182 (14.7%)	106 (21.8%)
-White	51 (25.2%)	544 (43.9%)	206 (42.3%)
-Unknown	1 (0.5%)	10 (0.8%)	6 (1.2%)
Mixed Race/Ethnicity	28 (13.9%)	160 (12.9%)	57 (11.7%)
Degree Program Type			
-Arts	61 (30.2%)	360 (29.1%)	173 (35.5%)
-Business	18 (8.9%)	150 (12.1%)	48 (9.9%)
-Communication	12 (5.9%)	88 (7.1%)	29 (6.0%)
-Engineering	11 (5.4%)	193 (15.6%)	66 (13.6%)
-Humanities	7 (3.5%)	50 (4.0%)	19 (3.9%)
-Natural Sciences	20 (9.9%)	102 (8.2%)	41 (8.4%)
-Social Sciences	26 (12.9%)	134 (10.8%)	42 (8.6%)
-Undecided	47 (23.3%)	161 (13.0%)	69 (14.2%)

Note: AP = academic preparedness, .80-.90 = academic preparedness score of .80 to less than .90, 80-.868 = academic preparedness score of .80 to less than .868

Table 20

Composition for Participants by SES for Additional Variables (AP .80-.90)

SES for SPP with (AP .80-.90)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	49	41	55	25	32
Academic Preparedness	.8488 avg.	.8445 avg.	.8460 avg.	.8425 avg.	.8386 avg.
Gender					
-Female	26 (53.1%)	25 (61.0%)	37 (67.3%)	15 (60.0%)	19 (59.4%)
-Male	23 (46.9%)	18 (43.9%)	18 (32.7%)	10 (40.0%)	13 (40.6%)
First Generation Status	39 (79.6%)	18 (43.9%)	11 (20.0%)	6 (24.0%)	3 (9.4%)
Race/Ethnicity					
-Hispanic/Latino	30 (61.2%)	9 (22.0%)	17 (30.9%)	7 (28.0%)	2 (6.3%)
-American Indian/ Alaskan Native	0	2 (4.9%)	1 (1.8%)	0	2 (6.3%)
-Asian	2 (4.1%)	8 (19.5%)	7 (12.7%)	6 (24.0%)	3 (9.4%)
-Black/African American	15 (30.6%)	16 (39.0%	14 (25.5%)	4 (16.0%)	5 (15.6%)
-White	2 (4.1%)	6 (14.6%)	15 (27.3%)	8 (32.0%)	20 (62.5%)
-Unknown	0	0	1 (1.8%)	0	0
Mixed Race/Ethnicity	4 (8.2%)	6 (14.6%)	10 (18.2%)	4 (16.0%)	4 (12.5%)
Degree Program Type					
-Arts	6 (12.2%)	6 (24.4%)	24 (43.6%)	11 (44.0%)	10 (31.3%)
-Business	4 (8.2%)	6 (14.6%)	0	5 (20.0%)	3 (9.4%)
-Communication	4 (8.2%)	3 (7.3%)	1 (1.8%)	2 (8.0%)	2 (6.3%)
-Engineering	2 (4.1%)	6 (14.6%)	1 (1.8%)	0	2 (6.3%)
-Humanities	3 (6.1%)	0	1 (1.8%)	0	3 (9.4%)
-Natural Sciences	4 (8.2%)	4 (9.8%)	10 (18.2%)	1 (4.0%)	1 (3.1%)
-Social Sciences	8 (16.3%)	5 (12.2%)	5 (9.1%)	4 (16.0%)	4 (12.5%)
-Undecided	18 (36.7%)	7 (17.1%)	13 (23.6%)	2 (8.0%)	7 (21.9%)

Note: AP = academic preparedness, .80-.90 = academic preparedness score of .80 to less than .90

Table 21

Composition for Non-Participants by SES for Additional Variables (AP .80-.90)

SES for non-SPP with (AP .80-.90)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	106	146	294	263	429
Academic Preparedness	.8695 avg.	.8699 avg.	.8675 avg.	.8709 avg.	.8710 avg.
Gender					
-Female	62 (58.5%)	79 (54.1%)	156 (53.1%)	121 (46.0%)	201 (46.9%)
-Male	44 (41.5%)	67 (45.9%)	138 (46.9%)	142 (54.0%)	228 (53.1%)
First Generation Status	51 (48.1%)	39 (26.7%)	33 (11.2%)	17 (6.5%)	16 (3.7%)
Race/Ethnicity					
-Hispanic/Latino	45 (42.5%)	31 (21.2%)	66 (22.4%)	48 (18.3%)	47 (11.0%)
-American Indian/ Alaskan Native	2 (1.9%)	3 (2.1%)	15 (5.1%)	7 (2.7%)	7 (1.8%)
-Asian	26 (24.5%)	35 (24.0%)	46 (15.6%)	47 (17.9%)	77 (17.9%)
-Black/African American	26 (24.5%)	39 (26.7%)	68 (23.1%)	29 (11.0%)	20 (4.7%)
-White	7 (6.6%)	37 (25.3%)	96 (32.7%)	130 (49.4%)	274 (63.9%)
-Unknown	0	1 (0.7%)	3 (1.0%)	2 (0.8%)	4 (0.9%)
Mixed Race/Ethnicity	12 (11.3%)	18 (12.3%)	55 (18.7%)	37 (14.1%)	38 (8.9%)
Degree Program Type					
-Arts	15 (14.2%)	38 (26.0%)	92 (31.3%)	91 (34.6%)	124 (28.9%)
-Business	7 (6.6%)	15 (10.3%)	29 (9.9%)	34 (12.9%)	65 (15.2%)
-Communication	8 (7.5%)	6 (4.1%)	27 (9.2%)	14 (5.3%)	33 (7.7%)
-Engineering	15 (14.2%)	21 (14.4%)	45 (15.3%)	43 (16.3%)	69 (16.1%)
-Humanities	5 (4.7%)	3 (2.1%)	14 (4.8%)	7 (2.7%)	21 (4.9%)
-Natural Sciences	9 (8.5%)	24 (16.4%)	28 (9.5%)	22 (8.4%)	19 (4.4%)
-Social Sciences	19 (17.9%)	20 (13.7%)	32 (10.9%)	23 (8.7%)	40 (9.3%)
-Undecided	28 (26.4%)	19 (13.0%)	27 (9.2%)	29 (11.0%)	58 (13.5%)

Note: AP = academic preparedness, .80-.90 = academic preparedness score of .80 to less than .90

Table 22

Composition for Non-Participants by SES for Additional Variables (AP.80-.868)

SES for SPP with (AP.80-.868)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	44	57	128	98	160
Academic Preparedness	.8473 avg.	.8444 avg.	.8432 avg.	.8453 avg.	.8451 avg.
Gender					
-Female	27 (61.4%)	30 (52.6%)	67 (52.3%)	38 (38.8%)	83 (51.9%)
-Male	17 (38.6%)	27 (47.4%)	61 (47.7%)	60 (61.2%)	77 (48.1%)
First Generation Status	23 (52.3%)	11 (19.3%)	13 (10.2%)	3 (3.1%)	2 (1.3%)
Race/Ethnicity					
-Hispanic/Latino	22 (50%)	8 (14.0%)	27 (21.1%)	13 (13.3%)	15 (9.4%)
-American Indian/ Alaskan Native	1 (2.3%)	1 (1.8%)	4 (3.1%)	0	2 (1.3%)
-Asian	9 (20.5%)	10 (17.5%)	15 (11.7%)	14 (14.3%)	28 (17.5%)
-Black/African American	9 (20.5%)	24 (42.1%)	47 (36.7%)	16 (16.3%)	10 (6.3%)
-White	3 (6.8%)	13 (22.8%)	33 (25.8%)	55 (56.1%)	102 (63.8%)
-Unknown	0	1 (1.8%)	2 (1.6%)	0	3 (1.9%)
Mixed Race/Ethnicity	5 (11.4%)	9 (15.8%)	21 (16.4%)	12 (12.2%)	10 (6.3%)
Degree Program Type					
-Arts	7 (15.9%)	16 (28.15)	47 (36.7%)	41 (41.8%)	62 (38.8%)
-Business	1 (2.3%)	4 (7.0%)	16 (12.5%)	10 (10.2%)	17 (10.6%)
-Communication	5 (11.4%)	1 (1.8%)	10 (7.8%)	3 (3.1%)	10 (6.3%)
-Engineering	6 (13.6%)	8 (14.0%)	15 (11.7%)	16 (16.3%)	21 (13.1%)
-Humanities	2 (4.5%)	2 (3.5%)	5 (3.9%)	3 (3.1%)	7 (4.4%)
-Natural Sciences	4 (9.1%)	13 (22.8%)	10 (7.8%)	6 (6.1%)	8 (5.0%)
-Social Sciences	5 (11.4%)	5 (8.8%)	12 (9.4%)	7 (7.1%)	13 (8.1%)
-Undecided	14 (31.8%)	8 (14.0%)	13 (10.2%)	12 (12.2%)	22 (13.8%)

Note: AP = academic preparedness, .80-.868 = academic preparedness score of .80 to less than .868

Table 23

Lower 50th Percentile Preparedness Comparison (AP less than .83139)

	AP	EFC	1GPA	1Units	1-2	4Grad	4GPA	4Units	4TUnits
SPP Yes (<.83139 AP) – 149 students	**.7868**	**X**	**2.86**	**30.7**	**94%**	**56%**	**2.88**	**111.3**	**117.8**
+SES (Lowest) –19	.8007	4.7%	2.58	28.1	100%	32%	2.51	98.2	105.2
+SES (Low) –29	.7850	18.6%	2.92	32.3	100%	59%	2.85	120.2	127.0
+SES (Lower-Middle) – 31	.8003	53.2%	2.90	29.1	81%	42%	2.90	100.6	109.8
+SES (Mid-Upper) – 22	.7962	203%	3.06	32.8	95%	77%	3.05	114.9	123.8
+SES Did not Apply – 48	.7694	N/A	2.82	30.9	96%	65%	2.95	116.3	119.8
SPP No (<.83139) – 153 students	**.8106**	**X**	**2.85**	**31.2**	**93%**	**59%**	**2.94**	**110.4**	**117.7**
+SES (Lowest) –11	.8078	5.0%	2.86	34.9	100%	27%	2.89	125.1	130.6
+SES (Low) – 21	.8086	16.6%	2.49	31.4	100%	62%	2.78	113.2	122.9
+SES (Lower-Middle) – 43	.8134	56.2%	2.89	30.9	91%	63%	2.93	110.9	116.9
+SES (Mid-Upper) – 25	.8136	200%	2.92	30.6	88%	52%	2.95	99.1	107.2
+SES Did not Apply – 53	.8082	N/A	2.93	30.9	92%	64%	3.01	111.3	118.6
SPP No (<.803 AP) – 43 students	**.7872**	**X**	**2.75**	**31.0**	**95%**	**49%**	**2.80**	**108.0**	**113.2**
+SES (Lowest) –4	.7874	5.3%	2.89	35.3	100%	25%	2.92	129.8	135.5
+SES (Low) – 7	.7877	16.6%	2.45	32.4	100%	57%	2.57	109.4	116.0
+SES (Lower-Middle) – 9	.7858	49.4%	2.96	31.2	100%	56%	2.95	118.7	125.3
+SES (Mid-Upper) – 5	.7945	261%	2.58	30.2	100%	40%	2.65	95.2	97.8
+SES Did not Apply – 18	.7856	N/A	2.77	29.6	89%	50%	2.82	100.9	105.3

Note: SPP no = non-participant in the support program, SPP yes = participant, AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 24

Comparison totals for SES, Gender, and First Generation Status (AP < .83139)

	Support Program Participants (AP<.83139)	Non-Participants (AP<.83139)	Non-Participants (AP < .803)
Total students	149	153	43
SES			
-Lowest	19 (12.8%)	11 (7.2%)	4 (9.3%)
-Low	29 (19.5%)	21 (13.7%)	7 (16.3%)
-Lower to Middle	31 (20.8%)	43 (28.1%)	9 (20.9%)
-Middle to Upper	22 (14.8%)	25 (16.3%)	5 (11.6%)
-Did Not Apply	48 (32.2%)	53 (34.6%)	18 (41.9%)
Academic Preparedness	.7868 avg.	.8106 avg.	.7872 avg.
Gender			
-Female	73 (49.0%)	73 (47.7%)	20 (46.5%)
-Male	76 (51.0%)	80 (52.3%)	23 (53.5%)
First Generation Status	30 (20.1%)	17 (11.1%)	5 (11.6%)

Note: AP = academic preparedness, AP<.83139 = academic preparedness score less than .83139, AP < .803 = academic preparedness score less than .803

Table 25

Comparison Totals for Race/Ethnicity and Degree Program Categories (AP < .83139)

	Support Program Participants (AP<.83139)	Non-Participants (AP<.83139)	Non-Participants (AP < .803)
Total students	149	153	43
Race/Ethnicity			
-Hispanic/Latino	32 (21.5%)	20 (13.1%)	4 (9.3%)
-American Indian/ Alaskan Native	2 (1.3%)	4 (2.6%)	0
-Asian	17 (11.4%)	11 (7.2%)	3 (7.0%)
-Black/African American	34 (22.8%)	46 (30.1%)	12 (27.9%)
-White	62 (41.6%)	70 (45.8%)	24 (55.8%)
-Unknown	2 (1.3%)	2 (1.3%)	0
Mixed Race/Ethnicity	13 (8.7%)	14 (9.2%)	4 (9.3%)
Degree Program Type			
-Arts	80 (53.7%)	62 (40.5%)	17 (39.5%)
-Business	9 (6.0%)	8 (5.2%)	3 (7.0%)
-Communication	8 (5.4%)	8 (5.2%)	2 (4.7%)
-Engineering	3 (2.0%)	18 (11.8%)	4 (9.3%)
-Humanities	3 (2.0%)	7 (4.6%)	2 (4.7%)
-Natural Sciences	10 (6.7%)	11 (7.2%)	2 (4.7%)
-Social Sciences	16 (10.7%)	16 (10.5%)	5 (11.6%)
-Undecided	20 (13.4%)	23 (15.0%)	8 (18.6%)

Note: AP = academic preparedness, AP<.83139 = academic preparedness score less than .83139, AP < .803 = academic preparedness score less than .803

Table 26

Composition for Participants by SES for Additional Variables (AP<.83139)

SES for SPP with (AP<.83139)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	19	29	31	22	48
Academic Preparedness	.8007 avg.	.7850 avg.	.8003 avg.	.7962 avg.	.7694 avg.
Gender					
-Female	7 (36.8%)	14 (48.3%)	18 (58.1%)	12 (54.5%)	22 (45.8%)
-Male	12 (63.2%)	15 (51.7%)	13 (41.9%)	10 (45.5%)	26 (54.2%)
First Generation Status	13 (68.4%)	12 (41.4%)	2 (6.5%)	2 (9.1%)	1 (2.1%)
Race/Ethnicity					
-Hispanic/Latino	12 (63.2%)	8 (27.6%)	7 (22.6%)	2 (9.1%)	3 (6.3%)
-American Indian/ Alaskan Native	0	1 (3.4%)	1 (3.2%)	0	0
-Asian	1 (5.3%)	1 (3.4%)	3 (9.7%)	9 (40.9%)	3 (6.3%)
-Black/African American	6 (31.6%)	14 (48.3%)	8 (25.8%)	1 (4.5%)	5 (10.4%)
-White	0	5 (17.2%)	11 (35.5%)	10 (45.5%)	36 (75.0%)
-Unknown	0	0	1 (3.2%)	0	1 (2.1%)
Mixed Race/Ethnicity	2 (10.5%)	3 (10.3%)	3 (9.7%)	2 (9.1%)	3 (6.3%)
Degree Program Type					
-Arts	4 (21.1%)	10 (34.5%)	21 (67.7%)	17 (77.3%)	28 (58.3%)
-Business	2 (10.5%)	4 (13.8%)	1 (3.2%)	2 (9.1%)	0
-Communication	2 (10.5%)	2 (6.9%)	1 (3.2%)	1 (4.5%)	2 (4.2%)
-Engineering	1 (5.3%)	1 (3.4%)	0	0	1 (2.1%)
-Humanities	1 (5.3%)	0	0	0	2 (4.2%)
-Natural Sciences	3 (15.8%)	3 (10.3%)	3 (9.7%)	0	1 (2.1%)
-Social Sciences	1 (5.3%)	2 (6.9%)	1 (3.2%)	2 (9.1%)	10 (20.8%)
-Undecided	5 (26.3%)	7 (24.1%)	4 (12.9%)	0	4 (8.3%)

Note: AP = academic preparedness, AP<.83139 = academic preparedness score less than .83139

Table 27

Composition for Non-Participants by SES for Additional Variables (AP<.83139)

SES for non-SPP with (AP <.83139)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	11	21	43	25	53
Academic Preparedness	.8078 avg.	.8086 avg.	.8134 avg.	.8136 avg.	.8082 avg.
Gender					
-Female	7 (63.6%)	12 (57.1%)	24 (55.8%)	6 (24.0%)	24 (45.3%)
-Male	4 (36.4%)	9 (42.9%)	19 (44.2%)	19 (76.0%)	29 (54.7%)
First Generation Status	6 (54.5%)	4 (19.0%)	4 (9.3%)	1 (4.0%)	2 (3.8%)
Race/Ethnicity					
-Hispanic/Latino	6 (54.5%)	4 (19.0%)	5 (11.6%)	3 (12.0%)	2 (3.8%)
-American Indian/ Alaskan Native	1 (9.1%)	0	3 (7.0%)	0	0
-Asian	1 (9.1%)	1 (4.8%)	3 (7.0%)	1 (4.0%)	5 (9.4%)
-Black/African American	3 (27.3%)	14 (66.7%)	23 (53.5%)	5 (20.0%)	1 (1.9%)
-White	0	2 (9.5%)	8 (18.6%)	16 (64.0%)	44 (83.0%)
-Unknown	0	0	1 (2.3%)	0	1 (1.9%)
Mixed Race/Ethnicity	1 (9.1%)	3 (14.3%)	6 (14.0%)	3 (12.0%)	1 (1.9%)
Degree Program Type					
-Arts	2 (18.1%)	1 (4.8%)	16 (37.2%)	16 (64.0%)	27 (50.9%)
-Business	0	1 (4.8%)	6 (14.0%)	0	1 (1.9%)
-Communication	0	2 (9.5%)	4 (9.3%)	0	2 (3.8%)
-Engineering	0	3 (14.3%)	3 (7.0%)	6 (24.0%)	6 (11.3%)
-Humanities	1 (9.1%)	2 (9.5%)	1 (2.3%)	1 (4.0%)	2 (3.8%)
-Natural Sciences	0	4 (19.0%)	4 (9.3%)	0	3 (5.7%)
-Social Sciences	2 (18.2%)	2 (9.5%)	6 (14.0%)	0	6 (11.3%)
-Undecided	6 (54.5%)	6 (28.6%)	3 (7.0%)	2 (8.0%)	6 (11.3%)

Note: AP = academic preparedness, AP<.83139 = academic preparedness score less than .83139

Table 28

Composition for Non-Participants by SES for Additional Variables (AP < .803)

SES for SPP with (AP < .803)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	4	7	9	5	18
Academic Preparedness	.7874 avg.	.7877 avg.	.7858 avg.	.7945 avg.	.7856 avg.
Gender					
-Female	2 (50.0%)	5 (71.4%)	6 (66.7%)	3 (60.0%)	4 (22.2%)
-Male	2 (50.0%)	2 (28.6%)	3 (33.3%)	2 (40.0%)	14 (77.8%)
First Generation Status	3 (75.0%)	1 (14.3%)	0	0	1 (5.6%)
Race/Ethnicity					
-Hispanic/Latino	3 (75.0%)	1 (14.3%)	0	0	0
-American Indian/ Alaskan Native	0	0	0	0	0
-Asian	0	0	2 (22.2%)	0	1 (5.6%)
-Black/African American	1 (25.0%)	6 (85.7%)	4 (44.4%)	1 (20.0%)	0
-White	0	0	3 (33.3%)	4 (80.0%)	17 (94.4%)
-Unknown	0	0	0	0	0
Mixed Race/Ethnicity	0	0	4 (44.4%)	0	0
Degree Program Type					
-Arts	1 (25.0%)	1 (14.3%)	3 (33.3%)	3 (60.0%)	9 (50.0%)
-Business	0	1 (14.3%)	1 (11.1%)	0	1 (5.6%)
-Communication	0	1 (14.3%)	1 (11.1%)	0	0
-Engineering	0	0	1 (11.1%)	2 (40.0%)	1 (5.6%)
-Humanities	1 (25.0%)	1 (14.3%)	0	0	0
-Natural Sciences	0	0	0	0	2 (11.1%)
-Social Sciences	0	0	2 (22.2%)	0	3 (16.7%)
-Undecided	2 (50.0%)	3 (42.9%)	1 (11.1%)	0	2 (11.1%)

Note: AP = academic preparedness, AP < .803 = academic preparedness score less than .803

Table 29

25th to 75th Percentile Preparedness Comparison (AP .81039 to <.8664)

	AP	EFC	1GPA	1Units	1-2	4Grad	4GPA	4Units	4TUnits
SPP Yes (.80139-.8664 AP) – 151 students	**.8343**	**X**	**2.94**	**31.5**	**96%**	**64%**	**3.00**	**117.0**	**125.1**
+SES (Lowest) –34	.8369	5.3%	2.79	31.6	100%	47%	2.81	112.7	119.7
+SES (Low) –28	.8313	17.7%	2.91	30.8	100%	71%	2.95	122.3	130.8
+SES (Lower-Middle) –45	.8379	55.3%	3.05	30.9	87%	62%	3.11	112.9	121.9
+SES (Mid-Upper) – 18	.8274	216%	3.00	32.1	100%	78%	3.04	115.6	126.4
+SES Did not Apply – 26	.8324	N/A	2.92	32.5	100%	69%	3.05	123.2	130.8
SPP No (.80139-.8664) –456 students	**.8437**	**X**	**2.98**	**32.0**	**95%**	**72%**	**3.07**	**115.4**	**127.2**
+SES (Lowest) –41	.8458	5.6%	2.89	32.6	95%	54%	3.01	115.6	127.6
+SES (Low) – 53	.8440	18.3%	2.79	31.6	98%	68%	2.95	117.2	129.2
+SES (Lower-Middle) – 118	.8417	58.7%	2.95	31.6	95%	75%	3.03	115.1	126.1
+SES (Mid-Upper) – 89	.8431	264%	3.02	32.5	96%	76%	3.09	116.6	129.5
+SES Did not Apply – 155	.8448	N/A	3.07	32.1	95%	73%	3.14	114.4	125.8
SPP No (.80139-.854) – 289 students	**.8342**	**X**	**2.98**	**32.1**	**96%**	**71%**	**3.07**	**116.1**	**126.7**
+SES (Lowest) –26	.8379	5.4%	2.95	33.8	96%	58%	3.11	120.4	130.1
+SES (Low) – 30	.8318	18.0%	2.64	30.8	100%	60%	2.88	114.9	125.2
+SES (Lower-Middle) – 82	.8336	56.4%	2.95	31.7	95%	77%	3.03	117.6	127.3
+SES (Mid-Upper) – 57	.8338	273%	3.04	32.3	95%	74%	3.09	115.1	127.1
+SES Did not Apply – 94	.8347	N/A	3.09	32.1	96%	70%	3.16	114.7	125.5

Note: SPP no = non-participant in the support program, SPP yes = participant, AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 30

Comparison Totals for SES, Gender, and First Generation Status (AP .80139-.8664)

	Support Program Participants (AP .80139-.8664)	Non-Participants (AP .80139-.8664)	Non-Participants (AP .80139-.854)
Total students	151	456	289
SES			
-Lowest	34 (22.5%)	41 (9.0%)	26 (9.0%)
-Low	28 (18.5%)	53 (11.6%)	30 (10.4%)
-Lower to Middle	45 (29.8%)	118 (25.9%)	82 (28.4%)
-Middle to Upper	18 (11.9%)	89 (19.5%)	57 (19.7%)
-Did Not Apply	26 (17.2%)	155 (34.0%	94 (32.5%)
Academic Preparedness	.8343 avg.	.8437 avg.	.8342 avg.
Gender			
-Female	87 (57.6%)	229 (50.2%)	151 (52.2%)
-Male	64 (42.4%)	227 (49.8%)	138 (47.8%)
First Generation Status	46 (30.5%)	47 (10.3%)	26 (9.0%)

Note: AP = academic preparedness, AP. 80139-.8664 = academic preparedness score of .80139 to less than .83139, AP .80139-.854 = academic preparedness score of .80139 to less than .854

Table 31

Comparison Results for Race/Ethnicity and Degree Program Categories (AP .80139-.8664)

	Support Program Participants (AP .80139-.8664)	Non-Participants (AP .80139-.8664)	Non-Participants (AP .80139-.854)
Total students	151	456	289
Race/Ethnicity			
-Hispanic/Latino	44 (29.1%)	76 (16.7%)	45 (15.6%)
-American Indian/ Alaskan Native	3 (2.0%)	8 (1.8%)	6 (2.1%)
-Asian	19 (12.6%)	70 (15.4%)	34 (11.8%)
-Black/African American	42 (27.8%)	101 (22.1%)	75 (26.0%)
-White	42 (27.8%)	195 (42.8%)	125 (43.3%)
-Unknown	1 (0.7%)	6 (1.3%)	4 (1.4%)
Mixed Race/Ethnicity	17 (11.3%)	53 (11.6%)	35 (12.1%)
Degree Program Type			
-Arts	50 (33.1%)	164 (36%)	112 (38.8%)
-Business	13 (8.6%)	44 (9.6%)	19 (6.6%)
-Communication	8 (5.3%)	28 (6.1%)	21 (7.3%)
-Engineering	4 (2.6%)	63 (13.8%)	37 (12.8%)
-Humanities	4 (2.6%)	18 (3.9%)	13 (4.5%)
-Natural Sciences	14 (9.3%)	35 (7.7%)	19 (6.6%)
-Social Sciences	22 (14.6%)	41 (9.0%)	27 (9.3%)
-Undecided	36 (23.8%)	63 (13.8%)	41 (14.2%)

Note: AP = academic preparedness, AP. 80139-.8664 = academic preparedness score of .80139 to less than .83139, AP .80139-.854 = academic preparedness score of .80139 to less than .854

Table 32

Composition for Participants by SES for Additional Variables (AP .80139-.8664)

SES for SPP with (AP.80139-.8664)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	34	28	45	18	26
Academic Preparedness	.8369 avg.	.8313 avg.	.8379 avg.	.8274 avg.	.8324 avg.
Gender					
-Female	17 (50.0%)	17 (60.7%)	27 (60.0%)	10 (55.6%)	16 (61.5%)
-Male	17 (50.0%)	11 (39.3%)	18 (40.0%)	8 (44.4%)	10 (38.5%)
First Generation Status	25 (73.5%)	10 (35.7%)	7 (15.6%)	2 (11.1%)	2 (7.7%)
Race/Ethnicity					
-Hispanic/Latino	19 (55.9%)	7 (25.0%)	13 (28.9%)	3 (16.7%)	2 (7.7%)
-American Indian/ Alaskan Native	0	2 (7.1%)	1 (2.2%)	0	0
-Asian	1 (2.9%)	3 (10.7%)	6 (13.3%)	6 (33.3%)	3 (11.5%)
-Black/African American	12 (35.3%)	12 (42.9%)	10 (22.2%)	4 (22.2%)	4 (15.4%)
-White	2 (5.9%)	4 (14.3%)	14 (31.1%)	5 (27.8%)	17 (65.4%)
-Unknown	0	0	1 (2.2%)	0	0
Mixed Race/Ethnicity	4 (11.8%)	3 (10.7%)	5 (11.1%)	3 (16.7%)	2 (7.7%)
Degree Program Type					
-Arts	4 (11.8%)	9 (32.1%)	22 (48.9%)	7 (38.9%)	8 (30.8%)
-Business	3 (8.8%)	5 (17.9%)	0	3 (16.7%)	2 (7.7%)
-Communication	3 (8.8%)	1 (3.6%)	1 (2.2%)	2 (11.1%)	1 (3.8%)
-Engineering	1 (2.9%)	1 (3.6%)	0	0	2 (7.7%)
-Humanities	1 (2.9%)	0	1 (2.2%)	0	2 (7.7%)
-Natural Sciences	3 (8.8%)	2 (7.1%)	7 (15.6%)	1 (5.6%)	1 (3.8%)
-Social Sciences	6 (17.6%)	4 (14.3%)	4 (8.9%)	4 (22.2%)	4 (15.4%)
-Undecided	13 (38.2%)	6 (21.4%)	10 (22.2%)	1 (5.6%)	6 (23.1%)

Note: AP = academic preparedness, AP. 80139-.8664 = academic preparedness score of .80139 to less than .83139

Table 33

Composition for Non-Participants by SES for Additional Variables (AP .80139-.8664)

SES for non-SPP with (AP.80139-.8664)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	41	53	118	89	155
Academic Preparedness	.8458 avg.	.8440 avg.	.8417 avg.	.8431 avg.	.8448 avg.
Gender					
-Female	26 (63.4%)	27 (50.9%)	60 (50.8%)	35 (39.3%)	81 (52.3%)
-Male	15 (36.6%	26 (49.1%)	58 (49.2%)	54 (60.7%)	74 (47.7%)
First Generation Status	22 (53.7%)	10 (18.9%)	11 (9.3%)	2 (2.2%)	2 (1.3%)
Race/Ethnicity					
-Hispanic/Latino	20 (48.8%)	7 (13.2%)	23 (19.5%)	12 (13.5%)	14 (9.0%)
-American Indian/ Alaskan Native	1 (2.4%)	1 (1.9%)	4 (3.4%)	0	2 (1.3%)
-Asian	8 (19.5%)	9 (17.0%)	14 (11.9%)	12 (13.5%)	27 (17.4%)
-Black/African American	9 (22.2%)	23 (43.4%)	43 (36.4%)	16 (18.0%)	10 (6.5%)
-White	3 (7.3%)	12 (22.6%)	32 (27.15)	49 (55.1%)	99 (63.9%)
-Unknown	0	1 (1.9%)	2 (1.7%)	0	3 (1.9%)
Mixed Race/Ethnicity	5 (12.2%)	8 (15.1%)	19 (16.1%)	11 (12.4%)	10 (6.5%)
Degree Program Type					
-Arts	6 (14.6%)	14 (26.4%)	44 (37.3%)	39 (43.8%)	61 (39.4%)
-Business	1 (2.4%)	4 (7.5%)	15 (12.7%)	9 (10.1%)	15 (9.7%)
-Communication	5 (12.2%)	1 (1.9%)	9 (7.6%)	3 (3.4%)	10 (6.5%)
-Engineering	6 (14.6%)	8 (15.1%)	15 (12.7%)	14 (15.7%)	20 (12.9%)
-Humanities	2 (4.9%)	2 (3.8%)	4 (3.4%)	3 (3.4%)	7 (4.5%)
-Natural Sciences	3 (7.3%)	13 (24.5%)	7 (5.9%)	5 (5.6%)	7 (4.5%)
-Social Sciences	5 (12.2%)	5 (9.4%)	12 (10.2%)	6 (6.7%)	13 (8.4%)
-Undecided	13 (31.7%)	6 (11.3%)	12 (10.2%)	10 (11.2%)	22 (14.2%)

Note: AP = academic preparedness, AP. 80139-.8664 = academic preparedness score of .80139 to less than .83139

Table 34

Composition for Non-Participants by SES for Additional Variables (AP .80139-.854)

SES for Non-SPP (AP .80139-.854)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	26	30	82	57	94
Academic Preparedness	.8379 avg.	.8318 avg.	.8336 avg.	.8338 avg.	.8347
Gender					
-Female	20 (76.9%)	14 (46.7%)	41 (50.0%)	23 (40.4%)	53 (56.4%)
-Male	6 (23.1%)	16 (53.3%)	41 (50.0%)	34 (59.6%)	41 (43.6%)
First Generation Status	13 (50.0%)	5 (16.7%)	5 (6.1%)	1 (1.8%)	2 (2.1%)
Race/Ethnicity					
-Hispanic/Latino	12 (46.2%)	4 (13.3%)	15 (18.3%)	5 (8.8%)	9 (9.6%)
-American Indian/ Alaskan Native	1 (3.8%)	1 (3.3%)	3 (3.7%)	0	1 (1.1%)
-Asian	3 (11.5%)	4 (13.3%)	7 (8.5%)	7 (12.3%)	13 (13.8%)
-Black/African American	9 (34.6%)	16 (53.3%)	33 (40.2%)	13 (22.8%)	4 (4.3%)
-White	1 (3.8%)	5 (16.7%)	22 (26.8%)	32 (56.1%)	65 (69.1%)
-Unknown	0	0	2 (2.4%)	0	2 (2.1%)
Mixed Race/Ethnicity	5 (19.2%)	5 (16.7%)	13 (15.9%)	9 (15.8%)	3 (3.2%)
Degree Program Type					
-Arts	4 (15.4%)	5 (16.7%)	30 (36.6%)	30 (52.6%)	43 (45.7%)
-Business	1 (3.8%)	1 (3.3%)	10 (12.2%)	3 (5.3%)	4 (4.3%)
-Communication	4 (15.4%)	1 (3.3%)	7 (8.5%)	2 (3.5%)	7 (7.4%)
-Engineering	0	5 (16.7%)	11 (13.4%)	10 (17.5%)	11 (11.7%)
-Humanities	2 (7.7%)	1 (3.3%)	2 (2.4%)	2 (3.5%)	6 (6.4%)
-Natural Sciences	2 (7.7%)	7 (23.3%)	5 (6.1%)	2 (3.5%)	3 (3.2%)
-Social Sciences	3 (11.5%)	5 (16.7%)	9 (11.0%)	4 (7.0%)	6 (6.4%)
-Undecided	10 (38.5%)	5 (16.7%)	8 (9.8%)	4 (7.0%)	14 (14.9%)

Note: AP = academic preparedness, AP .80139-.854 = academic preparedness score of .80139 to less than .854

Table 35

50th to 100th Percentile Preparedness Comparison (AP .83139-.936)

	AP	*EFC*	*1GPA*	*1Units*	*1-2*	*4Grad*	*4GPA*	*4Units*	*4TUnits*
SPP Yes (.83139-.936 AP) – 147 students	**.8694**	**X**	**3.09**	**33.0**	**99%**	**73%**	**3.12**	**121.7**	**130.7**
+SES (Lowest) –41	.8711	5.2%	3.08	34.4	100%	59%	3.06	122.7	131.3
+SES (Low) – 32	.8787	18.0%	3.00	32.9	100%	75%	3.04	123.8	132.2
+SES (Lower-Middle) – 36	.8594	56.6%	3.18	32.4	100%	83%	3.27	123.5	133.4
+SES (Mid-Upper) – 16	.8690	248%	2.99	32.8	100%	81%	3.01	114.8	124.1
+SES Did not Apply – 22	.8695	N/A	3.15	32.0	95%	73%	3.17	119.0	127.8
SPP No (.83139-.936) – 2744 students	**.9013**	**X**	**3.15**	**32.4**	**96%**	**77%**	**3.22**	**117.4**	**133.9**
+SES (Lowest) –240	.8997	5.8%	3.07	32.0	97%	66%	3.15	117.7	134.0
+SES (Low) – 362	.9039	18.4%	3.09	32.2	97%	71%	3.17	118.1	134.1
+SES (Lower-Middle) – 646	.9016	58.3%	3.14	32.5	96%	79%	3.20	116.8	134.2
+SES (Mid-Upper) – 614	.9019	246%	3.18	32.7	97%	82%	3.25	118.4	135.6
+SES Did not Apply – 882	.9000	N/A	3.17	32.4	96%	78%	3.26	116.7	132.5
SPP No (.83139-.892)- 882 students	**.8696**	**X**	**3.04**	**32.3**	**96%**	**72%**	**3.11**	**116.1**	**130.2**
+SES (Lowest) –84	.8688	6.0%	2.94	31.6	98%	57%	3.01	116.1	130.3
+SES (Low) – 101	.8708	18.7%	3.00	32.0	97%	68%	3.08	118.2	131.5
+SES (Lower-Middle) – 202	.8686	57.1%	3.00	32.2	96%	73%	3.08	114.1	129.0
+SES (Mid-Upper) – 194	.8700	273%	3.07	32.7	98%	77%	3.13	118.0	133.4
+SES Did not Apply – 301	.8698	N/A	3.09	32.3	94%	73%	3.16	115.6	128.4

Note: SPP no = non-participant in the support program, SPP yes = participant, AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 36

Comparison Totals for SES, Gender, and First Generation Status (AP .83139-.936)

	Support Program Participants (.83139-.936)	Non-Participants(AP .83139-.936)	Non-Participants (AP .83139-.892)
Total students	147	2744	882
SES			
-Lowest	41 (27.9%)	240 (8.7%)	84 (9.5%)
-Low	32 (21.8%)	362 (13.2%)	101 (11.5%)
-Lower to Middle	36 (24.5%)	646 (23.5%)	202 (22.9%)
-Middle to Upper	16 10.9%)	614 (22.4%)	194 (22.0%)
-Did Not Apply	22 (15.0%)	882 (32.1%)	301 (34.1%)
Academic Preparedness	.8694 avg.	.9013 avg.	.8696 avg.
Gender			
-Female	100 (68.0%)	1423 (51.9%)	444 (50.3%)
-Male	47 (32.0%)	1321 (48.1%)	438 (49.7%)
First Generation Status	63 (42.9%)	393 (14.3%)	111 (12.6%)

Note: AP = academic preparedness, AP. 83139-.936 = academic preparedness score of .83139 to less than . 936, AP .83139-.892 = academic preparedness score of .80139 to less than .892

Table 37

Comparison Results for Race/Ethnicity and Degree Program Categories (AP .83139-.936)

	Support Program Participants (.83139-.936)	Non-Participants(AP .83139-.936)	Non-Participants (AP .83139-.892)
Total students	147	2744	882
Race/Ethnicity			
-Hispanic/Latino	50 (34.0%)	522 (19.0%)	171 (19.4%)
-American Indian/ Alaskan Native	3 (2.0%)	55 (2.0%)	22 (2.5%)
-Asian	20 (13.6%)	660 (24.1%)	170 (19.3%)
-Black/African American	40 (27.2%)	247 (9.0%)	125 (14.2%)
-White	34 (23.1%)	1235 (45.0%)	387 (43.9%)
-Unknown	0	25 (0.9%)	7 (0.8%)
Mixed Race/Ethnicity	21 (14.3%)	352 (12.8%)	108 (12.2%)
Degree Program Type			
-Arts	34 (23.1%)	571 (20.8%)	259 (29.4%)
-Business	17 (11.6%)	441 (16.1%)	106 (12.0%)
-Communication	6 (4.1%)	186 (6.8%)	64 (7.3%)
-Engineering	15 (10.2%)	435 (15.9%)	137 (15.5%)
-Humanities	5 (3.4%)	112 (4.1%)	32 (3.6%)
-Natural Sciences	12 (8.2%)	295 (10.8%)	75 (8.5%)
-Social Sciences	23 (15.6%)	304 (11.1%)	91 (10.3%)
-Undecided	35 (23.8%)	400 (14.6%)	118 (13.4%)

Note: AP = academic preparedness, AP. 83139-.936 = academic preparedness score of .83139 to less than . 936, AP .83139-.892 = academic preparedness score of .80139 to less than .892

Table 38

Composition for Participants by SES for Additional Variables (AP .83139-.936)

SES for SPP with (AP.83139-.936)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	41	32	36	16	22
Academic Preparedness	.8711 avg.	.8787 avg.	.8594 avg.	.8690 avg.	.8695 avg.
Gender					
-Female	25 (61.0%)	22 (68.8%)	28 (77.8%)	10 (62.5%)	15 (68.2%)
-Male	16 (39.0%)	10 (31.3%)	8 (22.2%)	6 (37.5%)	7 (31.8%)
First Generation Status	31 (75.6%)	17 (53.1%)	9 (25.0%)	4 (25.0%)	2 (9.1%)
Race/Ethnicity					
-Hispanic/Latino	21 (51.2%)	9 (28.1%)	13 (36.1%)	5 (31.3%)	2 (9.1%)
-American Indian/ Alaskan Native	0	1 (3.1%)	0	0	2 (9.1%)
-Asian	2 (4.9%)	8 (25.0%)	6 (16.7%)	2 (12.5%)	2 (9.1%)
-Black/African American	16 (39.0%)	10 (31.3%)	9 (25.0%)	3 (18.8%)	2 (9.1%)
-White	2 (4.9%)	4 (12.5%)	8 (22.2%)	6 (37.5%)	14 (63.6%)
-Unknown	0	0	0	0	0
Mixed Race/Ethnicity	4 (9.8%)	3 (9.4%)	8 (22.2%)	3 (18.8%)	3 (13.6%)
Degree Program Type					
-Arts	6 (14.6%)	6 (18.8%)	13 (36.1%)	5 (31.3%)	4 (18.2%)
-Business	5 (12.2%)	5 (15.6%)	0	3 (18.8%)	4 (18.2%)
-Communication	2 (4.9%)	1 (3.1%)	1 (2.8%)	1 (6.3%)	1 (4.5%)
-Engineering	3 (7.3%)	7 (21.9%)	1 (2.8%)	1 (6.3%)	3 (13.6%)
-Humanities	2 (4.9%)	0	1 (2.8%)	0	2 (9.1%)
-Natural Sciences	1 (2.4%)	3 (9.4%)	7 (19.4%)	1 (6.3%)	0
-Social Sciences	9 (22.0%)	6 (18.8%)	4 (11.1%)	2 (12.5%)	2 (9.1%)
-Undecided	12 (31.7%)	4 (12.5%)	9 (25.0%)	3 (18.8%)	6 (27.3%)

Note: AP = academic preparedness, AP. 83139-.936 = academic preparedness score of .83139 to less than . 936

Table 39

Composition for Non-Participants by SES for Additional Variables (AP .83139-.936)

SES for non-SPP with (AP.83139-.936)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	240	362	646	614	882
Academic Preparedness	.8997 avg.	.9039 avg.	.9016 avg.	.9019 avg.	.9000 avg.
Gender					
-Female	142 (59.2%)	205 (56.6%)	356 (55.1%)	296 (48.2%)	424 (48.1%)
-Male	98 (40.8%)	157 (43.4%)	290 (44.9%)	318 (51.8%)	458 (51.9%)
First Generation Status	128 (53.3%)	105 (29.0%)	82 (12.7%)	39 (6.4%)	39 (4.4%)
Race/Ethnicity					
-Hispanic/Latino	93 (38.8%)	91 (25.1%)	142 (22.0%)	103 (16.8%)	93 (10.5%)
-American Indian/ Alaskan Native	4 (1.7%)	10 (2.8%)	18 (2.8%)	10 (1.6%)	13 (1.5%)
-Asian	67 (27.9%)	104 (28.7%)	162 (25.1%)	143 (23.3%)	184 (20.9%)
-Black/African American	44 (18.3%)	53 (14.6%)	86 (13.3%)	39 (6.4%)	25 (2.8%)
-White	31 (12.9%)	102 (28.2%)	232 (35.9%)	315 (51.3%)	555 (62.9%)
-Unknown	1 (0.4%)	2 (0.6%)	6 (0.9%)	4 (0.7%)	12 (1.4%)
Mixed Race/Ethnicity	28 (11.7%)	52 (14.4%)	109 (16.9%)	86 (14.0%)	77 (8.7%)
Degree Program Type					
-Arts	21 (8.8%)	69 (19.1%)	155 (24.0%)	150 (24.4%)	176 (20.0%)
-Business	35 (14.6%)	55 (15.2%)	76 (11.8%)	99 (16.1%)	176 (20.0%)
-Communication	14 (5.8%)	22 (6.1%)	46 (7.1%)	43 (7.0%)	61 (6.9%)
-Engineering	34 (14.2%)	50 (13.8%)	107 (16.6%)	107 (17.4%)	137 (15.5%)
-Humanities	9 (3.8%)	14 (3.9%)	33 (5.1%)	17 (2.8%0	39 (4.4%)
-Natural Sciences	29 (12.1%)	50 (13.8%)	84 (13.0%)	65 (10.6%)	67 (7.6%)
-Social Sciences	40 (16.7%)	42 (11.6%)	66 (10.2%)	66 (10.7%)	90 (10.2%)
-Undecided	58 (24.2%)	60 (16.6%)	79 (12.2%)	67 (10.9%)	136 (15.4%)

Note: AP = academic preparedness, AP. 83139-.936 = academic preparedness score of .83139 to less than . 936

Table 40

Composition for Non-Participants by SES for Additional Variables (AP .83139-.892)

SES for non-SPP with (AP.83139-.892)	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	84	101	202	194	301
Academic Preparedness	.8688 avg.	.8708 avg.	.8686 avg.	.8700 avg.	.8698 avg.
Gender					
-Female	47 (56.0%)	55 (54.5%)	105 (52.0%)	91 (46.9%)	146 (48.5%)
-Male	37 (44.0%)	46 (45.5%)	97 (48.0%)	103 (53.1%)	155 (51.5%)
First Generation Status	40 (47.6%)	27 (26.7%)	24 (11.9%)	11 (5.7%)	9 (3.0%)
Race/Ethnicity					
-Hispanic/Latino	37 (44.0%)	19 (18.8%)	49 (24.3%)	33 (17.0%)	33 (11.0%)
-American Indian/ Alaskan Native	0	3 (3.0%)	9 (4.5%)	5 (2.6%)	5 (1.7%)
-Asian	20 (23.8%)	26 (25.7%)	36 (17.8%)	35 (18.0%)	53 (17.6%)
-Black/African American	22 (26.2%)	25 (24.8%)	40 (19.8%)	24 (12.4%)	14 (4.7%)
-White	5 (6.0%)	27 (26.7%)	66 (32.7%)	96 (49.5%)	193 (64.1%)
-Unknown	0	1 (1.0%)	2 (1.0%)	1 (0.5%)	3 (1.0%)
Mixed Race/Ethnicity	7 (8.3%)	13 (12.9%)	38 (18.8%)	26 (13.4%)	24 (8.0%)
Degree Program Type					
-Arts	12 (14.3%)	29 (28.7%)	64 (31.75)	63 (32.5%)	91 (30.2%)
-Business	6 (7.1%)	13 (12.9%)	18 (8.9%)	26 (13.4%)	43 (14.3%)
-Communication	8 (9.5%)	3 (3.0%)	14 (6.9%)	12 (6.2%)	27 (9.0%)
-Engineering	13 (15.5%)	11 (10.9%)	37 (18.3%)	31 (16.0%)	45 (15.0%)
-Humanities	4 (4.8%)	2 (2.0%)	10 (5.0%)	6 (3.1%)	10 (3.3%)
-Natural Sciences	7 (8.3%)	18 (17.8%)	18 (8.9%)	16 (8.2%)	16 (5.3%)
-Social Sciences	11 (13.1%)	12 (11.9%)	19 (9.4%)	19 (9.8%)	30 (10.0%)
-Undecided	23 (27.4%)	13 (12.9%)	22 (10.9%)	21 (10.8%)	39 (13.0%)

Note: AP = academic preparedness, AP .83139-.892 = academic preparedness score of .80139 to less than .892

Table 41

Comparison of Reasonably Similar Groups

	AP	EFC	1GPA	1Units	1-2	4Grad	4GPA	4Units	4TUnits
Lowest SES									
+SPP (AP .80-.90) – 49 students	.8488	5.1%	2.88	32.0	100%	51%	2.88	113.4	121.4
+non-SPP (AP .80-.868) – 44 students	.8473	5.8%	2.91	32.3	95%	52%	3.02	114.7	127.5
+SPP (AP .83139-.936) – 41 students	.8711	5.2%	3.08	34.4	100%	59%	3.06	122.7	131.3
+non-SPP (AP .83139-.892) – 84 students	.8688	6.0%	2.94	31.6	98%	57%	3.01	116.1	130.3
Low SES									
+SPP (AP .80-.90) – 41 students	.8445	18.1%	2.92	32.0	100%	71%	2.97	121.8	129.8
+non-SPP (AP. 80-.868) – 57 students	.8444	18.5%	2.80	31.7	98%	67%	2.95	117.7	130.0
SES Did not Apply									
+SPP (AP .80-.90) – 32 students	.8386	N/A	2.96	31.8	97%	69%	3.07	120.7	128.0
+non-SPP (.80-.868) – 160 students	.8451	N/A	3.07	32.0	94%	72%	3.14	113.9	125.4
+SPP (AP <.83139) – 48 students	.7694	N/A	2.82	30.9	96%	65%	2.95	116.3	119.8
+SPP (AP <.803) – 18 students	.7856	N/A	2.77	29.6	89%	50%	2.82	100.9	105.3
+SPP (AP <.83139) – 53 students	.8082	N/A	2.93	30.9	92%	64%	3.01	111.3	118.6
+SPP (AP .80139-.8664) – 26 students	.8324	N/A	2.92	32.5	100%	69%	3.05	123.2	130.8
+non-SPP (AP .80139-.8664) – 155students	.8448	N/A	3.07	32.1	95%	73%	3.14	114.4	125.8

Note: SPP no = non-participant in the support program, SPP yes = participant, AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 42

Research Question Two Composition Totals by SES

Non-SPP students	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	474	827	1581	1637	2038
EFC percentage	6.0%	18.7%	59.1%	241%	X
EFC+Aid percentage	90.4%	91.5%	98.7%	261%	X
Academic Preparedness	.9279 avg.	.9357 avg.	.9393 avg.	.9457 avg.	.9360 avg.
-Lowest	4 (0.8%)	5 (0.6%)	6 (0.4%)	5 (0.3%)	16 (0.8%)
-Low-Middle	106 (22.4%)	146 (17.7%)	294 (18.6%)	263 (16.1%)	429 (21.1%)
-Middle-High	352 (74.3%)	640 (77.4%)	1155 (73.1%)	1175 (71.8%)	1444 (70.9%)
-Highest	12 (2.5%)	36 (4.4%)	126 (8.0%)	194 (11.9%)	149 (7.3%)
Gender					
-Female	294 (62.0%)	482 (58.3%)	856 (54.1%)	829 (50.6%)	1057 (51.9%)
-Male	180 (38.0%)	345 (41.7%)	725 (45.9%)	808 (49.4%)	981 (48.1%)
First Generation Status	221 (46.6%)	210 (25.4%)	145 (9.2%)	62 (3.8%)	70 (3.4%)
Race/Ethnicity					
-Hispanic/Latino	137 (28.9%)	143 (17.3%)	224 (14.2%)	182 (11.1%)	154 (7.6%)
-American Indian/ Alaskan Native	11 (2.3%)	17 (2.1%)	32 (2.0%)	22 (1.3%)	24 (1.2%)
-Asian	185 (39.0%)	289 (34.9%)	507 (32.1%)	470 (28.7%)	480 (23.6%)
-Black/African American	56 (11.8%)	81 (9.8%)	135 (8.5%)	57 (3.5%)	30 (1.5%)
-White	82 (17.3%)	294 (35.6%)	676 (42.8%)	900 (55.0%)	1331 (65.3%)
-Unknown	2 (0.4%)	3 (0.4%)	7 (0.4%)	6 (0.4%)	19 (0.9%)
Mixed Race/Ethnicity	52 (11.0%)	97 (11.7%)	208 (13.2%)	184 (11.2%)	146 (7.2%)
Degree Program Type					
-Arts	46 (9.7%)	114 (13.8%)	280 (17.7%)	285 (17.4%)	299 (14.7%)
-Business	79 (16.7%)	122 (14.8%)	236 (14.9%)	304 (18.6%)	468 (23.0%)
-Communication	19 (4.0%)	48 (5.8%)	108 (6.8%)	87 (5.3%)	130 (6.4%)
-Engineering	66 (13.9%)	138 (16.7%)	290 (18.3%)	311 (19.0%)	294 (14.4%)
-Humanities	18 (3.8%)	36 (4.4%)	69 (4.4%)	53 (3.2%)	91 (4.5%)
-Natural Sciences	75 (15.8%)	150 (18.1%)	244 (15.4%)	238 (14.5%)	231 (11.3%)
-Social Sciences	70 (14.8%)	87 (10.5%)	153 (9.7%)	136 (8.3%)	195 (9.6%)
-Undecided	101 (21.3%)	132 (16.0%)	201 (12.7%)	223 (13.6%)	330 (16.2%)

Note: EFC+Aid percentage = EFC plus merit and need aid divided by full cost of attending

Table 43

Outcome Totals by SES

	AP	*EFC*	*1GPA*	*1Units*	*1-2*	*4Grad*	*4GPA*	*4Units*	*4TUnits*
All (6557 students)	**.9386**	**X**	**3.31**	**32.9**	**97%**	**81%**	**3.37**	**119.7**	**139.5**
+SES (Lowest) –474	.9279	6.0%	3.21	32.4	97%	69%	3.25	118.8	138.1
+SES (Low) – 827	.9357	18.7%	3.24	32.5	97%	78%	3.32	119.7	138.6
+SES (Lower-Middle) – 1581	.9393	59.1%	3.30	32.9	96%	82%	3.35	118.6	138.9
+SES (Mid-Upper) – 1637	.9457	241%	3.37	33.2	97%	85%	3.42	120.6	141.7
+SES Did not Apply – 2038	.9360	N/A	3.31	33.0	97%	82%	3.38	120.0	139.1
AP lower 50th percentile (<.94278) – 3287 students	**.9016**	**X**	**3.15**	**32.4**	**96%**	**77%**	**3.23**	**117.3**	**133.8**
+SES (Lowest) –287	.9012	5.7%	3.08	32.2	97%	66%	3.16	118.3	134.9
+SES (Low) – 433	.9033	18.6%	3.08	32.1	97%	71%	3.16	117.8	134.0
+SES (Lower-Middle) – 780	.9012	58.3%	3.15	32.5	96%	79%	3.21	116.5	133.4
+SES (Mid-Upper) – 726	.9033	246%	3.18	32.7	97%	82%	3.26	117.8	135.1
+SES Did not Apply – 1061	.9001	N/A	3.17	32.4	96%	78%	3.26	117.1	132.9
AP upper 50th percentile (>=.94278) – 3270 students	**.9758**	**X**	**3.47**	**33.5**	**97%**	**86%**	**3.51**	**122.1**	**145.3**
+SES (Lowest) –187	.9688	6.3%	3.40	32.6	97%	75%	3.40	119.4	143.1
+SES (Low) –394	.9714	18.8%	3.41	33.0	98%	85%	3.48	121.8	143.6
+SES (Lower-Middle) – 801	.9764	59.9%	3.45	33.4	96%	85%	3.49	120.6	144.2
+SES (Mid-Upper) – 911	.9796	238%	3.51	33.7	97%	88%	3.55	122.9	146.9
+SES Did not Apply – 977	.9750	N/A	3.47	33.6	98%	87%	3.51	123.1	145.8

Note: AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 44
Outcomes for AP ranges by SES

	AP	EFC	1GPA	1Units	1-2	4Grad	4GPA	4Units	4TUnits
AP Low-Middle (.80-.90) – 1238 students	**.8699**	**X**	**3.04**	**32.2**	**96%**	**72%**	**3.12**	**115.9**	**129.7**
+SES (Lowest) –106	.8695	5.8%	2.92	31.8	97%	58%	2.99	116.8	130.4
+SES (Low) –146	.8699	18.2%	2.95	31.9	98%	69%	3.06	118.1	131.2
+SES (Lower-Middle) – 294	.8675	56.8%	3.01	32.0	95%	73%	3.08	113.6	127.8
+SES (Mid-Upper) – 263	.8709	257%	3.06	32.3	97%	75%	3.13	115.9	131.1
+SES Did not Apply – 429	.8710	N/A	3.11	32.4	95%	75%	3.19	116.4	129.4
AP Middle-High (.90-1.00) – 4766 students	**.9494**	**X**	**3.34**	**33.0**	**97%**	**83%**	**3.40**	**120.1**	**140.7**
+SES (Lowest) –352	.9442	6.0%	3.28	32.5	97%	74%	3.33	119.0	139.8
+SES (Low) – 640	.9477	18.9%	3.29	32.7	97%	79%	3.36	120.1	140.0
+SES (Lower-Middle) – 1155	.9502	59.3%	3.34	33.1	96%	83%	3.39	119.3	140.4
+SES (Mid-Upper) – 1175	.9519	241%	3.38	32.3	97%	87%	3.44	120.5	141.5
+SES Did not Apply – 1444	.9489	N/A	3.35	33.1	97%	84%	3.42	120.6	140.8
AP Highest (1.00+) – 517 students	**1.014**	**X**	**3.67**	**34.3**	**98%**	**90%**	**3.68**	**126.5**	**154.5**
+SES (Lowest) –12	1.011	7.1%	3.57	34.2	92%	58%	3.61	125.8	158.3
+SES (Low) – 36	1.012	17.4%	3.57	33.1	97%	86%	3.61	121.8	147.7
+SES (Lower-Middle) – 126	1.015	62.8%	3.66	34.3	97%	90%	3.68	123.6	151.3
+SES (Mid-Upper) – 194	1.014	221%	3.72	34.3	98%	92%	3.71	128.8	157.9
+SES Did not Apply – 149	1.014	N/A	3.65	34.6	98%	91%	3.65	127.0	154.0

Note: Only 36 students had academic preparedness scores below .80. SPP no = non-participant in the support program, SPP yes = participant, AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 45
Composition Totals by SES for AP .80 < .90

Non-SPP students with AP of .80 to <.90	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	106	146	294	263	429
EFC Percentage	5.8%	18.2%	56.8%	257%	X
EFC+Aid Percentage	88.8%	87.8%	90.8%	263%	X
Academic Preparedness	.8695 avg.	.8699 avg.	.8675 avg.	.8709 avg.	.8710 avg.
Gender					
-Female	62 (58.5%)	79 (54.1%)	156 (53.1%)	121 (46.0%)	201 (46.9%)
-Male	44 (41.5%)	67 (45.9%)	138 (46.9%)	142 (54.0%)	228 (53.1%)
First Generation Status	51 (48.1%)	39 (26.7%)	33 (11.2%)	17 (6.5%)	16 (3.7%)
Race/Ethnicity					
-Hispanic/Latino	45 (42.5%)	31 (21.2%)	66 (22.4%)	48 (18.3%)	47 (11.0%)
-American Indian/ Alaskan Native	2 (1.9%)	3 (2.1%)	15 (5.1%)	7 (2.7%)	7 (1.8%)
-Asian	26 (24.5%)	35 (24.0%)	46 (15.6%)	47 (17.9%)	77 (17.9%)
-Black/African American	26 (24.5%)	39 (26.7%)	68 (23.1%)	29 (11.0%)	20 (4.7%)
-White	7 (6.6%)	37 (25.3%)	96 (32.7%)	130 (49.4%)	274 (63.9%)
-Unknown	0	1 (0.7%)	3 (1.0%)	2 (0.8%)	4 (0.9%)
Mixed Race/Ethnicity	12 (11.3%)	18 (12.3%)	55 (18.7%)	37 (14.1%)	38 (8.9%)
Degree Program Type					
-Arts	15 (14.2%)	38 (26.0%)	92 (31.3%)	91 (34.6%)	124 (28.9%)
-Business	7 (6.6%)	15 (10.3%)	29 (9.9%)	34 (12.9%)	65 (15.2%)
-Communication	8 (7.5%)	6 (4.1%)	27 (9.2%)	14 (5.3%)	33 (7.7%)
-Engineering	15 (14.2%)	21 (14.4%)	45 (15.3%)	43 (16.3%)	69 (16.1%)
-Humanities	5 (4.7%)	3 (2.1%)	14 (4.8%)	7 (2.7%)	21 (4.9%)
-Natural Sciences	9 (8.5%)	24 (16.4%)	28 (9.5%)	22 (8.4%)	19 (4.4%)
-Social Sciences	19 (17.9%)	20 (13.7%)	32 (10.9%)	23 (8.7%)	40 (9.3%)
-Undecided	28 (26.4%)	19 (13.0%)	27 (9.2%)	29 (11.0%)	58 (13.5%)

Note: AP = academic preparedness, AP .80 < .90 = academic preparedness score ranges from .80 to less than .90

Table 46

Composition Totals by SES for AP .90 < 1.0

Non-SPP students with AP of .90 to < 1.0	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	352	640	1155	1175	1444
EFC Percentage	6.0%	18.9%	59.3%	241%	X
EFC+Aid Percentage	90.4%	91.9%	98.3%	258%	X
Academic Preparedness	.9442 avg.	.9477 avg.	.9502 avg.	.9519 avg.	.9489 avg.
Gender					
-Female	219 (62.2%)	378 (59.1%)	620 (53.7%)	609 (51.8%)	775 (53.7%)
-Male	133 (37.8%)	262 (40.9%)	535 (46.3%)	566 (48.2%)	669 (46.3%)
First Generation Status	165 (46.9%)	164 (25.6%)	110 (9.5%)	41 (3.5%)	53 (3.7%)
Race/Ethnicity					
-Hispanic/Latino	89 (25.3%)	112 (17.5%)	155 (13.4%)	126 (10.7%)	101 (7.0%)
-American Indian/ Alaskan Native	9 (2.6%)	13 (2.0%)	15 (1.3%)	14 (1.2%)	17 (1.2%)
-Asian	149 (42.3%)	239 (37.3%)	401 (34.7%)	348 (29.6%)	355 (24.6%)
-Black/African American	29 (8.2%)	37 (5.8%)	63 (5.5%)	27 (2.3%)	9 (0.6%)
-White	73 (20.7%)	238 (37.2%)	517 (44.8%)	657 (55.9%)	948 (65.7%)
-Unknown	2 (0.6%)	1 (0.2%)	4 (0.3%)	3 (0.3%)	14 (1.0%)
Mixed Race/Ethnicity	40 (11.4%)	78 (12.2%)	134 (11.6%)	130 (11.1%)	104 (7.2%)
Degree Program Type					
-Arts	30 (8.5%)	71 (11.1%)	169 (14.6%)	173 (14.7%)	154 (10.7%)
-Business	67 (19.0%)	101 (15.8%)	186 (16.1%)	233 (19.8%)	369 (25.6%)
-Communication	11 (3.1%)	41 (6.4%)	77 (6.7%)	67 (5.7%)	93 (6.4%)
-Engineering	51 (14.5%)	109 (17.0%)	217 (18.8%)	217 (18.5%)	192 (13.3%)
-Humanities	12 (3.4%)	32 (5.0%)	50 (4.3%)	40 (3.4%)	65 (4.5%)
-Natural Sciences	63 (17.9%)	119 (18.6%)	190 (16.5%)	171 (14.6%)	184 (12.7%)
-Social Sciences	48 (13.6%)	64 (10.0%)	111 (9.6%)	108 (9.2%)	141 (9.8%)
-Undecided	70 (19.9%)	103 (16.1%)	155 (13.4%)	166 (14.1%)	246 (17.0%)

Note: AP = academic preparedness, AP .90 < 1.0 = academic preparedness score ranges from .90 to less than 1.0

Table 47

Composition Totals by SES for AP 1.0+

Non-SPP students with AP of 1.0 and higher	Lowest	Low	Lower to Middle	Middle to Upper	Did not Apply
Total students	12	36	126	194	149
EFC Percentage	7.1%	17.4%	62.8%	221%	X
EFC+Aid Percentage	102%	98.9%	122%	271%	X
Academic Preparedness	1.011 avg.	1.012 avg.	1.015 avg.	1.014 avg.	1.014
Gender					
-Female	11 (91.7%)	22 (61.1%)	75 (59.5%)	96 (49.5%)	77 (51.7%)
-Male	1 (8.3%)	14 (38.9%)	51 (40.5%)	98 (50.5%)	72 (48.3%)
First Generation Status	2 (16.7%)	7 (19.4%)	2 (1.6%)	4 (2.1%)	0
Race/Ethnicity					
-Hispanic/Latino	0	0	3 (2.4%)	8 (4.1%)	6 (4.0%)
-American Indian/ Alaskan Native	0	1 (2.8%)	2 (1.6%)	1 (0.5%)	0
-Asian	10 (83.3%)	15 (41.7%)	58 (46.0%)	75 (38.7%)	47 (31.5%)
-Black/African American	0	0	1 (0.8%)	0	1 (0.7%)
-White	2 (16.7%)	19 (52.8%)	62 (49.2%)	109 (56.2%)	94 (63.1%)
-Unknown	0	1 (2.8%)	0	1 (0.5%)	1 (0.7%)
Mixed Race/Ethnicity	0	1 (2.8%)	16 (12.7%)	17 (8.8%)	4 (2.7%)
Degree Program Type					
-Arts	0	5 (13.9%)	17 (13.5%)	18 (9.3%)	13 (8.7%)
-Business	5 (41.7%)	5 (13.9%)	21 (16.7%)	37 (19.1%)	34 (22.8%)
-Communication	0	0	4 (3.2%)	6 (3.1%)	4 (2.7%)
-Engineering	0	8 (22.2%)	27 (21.4%)	49 (25.3%)	32 (21.5%)
-Humanities	0	0	5 (4.0%)	6 (3.1%)	5 (3.4%)
-Natural Sciences	3 (25.0%)	7 (19.4%)	26 (20.6%)	45 (23.2%)	26 (17.4%)
-Social Sciences	3 (25.0%)	3 (8.3%)	8 (6.3%)	5 (2.6%)	11 (7.4%)
-Undecided	1 (8.3%)	8 (22.2%)	18 (14.3%)	28 (14.4%)	24 (16.1%)

Note: AP = academic preparedness, *AP 1.0+*= academic preparedness scores of 1.0 and higher

Table 48

Outcomes by Race/Ethnicity

	AP	*EFC*	*1GPA*	*1Units*	*1-2*	*4Grad*	*4GPA*	*4Units*	*4TUnits*
Hispanic/Latino –840 students	.9201	X	3.19	32.5	96%	77%	3.26	118.4	136.6
American Indian/Alaskan Native - 106	.9249	X	3.17	32.3	99%	80%	3.33	123.1	140.4
Asian –1930	.9496	X	3.33	33.3	98%	84%	3.38	121.5	145.2
Black/African American - 359	.8918	X	3.08	32.0	97%	75%	3.14	117.6	130.5
White – 3283	.9426	X	3.35	33.0	96%	82%	3.41	119.1	138.0
Unknown – 38	.9212	X	3.32	33.5	92%	82%	3.40	118.3	136.6

Note: AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 49

Outcomes by Race/Ethnicity Part One (AP .85 < .95)

	AP	EFC	1GPA	1Units	1-2	4Grad	4GPA	4Units	4TUnits
Hispanic/Latino –600 students	**.9099**	**X**	**3.12**	**32.2**	**96%**	**77%**	**3.20**	**117.1**	**134.4**
+SES (Lowest) – 105	.9094	5.8%	3.01	32.0	99%	67%	3.12	120.0	137.8
+SES (Low) – 111	.9140	18.2%	3.11	32.2	97%	71%	3.22	120.1	136.2
+SES (Lower-Middle) – 159	.9089	57.3%	3.12	31.9	95%	79%	3.20	115.1	134.2
+SES (Mid-Upper) – 121	.9096	221%	3.19	32.7	97%	81%	3.26	115.3	132.8
+SES Did not Apply – 104	.9080	N/A	3.14	32.0	92%	84%	3.23	116.2	131.4
Asian –888 students	**.9177**	**X**	**3.16**	**32.8**	**97%**	**79%**	**3.24**	**119.1**	**140.1**
+SES (Lowest) – 97	.9171	6.2%	3.14	32.0	97%	72%	3.20	118.1	138.6
+SES (Low) – 142	.9185	18.0%	3.14	32.7	97%	74%	3.23	120.6	142.1
+SES (Lower-Middle) – 222	.9201	57.8%	3.17	32.9	97%	80%	3.20	118.2	139.7
+SES (Mid-Upper) – 192	.9175	226%	3.19	33.1	96%	85%	3.28	119.0	140.7
+SES Did not Apply – 235	.9155	N/A	3.16	32.8	98%	79%	3.26	119.3	139.6

Note: AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 50

Outcomes by Race/Ethnicity Part Two (AP .85 < .95)

	AP	EFC	1GPA	1Units	1-2	4Grad	4GPA	4Units	4TUnits
Black/African American – 243 students	**.8995**	**X**	**3.09**	**31.7**	**97%**	**74%**	**3.14**	**117.3**	**129.6**
+SES (Lowest) – 43	.9034	5.6%	3.11	32.0	100%	60%	3.11	119.6	131.7
+SES (Low) – 52	.8973	18.7%	3.01	31.5	96%	79%	3.03	116.5	127.3
+SES (Lower-Middle) – 90	.9025	58.0%	3.11	31.3	97%	78%	3.19	114.9	128.1
+SES (Mid-Upper) – 34	.8996	193%	3.17	32.7	97%	79%	3.25	121.5	133.7
+SES Did not Apply – 24	.8856	N/A	3.05	32.3	96%	71%	3.06	117.8	131.0
White – 1561 students	**.9147**	**X**	**3.24**	**32.6**	**95%**	**79%**	**3.31**	**117.1**	**133.5**
+SES (Lowest) – 41	.9213	5.6%	3.34	32.5	88%	66%	3.30	108.3	126.3
+SES (Low) – 134	.9158	19.4%	3.19	32.1	94%	71%	3.25	114.4	130.3
+SES (Lower-Middle) – 305	.9167	60.0%	3.26	33.0	95%	80%	3.33	116.4	133.1
+SES (Mid-Upper) – 395	.9156	275%	3.26	32.8	97%	82%	3.32	119.1	136.0
+SES Did not Apply – 686	.9127	N/A	3.23	32.5	95%	80%	3.32	117.4	133.2

Note: AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 51

Outcomes for All Students by Gender

	AP	*EFC*	*1GPA*	*1Units*	*1-2*	*4Grad*	*4GPA*	*4Units*	*4TUnits*
Male – 3162 students	**.9324**	**X**	**3.23**	**32.7**	**97%**	**78%**	**3.28**	**118.7**	**138.3**
+SES (Lowest) – 208	.9143	5.8%	3.08	31.8	98%	63%	3.08	116.5	134.8
+SES (Low) – 370	.9281	19.1%	3.14	32.1	98%	75%	3.23	119.5	138.4
+SES (Lower-Middle) – 746	.9359	59.7%	3.23	32.7	96%	78%	3.26	117.5	137.2
+SES (Mid-Upper) – 824	.9409	241%	3.32	33.1	97%	83%	3.35	119.6	140.6
+SES Did not Apply – 1014	.9283	N/A	3.22	32.7	97%	78%	3.28	119.1	137.8
Female – 3692 students	**.9350**	**X**	**3.35**	**33.1**	**96%**	**83%**	**3.41**	**120.3**	**139.4**
+SES (Lowest) – 326	.9220	5.9%	3.23	32.8	97%	70%	3.30	119.5	137.5
+SES (Low) – 519	.9293	18.4%	3.27	32.9	97%	78%	3.33	120.2	137.6
+SES (Lower-Middle) – 902	.9342	58.3%	3.35	33.0	96%	84%	3.41	119.1	139.0
+SES (Mid-Upper) – 851	.9451	241%	3.39	33.3	96%	87%	3.46	121.4	142.0
+SES Did not Apply – 1094	.9345	N/A	3.38	33.1	97%	86%	3.45	120.7	139.1

Note: AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Table 52

Outcomes for All Students by First Generation Status

	AP	EFC	1GPA	1Units	1-2	4Grad	4GPA	4Units	4TUnits
1rst Gen – 801 students	**.9167**	**X**	**3.16**	**32.6**	**98%**	**73%**	**3.22**	**118.5**	**136.8**
+SES (Lowest) – 265	.9091	5.4%	3.09	32.6	98%	65%	3.14	118.8	136.0
+SES (Low) – 239	.9217	16.9%	3.19	32.8	97%	75%	3.26	119.9	138.0
+SES (Lower-Middle) – 156	.9189	51.6%	3.20	32.7	96%	81%	3.26	117.4	138.0
+SES (Mid-Upper) – 68	.9186	208%	3.14	32.7	99%	76%	3.24	117.4	134.6
+SES Did not Apply – 73	.9209	N/A	3.19	32.1	97%	78%	3.29	116.7	135.8
Non 1rst Gen – 6053 students	**.9361**	**X**	**3.31**	**32.9**	**97%**	**82%**	**3.37**	**119.7**	**139.1**
+SES (Lowest) – 269	.9288	6.3%	3.25	32.2	96%	70%	3.28	117.9	136.9
+SES (Low) – 650	.9314	19.3%	3.23	32.4	97%	78%	3.30	119.9	138.0
+SES (Lower-Middle) – 1492	.9366	59.7%	3.30	32.9	96%	81%	3.35	118.5	138.2
+SES (Mid-Upper) – 1607	.9441	242%	3.37	33.3	97%	85%	3.42	120.6	141.6
+SES Did not Apply – 2035	.9319	N/A	3.31	33.0	97%	82%	3.37	120.0	138.6

Note: AP = academic preparedness, EFC = expected family contribution as a percentage of the full cost of attending, 1GPA = grade point average after the first year, 1Units = units earned after the first year, 1-2 = persistence to the second year, 4GPA = grade point average after the fourth year, 4Units = units earned after the fourth year, 4TUnits = total units earned after the fourth year.

Charts and Other Graphics

Chart 1

One Way Analysis of Variance for Means between Cohorts

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Yr1GPA	Between Groups	.085	2	.042	.174	.840
	Within Groups	1670.071	6851	.244		
	Total	1670.156	6853			
Yr1Units	Between Groups	2.850	2	1.425	.086	.917
	Within Groups	112994.809	6851	16.493		
	Total	112997.659	6853			
Yr4GPA	Between Groups	.395	2	.198	.962	.382
	Within Groups	1407.126	6851	.205		
	Total	1407.521	6853			
Yr4Units	Between Groups	2594.879	2	1297.440	2.276	.103
	Within Groups	3904705.222	6851	569.947		
	Total	3907300.101	6853			

Note: Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year. Groups compared are the three cohort years of 2007, 2008, and 2009.

Chart 2
Additional Comparison of Means between Cohorts

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Cohort	(J) Cohort	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Yr1GPA	Fall 2007 cohort	Fall 2008 cohort	.00086	.01458	.998	-.0333	.0350
		Fall 2009 cohort	-.00702	.01454	.879	-.0411	.0271
	Fall 2008 cohort	Fall 2007 cohort	-.00086	.01458	.998	-.0350	.0333
		Fall 2009 cohort	-.00788	.01471	.854	-.0424	.0266
	Fall 2009 cohort	Fall 2007 cohort	.00702	.01454	.879	-.0271	.0411
		Fall 2008 cohort	.00788	.01471	.854	-.0266	.0424
Yr1Units	Fall 2007 cohort	Fall 2008 cohort	.0314	.1199	.963	-.250	.312
		Fall 2009 cohort	-.0183	.1196	.987	-.299	.262
	Fall 2008 cohort	Fall 2007 cohort	-.0314	.1199	.963	-.312	.250
		Fall 2009 cohort	-.0497	.1210	.911	-.333	.234
	Fall 2009 cohort	Fall 2007 cohort	.0183	.1196	.987	-.262	.299
		Fall 2008 cohort	.0497	.1210	.911	-.234	.333
Yr4GPA	Fall 2007 cohort	Fall 2008 cohort	.00696	.01338	.861	-.0244	.0383
		Fall 2009 cohort	.01837	.01335	.354	-.0129	.0497
	Fall 2008 cohort	Fall 2007 cohort	-.00696	.01338	.861	-.0383	.0244
		Fall 2009 cohort	.01140	.01350	.675	-.0203	.0431
	Fall 2009 cohort	Fall 2007 cohort	-.01837	.01335	.354	-.0497	.0129
		Fall 2008 cohort	-.01140	.01350	.675	-.0431	.0203
Yr4Units	Fall 2007 cohort	Fall 2008 cohort	.6552	.7048	.621	-.997	2.307
		Fall 2009 cohort	-.8577	.7033	.442	-2.506	.791
	Fall 2008 cohort	Fall 2007 cohort	-.6552	.7048	.621	-2.307	.997
		Fall 2009 cohort	-1.5130	.7114	.085	-3.181	.155
	Fall 2009 cohort	Fall 2007 cohort	.8577	.7033	.442	-.791	2.506
		Fall 2008 cohort	1.5130	.7114	.085	-.155	3.181

Note: Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year. Groups compared are the three cohort years of 2007, 2008, and 2009.

Chart 3
Relationship between SES and Academic Preparedness Scores
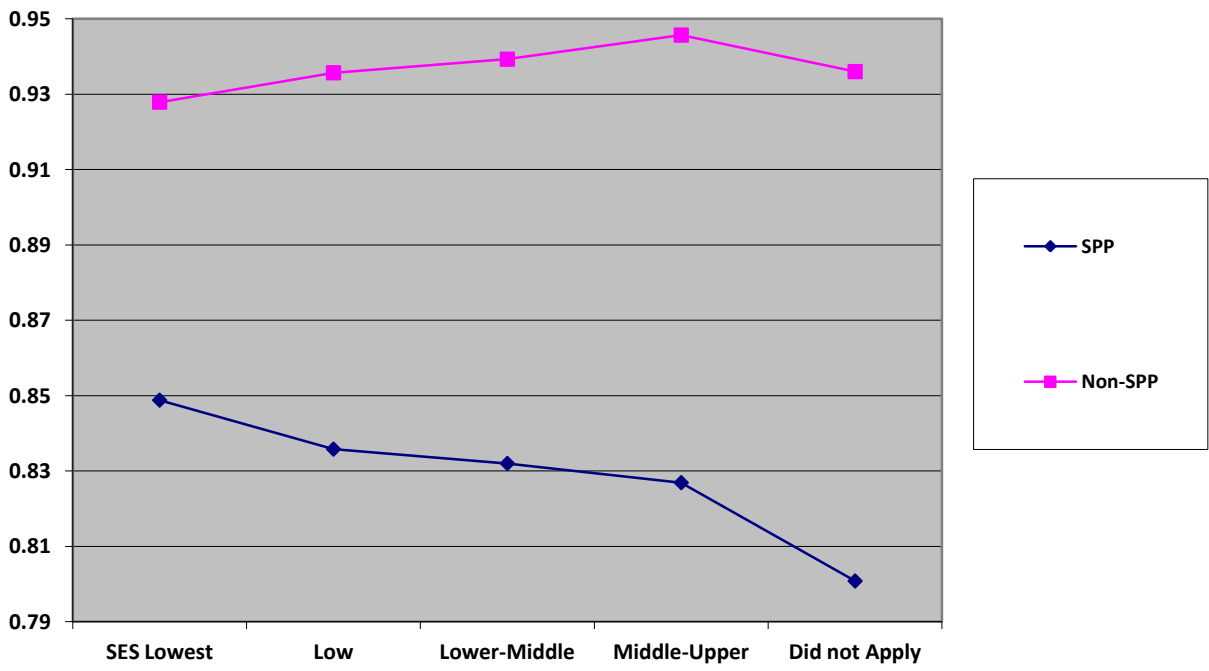
Note: SPP = support program participants, Non-SPP = non-participants of the support program

Chart 4
Relationship between SES and Four Year Graduation Rates
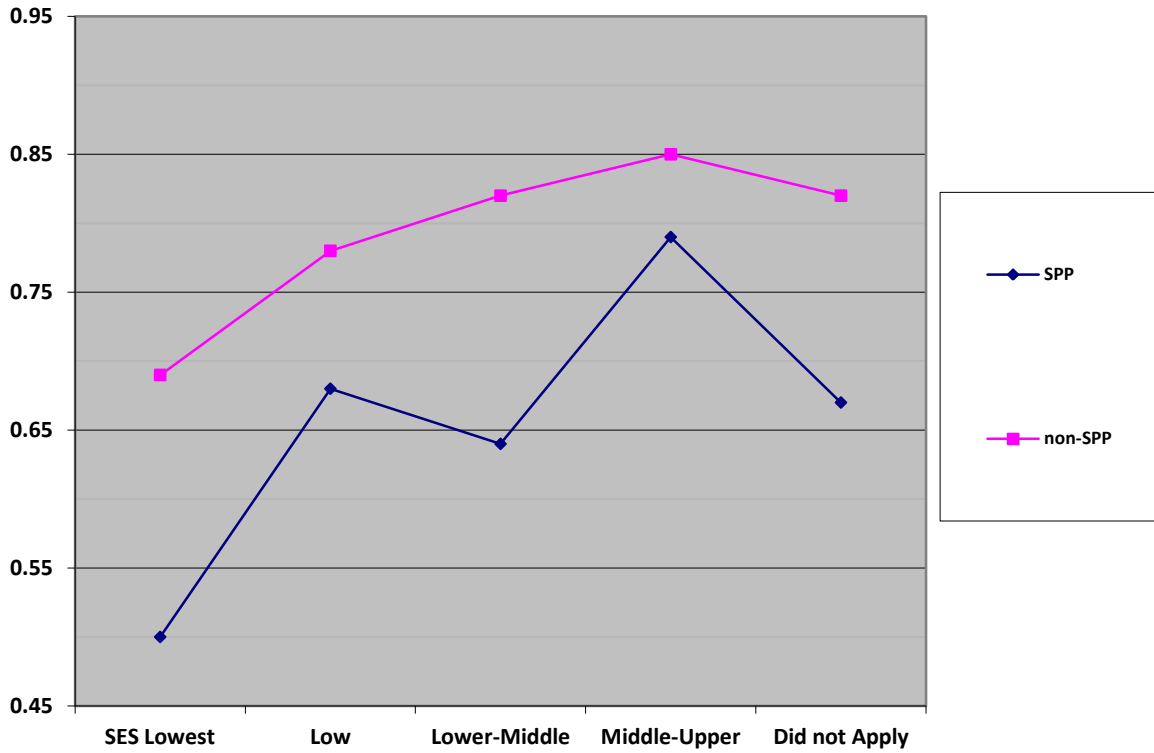
Note: SPP = support program participants, Non-SPP = non-participants of the support program

Chart 5
Distribution of Academic Preparedness Scores for Non-Participants
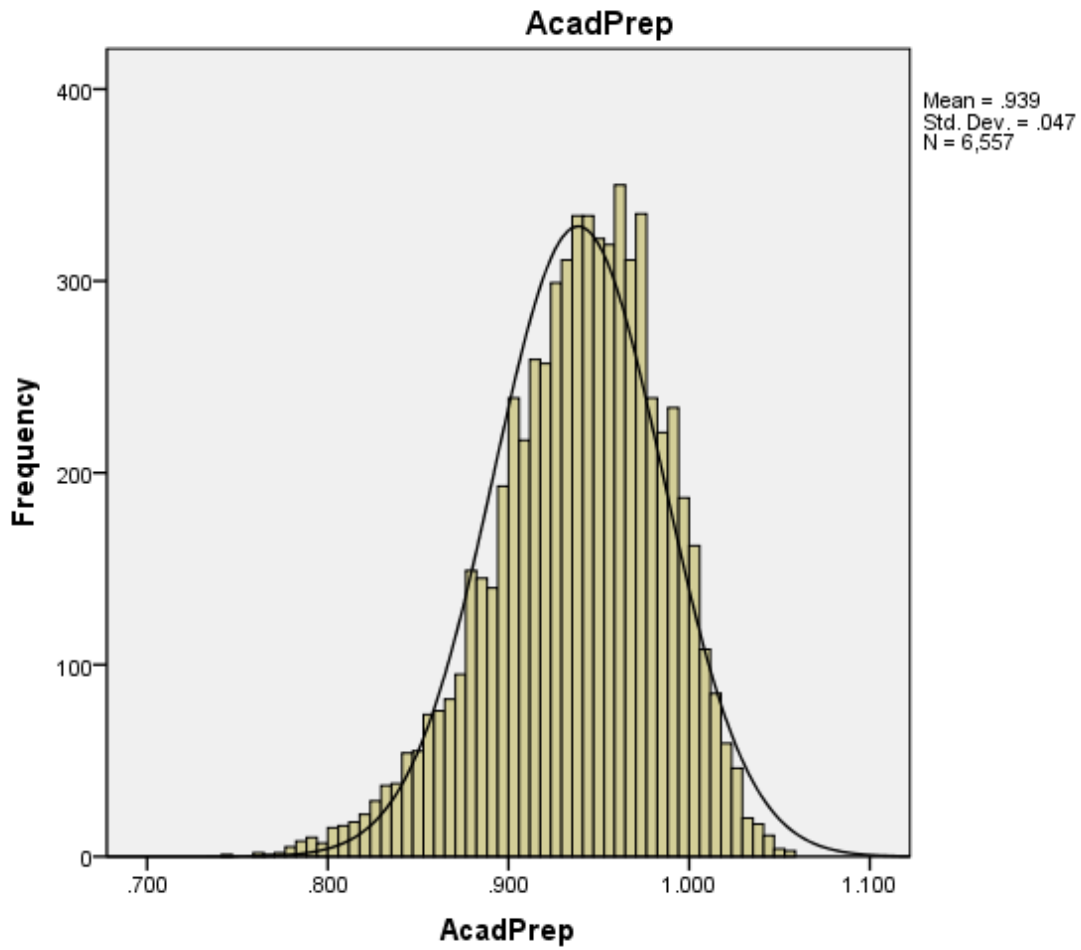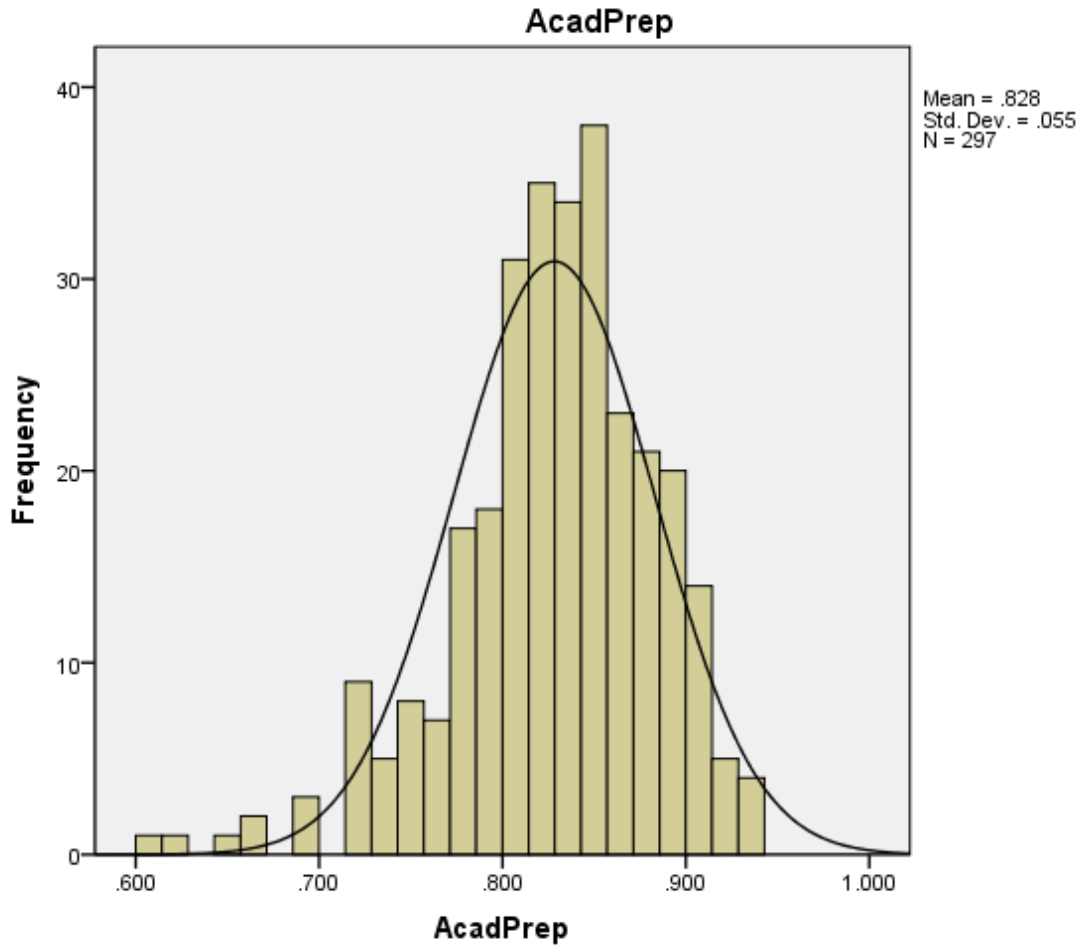

Note: AcadPrep = academic preparedness scores

Chart 6
Distribution of Academic Preparedness Scores for Participants

Note: AcadPrep = academic preparedness scores

Chart 7
RQ1: Comparison of Means: Lowest SES (AP .80 < .90)

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
						Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
AcadPrep	Equal variances assumed	16.70	.000	-.33	91	.742	-.001526	.004619	-.01070	.00765
	Equal variances not assumed			-.34	77.84	.735	-.001526	.004493	-.01047	.00742
Yr1GPA	Equal variances assumed	1.68	.198	.244	91	.808	.02979	.12201	-.2126	.2721
	Equal variances not assumed			.247	89.48	.805	.02979	.12045	-.2095	.2691
Yr1Units	Equal variances assumed	.224	.637	.271	91	.787	.3613	1.3345	-2.289	3.012
	Equal variances not assumed			.273	90.60	.785	.3613	1.3219	-2.265	2.987
Yr4GPA	Equal variances assumed	1.45	.233	1.14	91	.258	.13725	.12047	-.1021	.3766
	Equal variances not assumed			1.15	90.79	.254	.13725	.11946	-.1001	.3745
Yr4Units	Equal variances assumed	.002	.964	.203	91	.840	1.2101	5.9732	-10.65	13.08
	Equal variances not assumed			.202	88.67	.840	1.2101	5.9906	-10.69	13.11

Note: AcadPrep = academic preparedness scores, Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year

Chart 8

RQ1: Comparison of Means: Lowest SES (AP .83139 < .936)

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AcadPrep	Equal variances assumed	10.63	.001	-.62	123	.538	-.002302	.003730	-.0097	.00508
	Equal variances not assumed			-.54	58.18	.591	-.002302	.004257	-.0108	.00622
Yr1GPA	Equal variances assumed	.56	.454	-1.4	123	.152	-.13865	.09623	-.3291	.0518
	Equal variances not assumed			-1.5	87.10	.139	-.13865	.09292	-.3233	.0460
Yr1Units	Equal variances assumed	1.45	.231	-3.1	123	.003	-2.8307	.9293	-4.67	-.991
	Equal variances not assumed			-3.4	102.3	.001	-2.8307	.8435	-4.50	-1.158
Yr4GPA	Equal variances assumed	2.95	.088	-.54	123	.587	-.05383	.09897	-.2497	.1421
	Equal variances not assumed			-.59	99.69	.554	-.05383	.09076	-.2339	.1262
Yr4Units	Equal variances assumed	4.36	.039	-1.5	123	.130	-6.6127	4.3338	-15.19	1.966
	Equal variances not assumed			-1.8	111.5	.084	-6.6127	3.7877	-14.12	.893

Note: AcadPrep = academic preparedness scores, Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year

Chart 9
RQ1: Comparison of Means: Low SES (AP .80 < .90)

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AcadPrep	Equal variances assumed	15.52	.000	-.02	96	.987	-.000082	.005181	-.01037	.01020
	Equal variances not assumed			-.02	61.97	.988	-.000082	.005574	-.01122	.01106
Yr1GPA	Equal variances assumed	.117	.734	-1.2	96	.245	-.11441	.09773	-.3084	.0796
	Equal variances not assumed			-1.2	89.91	.239	-.11441	.09654	-.3062	.0774
Yr1Units	Equal variances assumed	1.27	.263	-.31	96	.759	-.3051	.9932	-2.277	1.667
	Equal variances not assumed			-.30	79.51	.764	-.3051	1.0139	-2.323	1.713
Yr4GPA	Equal variances assumed	.956	.331	-.23	96	.816	-.02050	.08784	-.1949	.1539
	Equal variances not assumed			-.23	78.73	.820	-.02050	.08987	-.1994	.1584
Yr4Units	Equal variances assumed	.639	.426	-.97	96	.332	-4.0066	4.1116	-12.168	4.155
	Equal variances not assumed			-1.0	95.66	.303	-4.0066	3.8649	-11.679	3.666

Note: AcadPrep = academic preparedness scores, Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year

Chart 10
RQ1: Comparison of Means: Did Not Apply for Aid (AP .80 < .90)

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AcadPrep	Equal variances assumed	11.41	.001	1.80	190	.074	.006530	.003633	-.00064	.013695
	Equal variances not assumed			1.43	37.44	.160	.006530	.004560	-.00271	.015765
Yr1GPA	Equal variances assumed	.020	.888	1.07	190	.288	.10887	.10223	-.09277	.31052
	Equal variances not assumed			1.04	43.17	.306	.10887	.10513	-.10312	.32087
Yr1Units	Equal variances assumed	.158	.691	.133	190	.894	.1250	.9377	-1.7246	1.9746
	Equal variances not assumed			.144	47.89	.886	.1250	.8698	-1.6240	1.8740
Yr4GPA	Equal variances assumed	.210	.647	.803	190	.423	.07456	.09284	-.10857	.25769
	Equal variances not assumed			.758	42.07	.453	.07456	.09838	-.12396	.27309
Yr4Units	Equal variances assumed	.249	.618	-1.2	190	.216	-6.7906	5.4749	-17.590	4.0088
	Equal variances not assumed			-1.2	44.07	.224	-6.7906	5.5044	-17.884	4.3022

Note: AcadPrep = academic preparedness scores, Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year

Chart 11
RQ1: Comparison of Means: Did Not Apply for Aid (AP < .80139)

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AcadPrep	Equal variances assumed	23.38	.000	5.32	99	.000	.038810	.007295	.024336	.05329
	Equal variances not assumed			5.12	58.81	.000	.038810	.007575	.023651	.05397
Yr1GPA	Equal variances assumed	.188	.666	.859	99	.392	.10976	.12779	-.14381	.36333
	Equal variances not assumed			.861	98.82	.391	.10976	.12743	-.14309	.36260
Yr1Units	Equal variances assumed	.037	.849	.005	99	.996	.0059	1.2279	-2.4305	2.4423
	Equal variances not assumed			.005	96.11	.996	.0059	1.2114	-2.3987	2.4105
Yr4GPA	Equal variances assumed	.092	.762	.562	99	.576	.06371	.11340	-.16131	.28873
	Equal variances not assumed			.565	99.00	.574	.06371	.11282	-.16015	.28758
Yr4Units	Equal variances assumed	1.062	.305	-.83	99	.408	-4.9898	6.0010	-16.897	6.9174
	Equal variances not assumed			-.84	97.35	.402	-4.9898	5.9329	-16.764	6.7848

Note: AcadPrep = academic preparedness scores, Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year
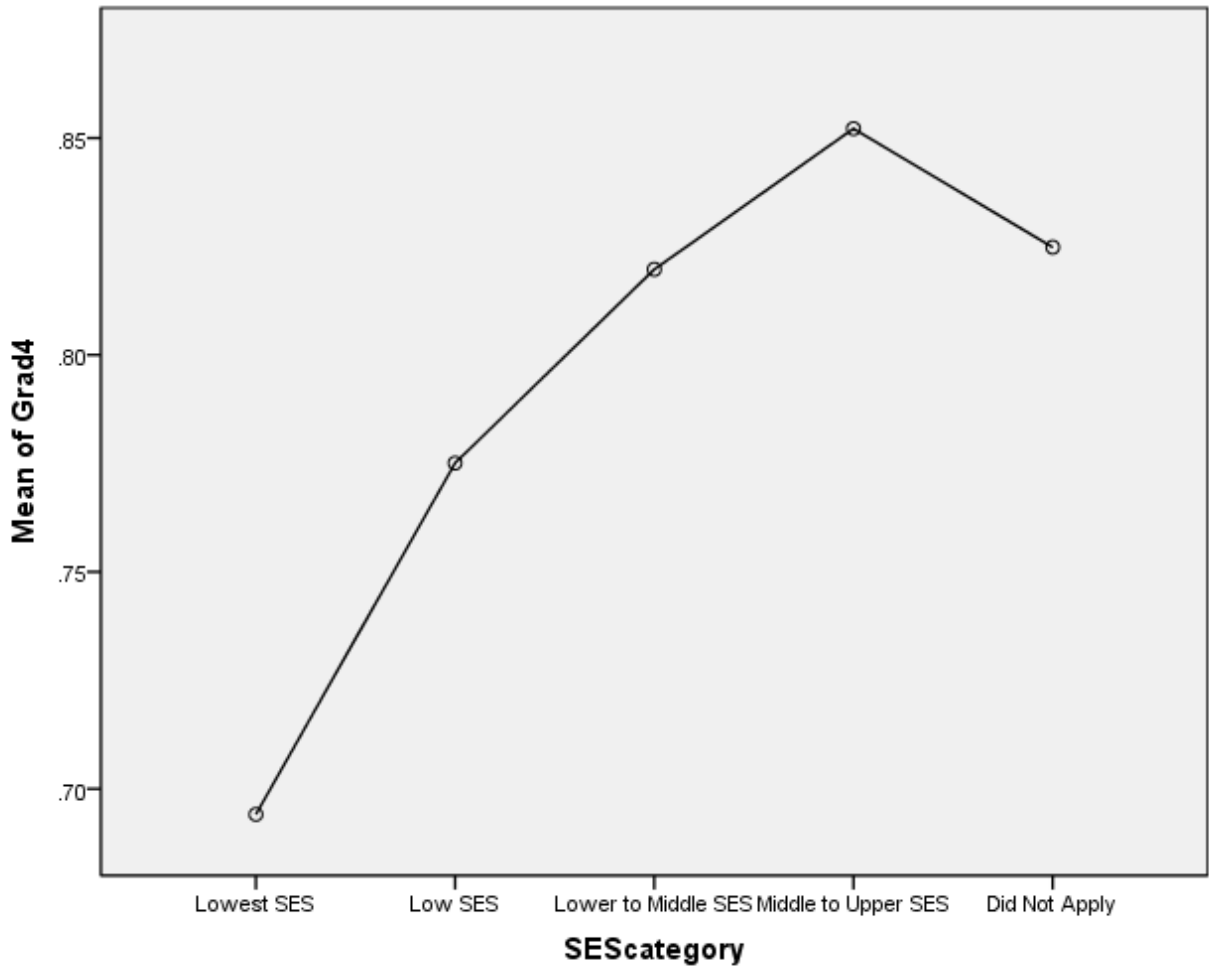
Chart 12
RQ1: Comparison of Means: Did Not Apply for Aid (AP.80139 < .8664)

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AcadPrep	Equal variances assumed	.272	.603	3.43	179	.001	.012421	.003623	.005272	.019570
	Equal variances not assumed			3.27	32.76	.003	.012421	.003800	.004687	.020154
Yr1GPA	Equal variances assumed	.081	.776	1.25	179	.212	.14261	.11373	-.08182	.36704
	Equal variances not assumed			1.16	32.10	.255	.14261	.12300	-.10791	.39312
Yr1Units	Equal variances assumed	.648	.422	-.45	179	.657	-.4355	.9785	-2.3663	1.4954
	Equal variances not assumed			-.61	48.29	.547	-.4355	.7189	-1.8807	1.0097
Yr4GPA	Equal variances assumed	.334	.564	.875	179	.383	.08979	.10262	-.11271	.29230
	Equal variances not assumed			.805	32.00	.427	.08979	.11151	-.13734	.31693
Yr4Units	Equal variances assumed	1.188	.277	-1.5	179	.125	-8.8115	5.7118	-20.083	2.4597
	Equal variances not assumed			-1.8	38.17	.087	-8.8115	5.0166	-18.966	1.3425

Note: AcadPrep = academic preparedness scores, Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year

Chart 13
Four Year Graduation Means Plot for Non-Participants (n= 6,557)

Note: Grad4 = four year graduation rate

Chart 14
ANOVA by SES: All Non-Participants

ANOVA

|		Sum of Squares	df	Mean Square	F	Sig.
Yr1GPA	Between Groups	14.757	4	3.689	15.656	.000
	Within Groups	1543.893	6552	.236		
	Total	1558.649	6556			
Yr1Units	Between Groups	430.137	4	107.534	6.799	.000
	Within Groups	103622.758	6552	15.815		
	Total	104052.895	6556			
Yr4GPA	Between Groups	13.012	4	3.253	16.667	.000
	Within Groups	1278.726	6552	.195		
	Total	1291.738	6556			
Yr4Units	Between Groups	4000.103	4	1000.026	1.779	.130
	Within Groups	3682774.021	6552	562.084		
	Total	3686774.124	6556			

Note: Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year

Chart 15
ANOVA by SES: Non-Participants (AP .80 < .90)

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Yr1GPA	Between Groups	5.041	4	1.260	4.902	.001
	Within Groups	316.990	1233	.257		
	Total	322.031	1237			
Yr1Units	Between Groups	57.284	4	14.321	.745	.561
	Within Groups	23706.368	1233	19.227		
	Total	23763.652	1237			
Yr4GPA	Between Groups	4.556	4	1.139	5.065	.000
	Within Groups	277.300	1233	.225		
	Total	281.857	1237			
Yr4Units	Between Groups	2475.535	4	618.884	.924	.449
	Within Groups	825496.885	1233	669.503		
	Total	827972.420	1237			

Note: Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year
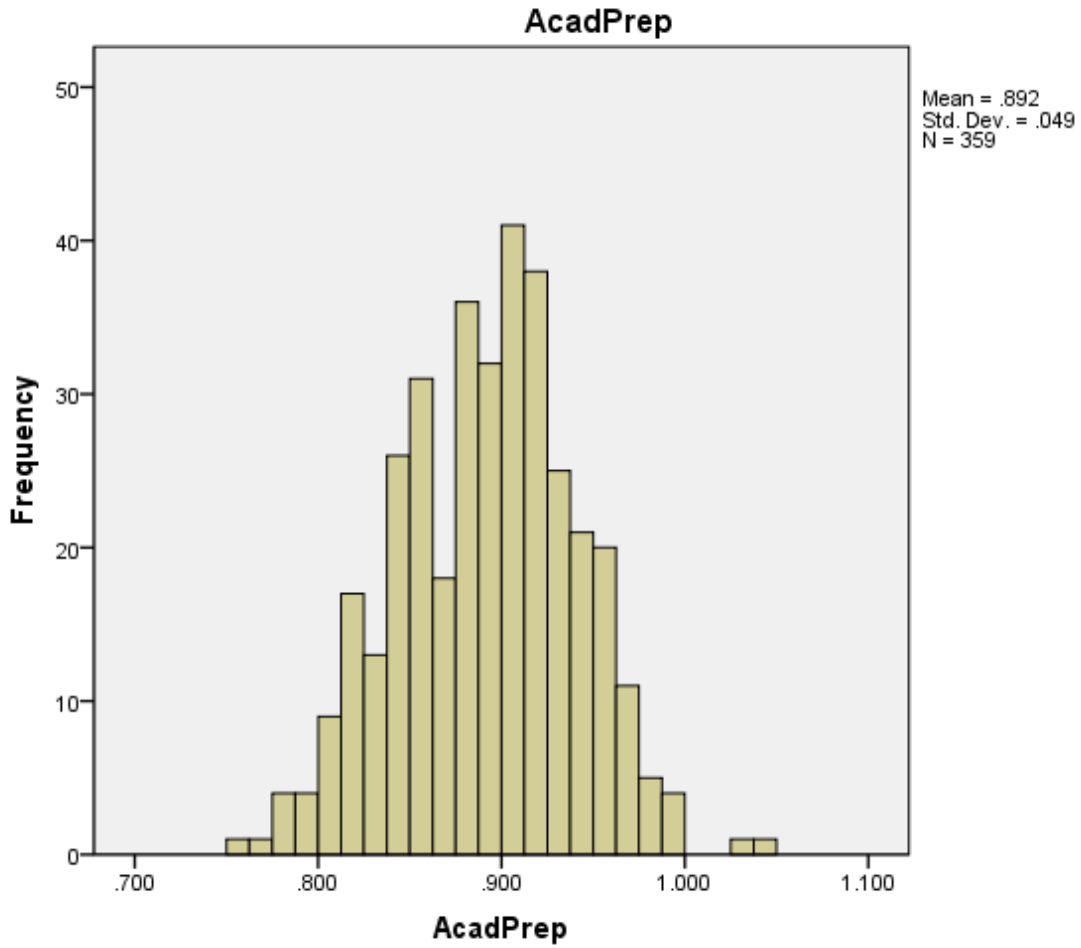
Chart 16
ANOVA by SES: Non-Participants (AP .90 < 1.0)

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Yr1GPA	Between Groups	4.643	4	1.161	5.673	.000
	Within Groups	974.092	4761	.205		
	Total	978.735	4765			
Yr1Units	Between Groups	263.491	4	65.873	4.464	.001
	Within Groups	70260.329	4761	14.757		
	Total	70523.820	4765			
Yr4GPA	Between Groups	5.052	4	1.263	7.536	.000
	Within Groups	797.887	4761	.168		
	Total	802.938	4765			
Yr4Units	Between Groups	1608.518	4	402.129	.754	.555
	Within Groups	2538581.807	4761	533.203		
	Total	2540190.325	4765			

Note: Yr1GPA = grade point average after the first year, Yr1Units = units earned after the first year, Yr4GPA = grade point average after the fourth year, Yr4Units = units earned after the fourth year

Chart 17
Asian American Distribution of Academic Preparedness Scores
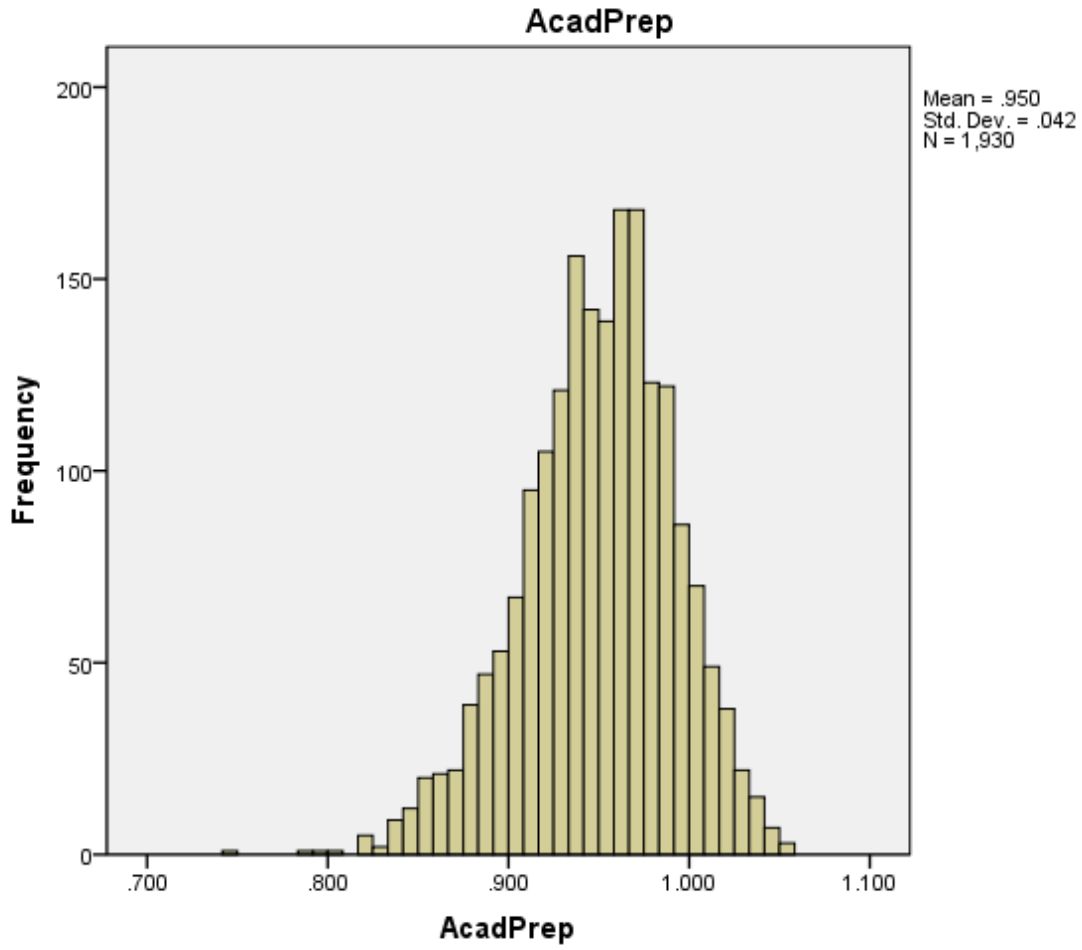
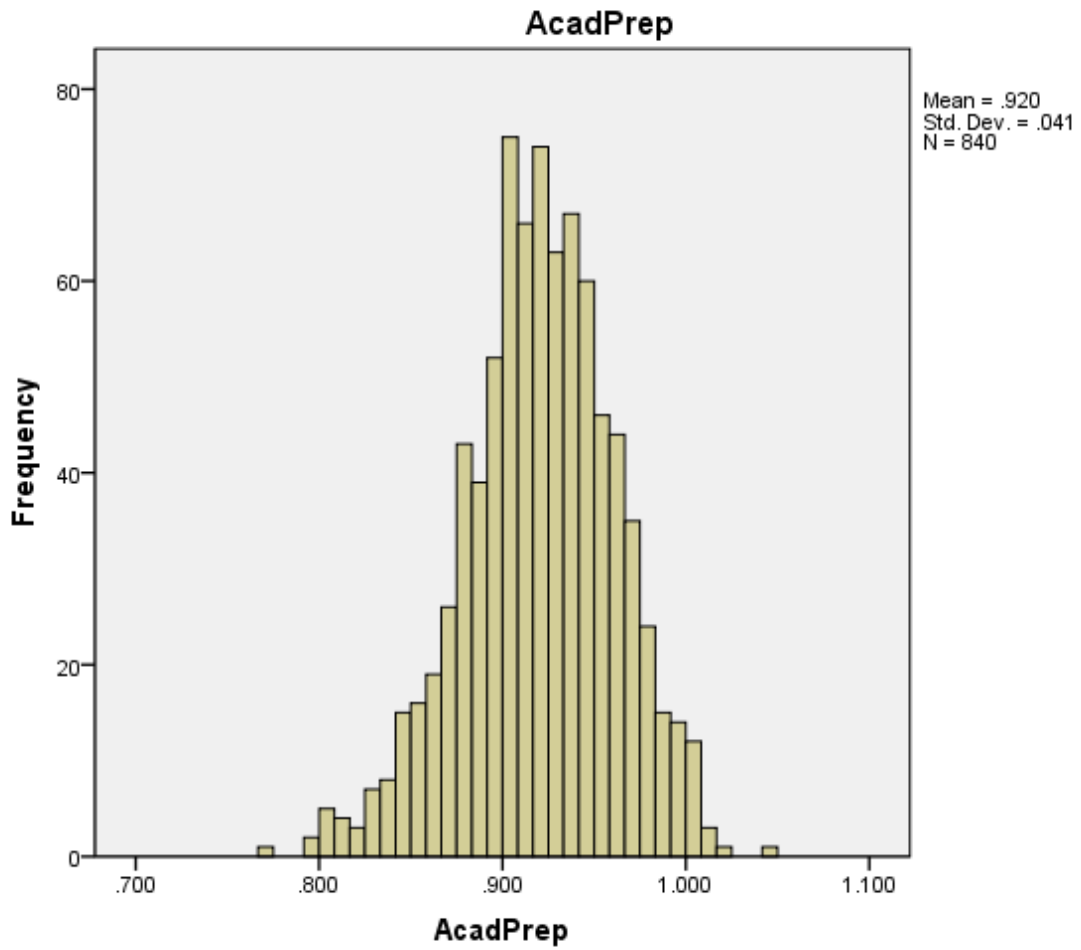*Note:* AcadPrep = academic preparedness score

Chart 18
Black/African American Distribution of Academic Preparedness Scores
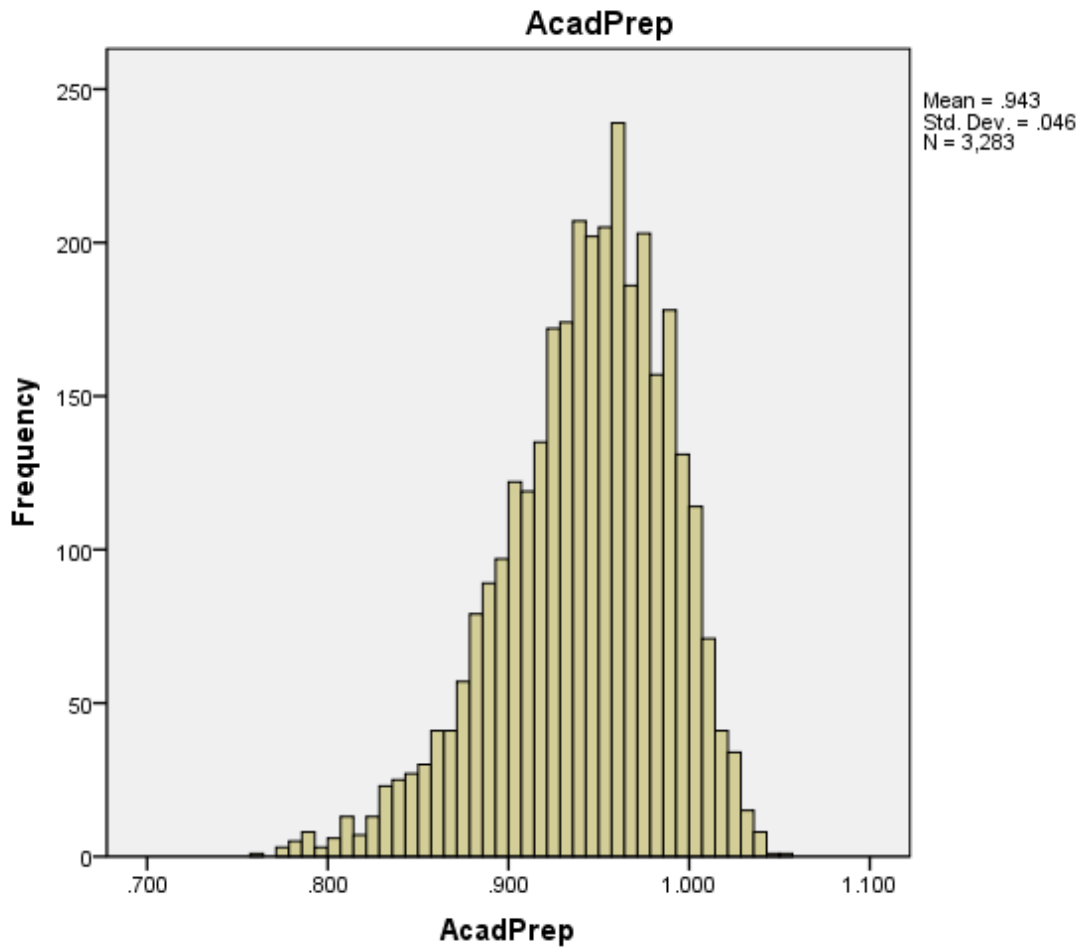

Note: AcadPrep = academic preparedness score

Chart 19
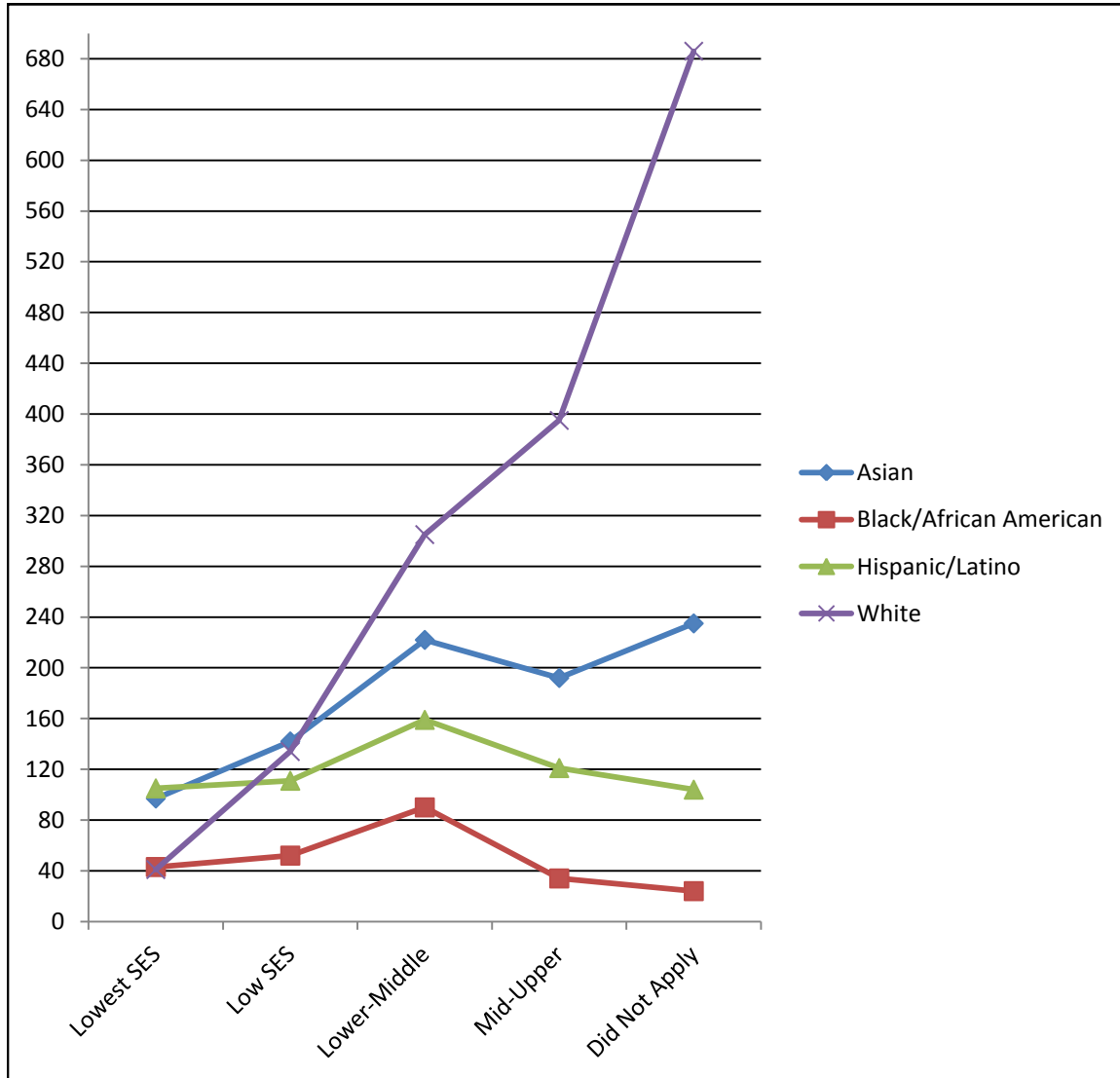Hispanic/Latino Distribution of Academic Preparedness Scores

Note: AcadPrep = academic preparedness score

Chart 20
White Distribution of Academic Preparedness Scores

Note: AcadPrep = academic preparedness score

Chart 21

Distribution of Students by SES Category for Racial/Ethnic Groups (.85 < .95)

Note: This chart shows the number of students by race/ethnicity at each SES level. .85 < .95 = students with academic preparedness scores of .85 to less than .95

Chart 22
Four Year Graduation Rates by SES and Race/Ethnicity (AP .85 < .95)
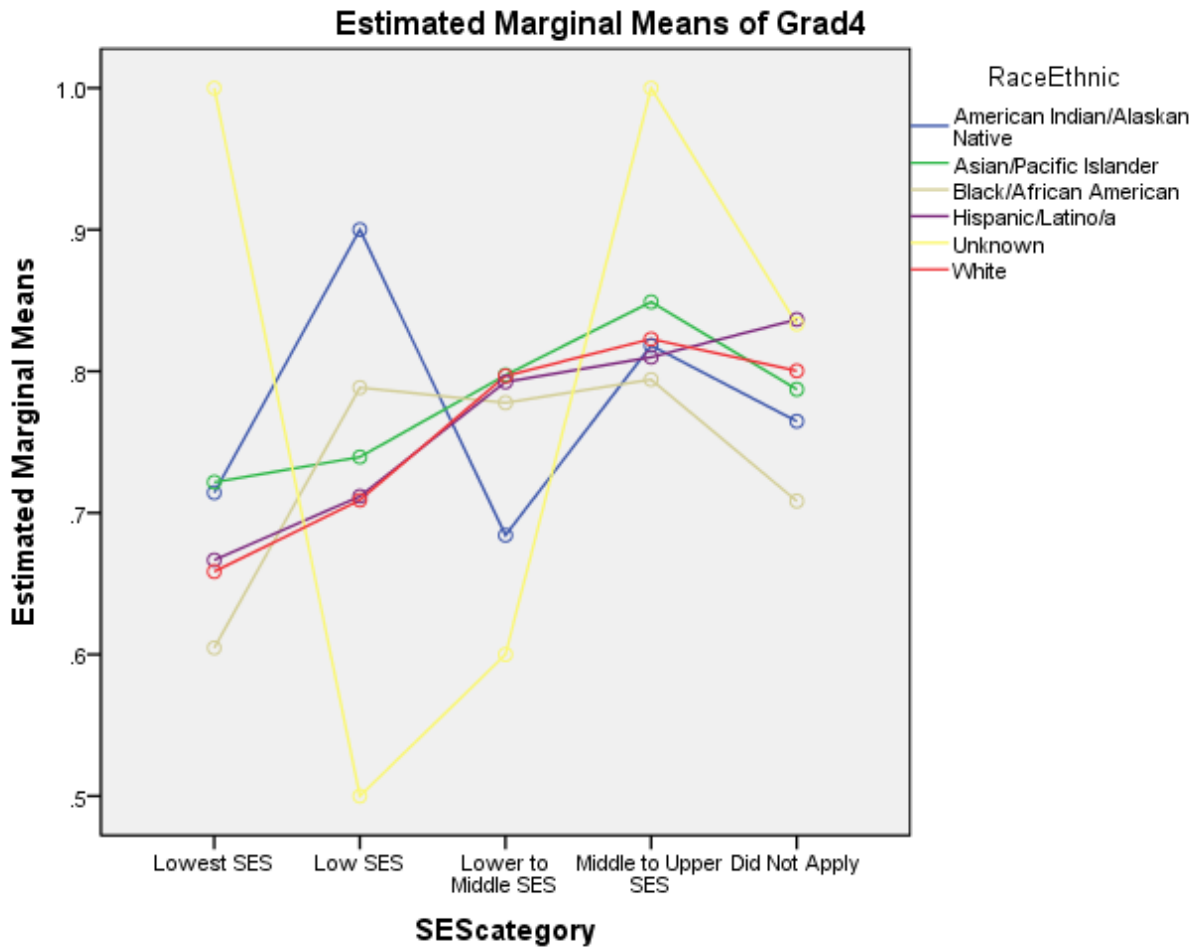
Note: AP .85 < .95 = students with academic preparedness scores of .85 to less than .95, Grad4 = four year graduation rate

Chart 23
Data for Graduation Rates by SES and Race/Ethnicity (AP .85 < .95)

Descriptive Statistics

Dependent Variable:Grad4

| RaceEthnic	SEScategory	Mean	Std. Deviation	N
Asian/Pacific Islander	Lowest SES	.72	.451	97
	Low SES	.74	.440	142
	Lower to Middle SES	.80	.403	222
	Middle to Upper SES	.85	.359	192
	Did Not Apply	.79	.410	235
	Total	.79	.409	888
Black/African American	Lowest SES	.60	.495	43
	Low SES	.79	.412	52
	Lower to Middle SES	.78	.418	90
	Middle to Upper SES	.79	.410	34
	Did Not Apply	.71	.464	24
	Total	.74	.437	243
Hispanic/Latino/a	Lowest SES	.67	.474	105
	Low SES	.71	.455	111
	Lower to Middle SES	.79	.407	159
	Middle to Upper SES	.81	.394	121
	Did Not Apply	.84	.372	104
	Total	.77	.423	600
White	Lowest SES	.66	.480	41
	Low SES	.71	.456	134
	Lower to Middle SES	.80	.403	305
	Middle to Upper SES	.82	.382	395
	Did Not Apply	.80	.400	686
	Total	.79	.405	1561
Total	Lowest SES	.68	.468	295
	Low SES	.73	.444	451
	Lower to Middle SES	.79	.408	800
	Middle to Upper SES	.83	.379	757
	Did Not Apply	.80	.401	1078
	Total	.78	.412	3381

Note: The 64 students identified as American Indian/Alaskan Native and the 25 students identified as Unknown are included in the total, but now shown individually.

Chart 24
Differences in Four Year Graduation Rates by Major and SES
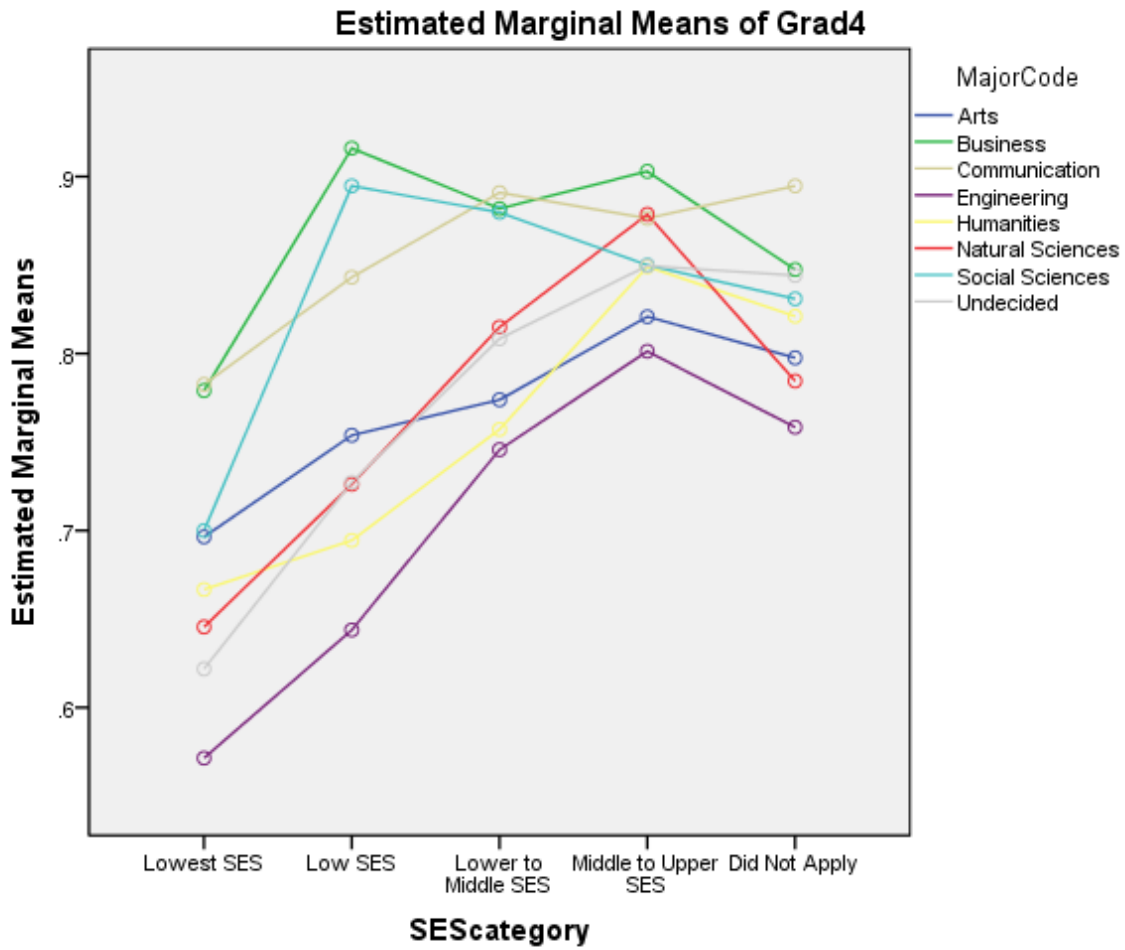
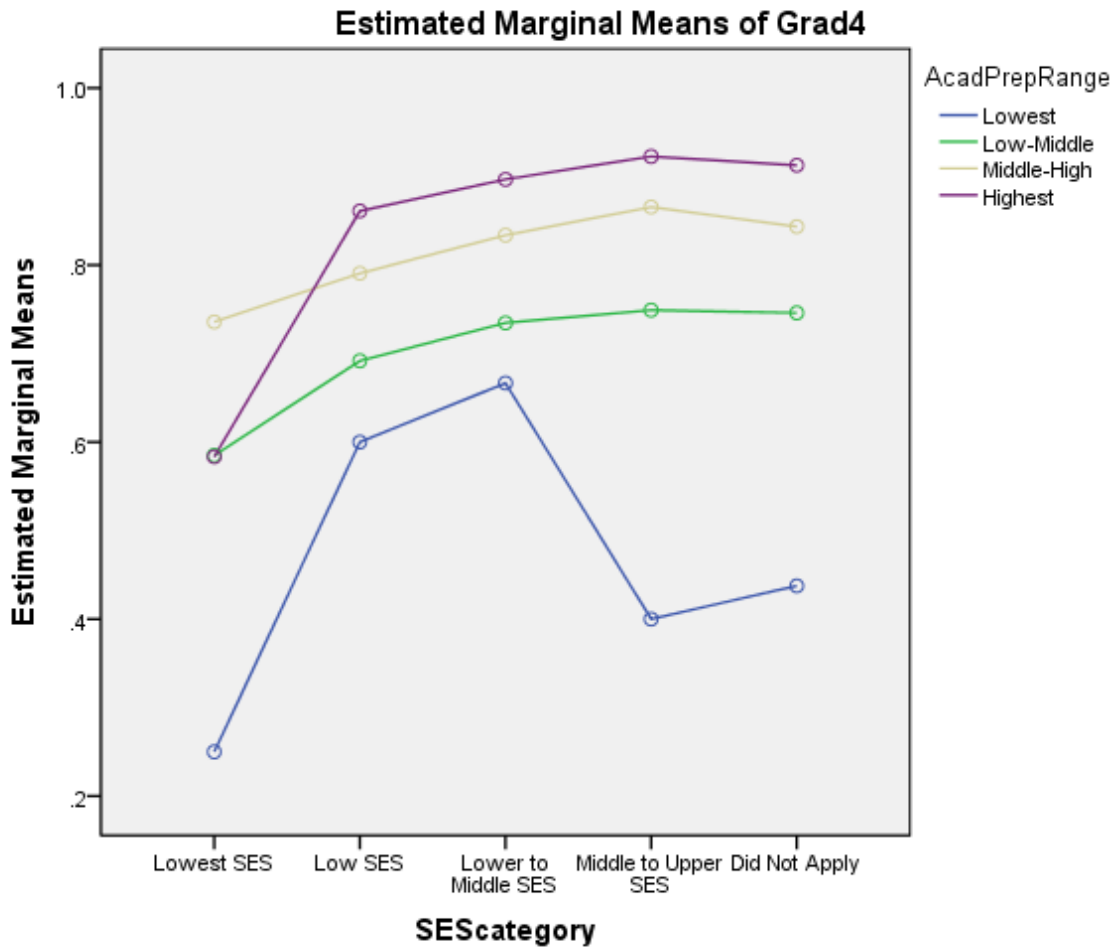*Note:* Grad4 = four year graduation rate

Chart 25
Differences in Graduation Rates by Participation and SES (AP .80 < .90)
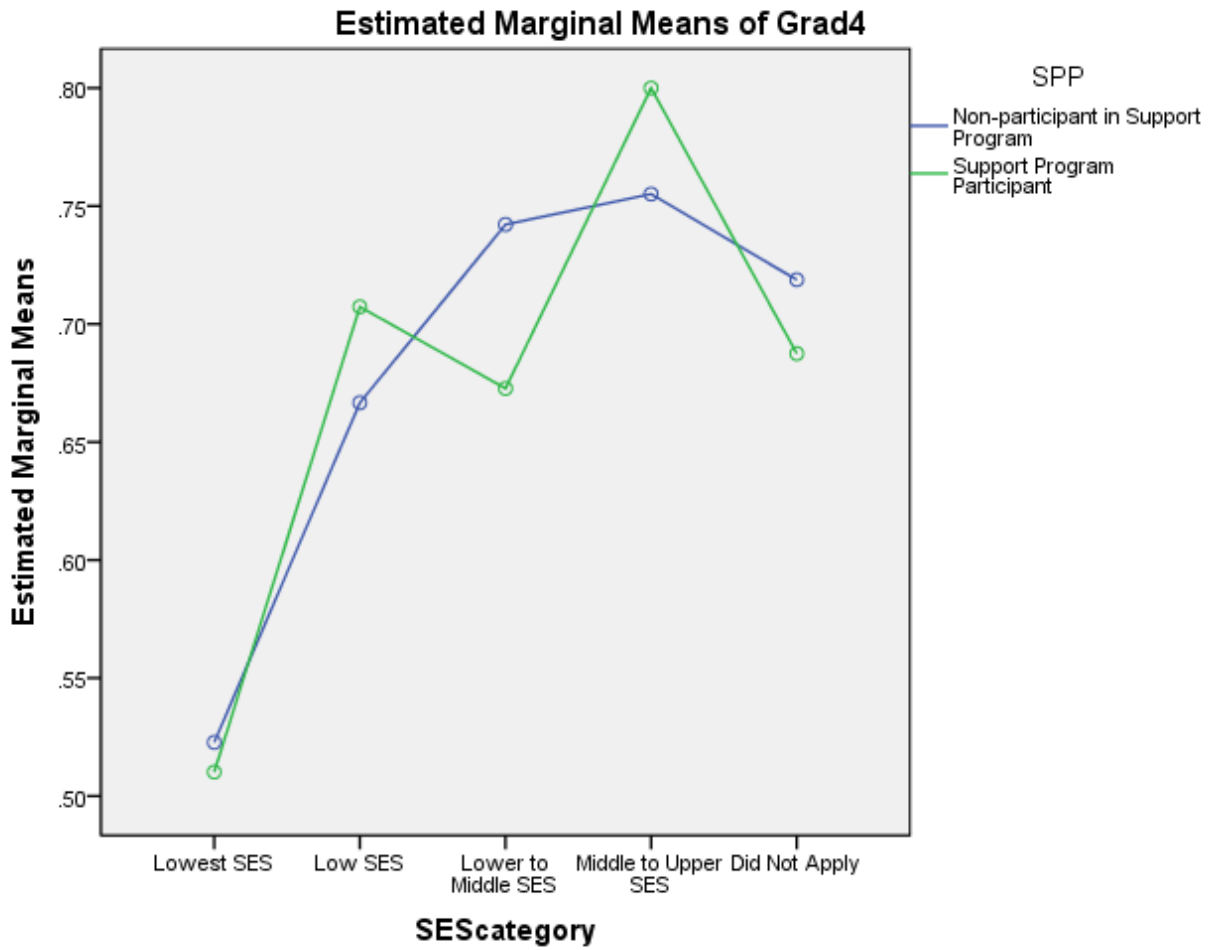
Note: Grad4 = four year graduation rate, AP .80 < .90 = students with academic preparedness scores of .80 to less than .90

Chart 26
Impact of SES and Academic Preparedness on Graduation

Note: Grad4 = four year graduation rate, AcadPrepRange = academic preparedness range. There were very few students in the lowest academic preparedness range and this resulted in the inconsistent graduation rate when compared to other ranges.

Chart 27

Data for Impact of SES and Academic Preparedness on Graduation

Descriptive Statistics

Dependent Variable:Grad4

SEScategory	AcadPrepRange	Mean	Std. Deviation	N
Lowest SES	Lowest	.25	.500	4
	Low-Middle	.58	.495	106
	Middle-High	.74	.442	352
	Highest	.58	.515	12
	Total	.69	.461	474
Low SES	Lowest	.60	.548	5
	Low-Middle	.69	.463	146
	Middle-High	.79	.407	640
	Highest	.86	.351	36
	Total	.78	.418	827
Lower to Middle SES	Lowest	.67	.516	6
	Low-Middle	.73	.442	294
	Middle-High	.83	.372	1155
	Highest	.90	.305	126
	Total	.82	.385	1581
Middle to Upper SES	Lowest	.40	.548	5
	Low-Middle	.75	.434	263
	Middle-High	.87	.341	1175
	Highest	.92	.268	194
	Total	.85	.355	1637
Did Not Apply	Lowest	.44	.512	16
	Low-Middle	.75	.436	429
	Middle-High	.84	.363	1444
	Highest	.91	.283	149
	Total	.82	.380	2038
Total	Lowest	.47	.506	36
	Low-Middle	.72	.447	1238
	Middle-High	.83	.374	4766
	Highest	.90	.298	517
	Total	.81	.389	6557

Note: Grad4 = four year graduation rate