

**California State University, East Bay:
A Strengths-based Examination of
First-Year Student Retention at the
Most Ethnically Diverse University
in the Country**

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FOREWARD

This study was completed by three doctoral students in fulfillment of the requirements for the doctorate of education degree from the Peabody College of Education and Human Development at Vanderbilt University in Nashville, Tennessee.

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California State University, East Bay (CSUEB) is one of twenty-three universities in the California State University (CSU) system and is a highly diverse, four-year, public university located in the San Francisco Bay Area. CSUEB, along with all CSU campuses, is currently planning how to best achieve the benchmarks outlined under the state's Graduation Initiative 2025. To improve student success within the CSU system, CSUEB seeks to increase its four-year graduation rate from 14% to 35% and its six-year freshmen graduation rate from 48% to 62% by 2025. A critical step in achieving these goals is to increase the first-time, first-year student retention rate. In this study, we adopt a mixed methods approach to identify the characteristics of CSUEB students that predict first-year departure and understand the experiences of students who possess these same risk factors and persisted to a second year of college. Taking a strengths-based perspective, we specifically seek to understand what practices, supports, and experiences, both in and out of the classroom, aided in high-risk students' persistence decisions.

Which CSUEB students are at the highest risk of early departure?

In analyzing a sample of 5,845 first-time, first-year students enrolled at CSUEB from 2012 to 2015, we find the following variables to be the most important predictors of first-year student departure: (1) race/ethnicity (Asian students are less likely and White students are statistically more likely to depart in the first year than their peers), (2) zip code (students from zip codes outside the East Bay area), (3) number of credits earned in the first year, and (4) first-year cumulative GPA. Our model resulted in an adjusted R^2 of .421 accounting for 42% of the variation in the dependent variable (persisting to year 2). Contrary to the literature, being White negatively influenced persistence and being Pell Grant eligible positively influenced persistence to the second year in the final model.

What are the experiences of first-time students with risk factors who persisted to the second year?

In the winter of 2018, we interviewed ten students who were in their first year at CSUEB in 2015 or 2016 from a pool of 284 students that met the risk factors identified above. All ten interviewees experienced difficulties transitioning to college their first year, and these difficulties included navigating college systems, meeting academic expectations, and time management. However, students also experienced similar forms of support from faculty, peers, family, and academic resource programs that supported their retention beyond the first year. Major thematic findings include:

Academic preparation: Students have mixed experiences with how well high school prepared them for college. Some took advantage of rigorous curricular offerings and other opportunities to learn about college, whereas others came from schools that had low expectations and less access to a college preparatory curriculum.

1 EXECUTIVE SUMMARY

Academic integration: Interviewees took advantage of formal programs and support services offered by CSUEB. These services were critical in keeping students integrated academically into the institution. Formal academic advising services were less utilized, and the absence of high quality, compulsory academic advising proved challenging to students. Students reported numerous high quality and validating faculty interactions.

Social integration: Peer support, coworkers, campus support offices, and high-quality interactions with faculty facilitated a strong sense of social connection to CSUEB. Peers supported students by providing college information, social outlets, accountability partners, and emotional support. Campus staff provided students with tools to manage stress and welcoming spaces to find structured support on campus.

Social & cultural capital: Relationships with family played a critical role in students' ability to navigate the college environment. Differences in cultural capital, often stemming from parents' educational level, impacted the kinds of support parents could provide their children.

Finances: Paying for college was a common concern among students. Most students' parents provided financial support, and nearly all students worked to support day-to-day living expenses and to keep their loan debt low. While all students lived on campus their first year, most felt the financial burden outweighed the social benefits.

Time management, study skills, and balancing work and school: Struggling with time management was a common experience among interviewees, particularly for students who worked during their first year. Balancing academic demands with newfound freedom as a college student proved challenging, but study groups were helpful to students in achieving a balance, as was taking advantage of campus academic resources.

Recommendations

Based on the findings and literature, we suggest the following four recommendations to increase CSUEB's first-time, first-year student retention rate.

Expand academic advising services

We recommend CSUEB take steps to: (1) increase the number of students who are able to participate in existing formalized support programs, (2) expand the academic advising services available to students not enrolled in formal support programs, (3) utilize faculty as advisors, and (4) emphasize to students the importance of appropriately balancing academic and work demands.

Expand familial engagement

We recommend updating the existing Parent and Family Programs website, providing sessions specifically for first-generation families at orientation, strengthening partnerships between the Parent and Family Programs office and campus cultural centers and diversity offices, and including faculty in family engagement initiatives.

Expand tutoring services and supplemental instruction

We recommend CSUEB expand tutoring services to meet the needs of individual students as well as high-risk courses. Tutoring services should also be more accessible to students and offered in a broader range of subject areas beyond English and Math.

Offer emergency aid to students

We recommend implementing an emergency aid and micro-grant financial aid program for students to include one-time grants, loans, vouchers, and scholarships in amounts less than \$1,500.

College student retention is one of the most commonly studied areas in the field of higher education (Tinto, 2006). Researchers have spent over four decades studying the topic, and even still, college persistence has been difficult to improve (Tinto, 2006). For instance, rates of college student persistence have not varied substantially between 1983 and 2010, with 28 percent of first-year students enrolled in four-year colleges or universities leaving their institution after the end of their first year (Braxton et al., 2014). However, college retention and completion rates vary drastically by student subgroups (National Center for Education Statistics, 2012; Stephens, Hamedani, & Destin, 2014; Ishitani & Reid, 2015; Jury et al., 2017). Hurd, Tan, and Loeb (2016) note that a third fewer first-generation college students persist to graduation as compared to students whose parents have college degrees. In addition, just 29 percent of students from low-income backgrounds persist to graduation, as compared to 55 percent of middle-income students and 73 percent of high-income students. Finally, the authors note that Black and Latino student graduation rates fall 16-25 percentage points below those of Asian and White students. While college persistence is a challenge that impacts all students, it is clear that the pathway to graduation is more difficult for some students than others.

As the American economy recovered from the 2008 recession, intense competition for employment has made the attainment of a postsecondary credential all the more critical (U.S. Bureau of Labor Statistics, 2012; Jury et al., 2017). Post-recession data shows that employment was highest for those possessing a bachelor's degree, while those with a high school diploma or less suffered the greatest job losses (Carnevale, Smith, & Strohl, 2013). Furthermore, it is predicted that by 2020 approximately 65% of all jobs will require some form of postsecondary education (Carnevale et al., 2013). With a college credential becoming ever more essential to achieving upward social mobility, politicians and policymakers are placing pressure on colleges and universities to increase the college graduation rates of all students (Carnevale, Jayasundera, & Cheah, 2012). For example, in an effort to close a projected one million college degree shortage in California, the California State University (CSU) system is enacting the "Graduation Initiative 2025" with the goal of increasing four and six-year graduation rates of students in the CSU system by 2025 (California State University, 2018a).

Institutions of higher education commonly focus interventions on increasing the retention and persistence of first-year students to strengthen the pipeline of students persisting through to graduation (Kalsbeek, 2013). Much research on student retention has centered on identifying the factors that lead to early student departure, particularly the student characteristics that put some at higher risk of stopping out (Clark, 2005; Galvez-Kiser, 2006). However, gaps exist in the literature on first-year student retention. The tendency to focus on factors contributing to student departure has led to an adoption of a deficiency-based research perspective (Stephens, Hamedani, & Destin, 2014). While it is important to understand why some students are more likely to stop out than others, not as much exploration has been performed in understanding why and how higher risk students persist. In addition, studies that examine first-year retention of racial and ethnic minority students, first-generation students, and low-income students tend to do so at institutions

2 INTRODUCTION

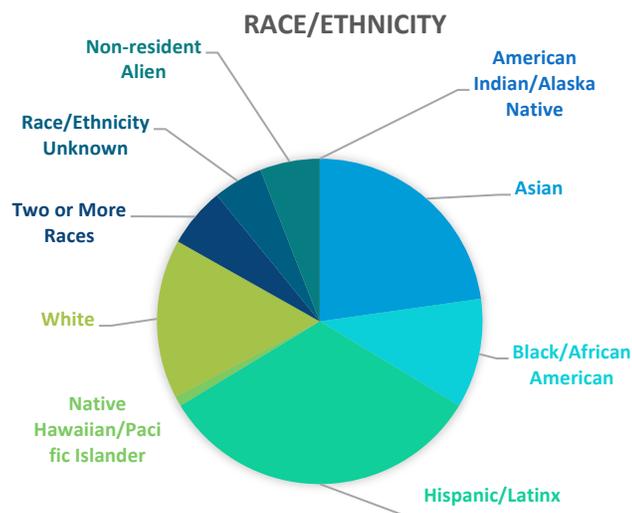
where members of these groups are in the minority, and often the extreme minority (Westrick et al., 2015). Finally, much of the literature on retention and persistence examines residential students on residential campuses; however, approximately 85 percent of American college students attend commuter institutions (Horn, Neville, & Griffith, 2006; Kirk & Lewis, 2015). While the body of literature on first-year student retention is deep, much of the literature is not grounded in contexts that align with the realities of many college and university campuses.

Purpose of the Study

In this study, undertaken in partnership with California State University, East Bay (CSUEB), we aim to identify the characteristics of students that predict first-year departure, and to understand the experiences of these high-risk students both in and outside the classroom that contributed to their decision to persist to a second year of college. Adopting a strengths-based perspective, we hope to uncover why students who are at the highest risk of early departure choose to stay in college, and what practices, supports, and experiences (both on and off campus) aided in that decision. This study is intended for higher education administrators and practitioners engaged in developing strategies to increase the retention and persistence of first-year students.

Institutional Context

CSUEB is located in the San Francisco Bay Area and serves approximately 13,000 undergraduate students across three campus locations: Hayward Hills, Concord, and Oakland (U.S. Department of Education, 2018). The campus currently is on a quarter-based course system. CSUEB prides itself on having a diverse student community, and the institution has been recognized as one of the most ethnically diverse campuses in the U.S. (Feulner, 2016). Of the undergraduate student population, the largest ethnic communities include Latinx (33%), Asian (23%), Caucasian/White (16%) and African American/Black (11%) (U.S. Department of Education, 2018).



CSUEB, along with the other 22 California State University (CSU) campuses, is currently planning how to best support the CSU system in its Graduation Initiative 2025, which aims to improve graduation rates and eliminate achievement gaps for students across the system (California State University, 2018a). To improve student success, beginning with the Fall 2019 first-time, first-year student cohort, CSUEB has six stated goals:

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	Goal	Current	Goal
↑	Increase four-year freshmen graduation rate	14% ^a	35%
↑	Increase six-year freshmen graduation rate	48% ^a	62%
↑	Increase transfer 2-year graduation rate	37% ^b	49%
↑	Increase transfer 4-year graduation rate	73% ^b	83%
↓	Reduce the underrepresented minority graduation gap	14% ^b	0%
↓	Reduce the Pell Grant graduation gap	7% ^c	0%

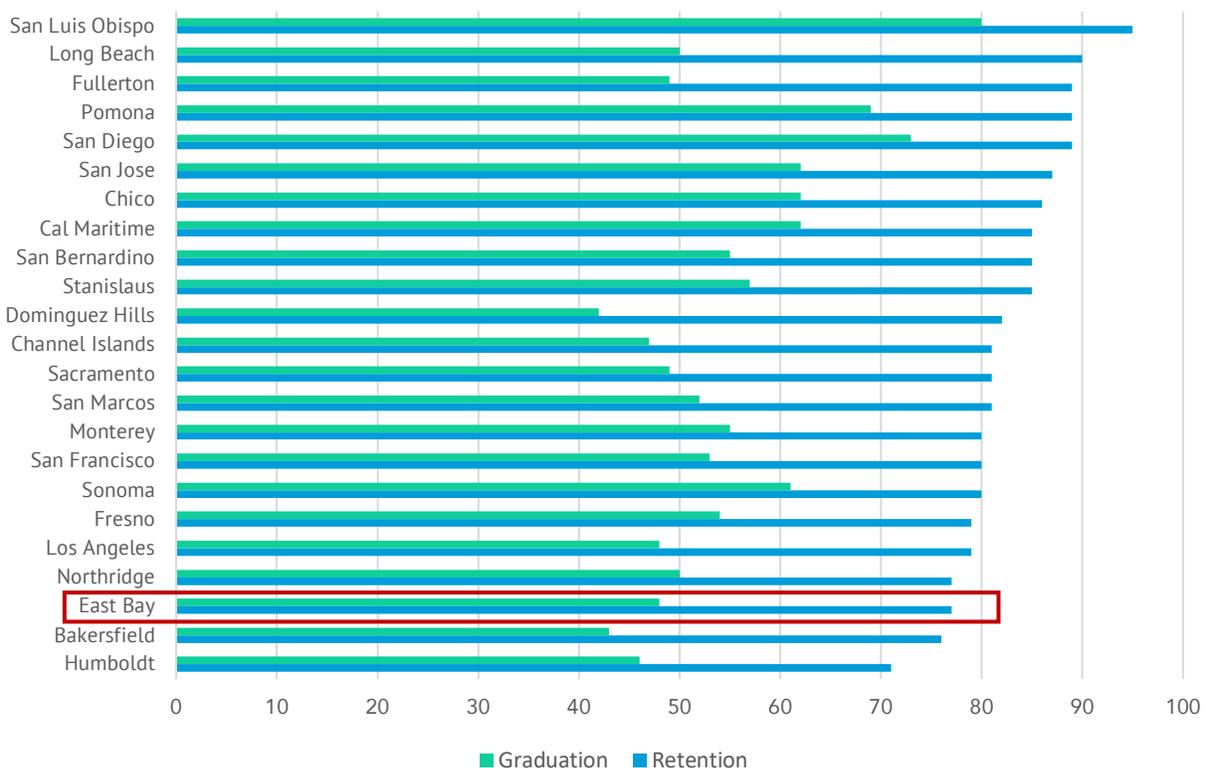
^a Fall 2010 cohort (NCES, 2018a)

^b Most recent data available (Inch, 2016)

^c Fall 2010 cohort, graduated with 150% of normal time to program completion (NCES, 2018b)

Although CSUEB prides itself on its diverse student body, the University has the third lowest first-time, first-year student retention rate, as compared to the 22 other CSU campuses (77 percent). Additionally, its overall graduation rate at 150 percent time is one of the lowest in the system at 48 percent. These numbers present significant challenges for the institution in meeting its stated goals and the spirit of the CSU Graduation Initiative.

Retention & Graduation Rates for CSU Campuses



Source: IPEDS

Notes:

Retention rate: percentage of full-time, first-time students who began in fall 2015 and returned in fall 2016

Graduation rate: percentage of full-time, first-time students who began in fall 2010 and who graduated or transferred out within 150% of "normal time" to completion for their program

Research Questions

To both support CSUEB in their efforts to meet their Graduation Initiative 2025 goals, and to address the deficiencies in student retention literature on the characteristics and qualities of successful high-risk students, we present three research questions:

1. What student characteristics are significant predictors of first-time, first-year students at California State University, East Bay stopping out or leaving the institution by the end of their first year?
2. What are the experiences of first-time students with risk factors who persisted to their second year at California State University, East Bay?
3. What interventions does the literature suggest California State University, East Bay can implement to increase first-time, first-year student retention rates?

In a diverse institution such as CSUEB, we hypothesize that students at high-risk of early departure who persisted to a second year will report positive validating experiences with faculty, peers, and/or members of their broader community (i.e. family, high school friends, etc.) that supported their academic and social integration as well as their decision to persist. We also hypothesize that students at high-risk of departure will have lower high school and college GPAs, are members of an underrepresented minority group, or are first-generation college students.

Definition of Terms

The following terms will be used throughout this report. Given the complex nature of retention in higher education, definitions for these terms have been provided for reference:

Term	Definition
Drop out	<i>permanent withdrawal before completing a credential</i>
First-time student	<i>a student attending any postsecondary institution for the first time at the undergraduate level</i>
First generation student	<i>a student with neither parent having any education beyond high school</i>
Persistence	<i>percentage of students who complete a program or maintain enrollment at their first institution</i>
Retention	<i>percentage of students who complete a program or maintain their enrollment at any postsecondary institution</i>
Stop out	<i>a temporary withdrawal from school or a delay in the pursuit of one's education</i>

Student Retention Theories

A number of prominent retention theories have been posited to explain the student retention puzzle, focusing primarily on two key questions: (1) why students leave and (2) why students stay (Voigt & Hundrieser, 2008). The prominent student retention theories primarily seek to answer question 1, with only a few focused on the practices of successful students and institutions (answering question 2). A review of the primary theories of college student retention is necessary to understand the most widely accepted approaches for addressing the retention puzzle. These theories can be divided into three broad perspectives: the sociological perspective, including the work of Tinto (1975, 1993), Astin (1999) and Rendón (1994); the psychological perspective, including the work of Bean & Eaton (2000) and Bandura (1997); and the student success perspective, with the work of Padilla (1999).

Sociological Perspective on Student Retention

Interactionalist Theory

Tinto's (1975) interactionalist theory introduces the ideas of academic and social integration as predictors of college student retention and departure. Based on an extensive literature review of the research available at the time on college dropouts, Tinto developed a view of the higher education institution as occupying two spheres: the academic system, focused solely on the education of students, and the social system, involving the daily interactions among students, faculty, and staff. Importantly, these two systems do not operate independently but are interlinked (Tinto, 1975; 1993). Tinto's interactionalist theory builds off the work of researchers Gennep and Durkheim (mid-1960s), who studied the process of becoming a member of a tribal society and suicide as a result of inadequate social integration (Morrison & Silverman, 2012). The interactionalist theory posits that student retention decisions are based on a longitudinal process between a student "with given attributes, skills, financial resources, prior educational experiences, and dispositions (intentions and commitments)" and other individuals at the institution (Tinto, 1993, p. 113). Tinto's theory was refined based on data from the National Longitudinal Survey for the high school graduating class of 1972, the High School and Beyond studies for the high school graduating class of 1980, the American College Testing Program survey of institutions for ten years, and the Survey of Retention at Higher Education Institutions, a survey of 428 colleges and universities administered in 1984 and 1988 (Tinto, 1993).

The interactionalist theory begins with a student's characteristics upon college entry, which influence their initial level of commitment to an institution, as well as their level of integration into the academic and social systems of the college (Tinto, 1975; 1993). Students' experiences within college then continually influence and modify their commitment to these goals and the institution, and, in turn, their level of academic and social integration. Positive, or integrative, experiences help to reinforce a student's decision to persist in college, as well as their commitment

to the institution itself. Alternately, negative experiences weaken these commitments and intentions, reduce a student's commitment to the institution, and increase the likelihood the student will drop out (Tinto, 1975; 1993). Mechanisms that influence and encourage social integration include peer groups, extracurricular activities, and interactions with faculty (Tinto, 1975). For academic integration, the mechanisms include student academic performance, adhering to the academic standards of the college, and the student's intellectual development (Braxton, 2000; Tinto, 1975).

Finally, this model is also situated within a broader context that assumes students belong to communities outside the institution that have their own values and normative behaviors, and students must balance these expectations and commitments both within and beyond the college campus (Tinto, 1975; 1993). Taking all of this into account, academic and social integration affect students' subsequent commitment to an institution and to the goal of completing a college degree. The greater the levels of these commitments in students, the greater the likelihood the student will persist through college (Braxton, 2000; Tinto, 1975; 1993).

Student Involvement Theory

Developed out of a national longitudinal study on college dropouts at 358 two- and four-year colleges and universities in 1968, student involvement theory seeks to explain the retention decisions of students based on "the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1999, p. 518). Student involvement theory includes three primary components: inputs, environment, and outputs (Astin, 1999). Inputs include the personal, background, and educational characteristics students bring with them to college that can influence their educational outcomes, such as demographic characteristics, high school academic achievement, and previous experiences (Astin, 1993, 1999). Outputs include factors such as the level of student academic achievement while in college, retention and graduation decisions, and the development of knowledge, skills, and behaviors (Astin, 1993). Finally, variables in the environment influence the outputs, including factors such as characteristics on the institution, peer groups, and faculty; curriculum; financial aid; major field; place of residence; and student involvement (Astin, 1993). Astin (1993) argues that institutions have little control over a student's inputs and that outputs are often measured in binary terms. Therefore, the environment is the area in which colleges have the most control and opportunity to reach students.

Student involvement theory has important implications for the academic and student affairs domains. Specifically, colleges can design high-quality curricula and programs for students, but these activities "must elicit sufficient student effort and investment of energy to bring about the desired learning and development" (Astin, 1999, p. 522). Essentially, student involvement theory requires educators to focus more on what students do with their time in college, rather than on the institution's own actions. A student's level of motivation and how much time and energy the student is devoting to learning are greater indicators of student persistence. Students who invest more time in their own learning and development are more likely to persist, whereas students who do not are more likely to drop out of the institution (Astin, 1985; 1999). As a result, time becomes a precious and finite resource and learning goals are achieved only if a student devotes sufficient

time and energy to that developmental process. In this way, student time and effort become inextricably linked to student learning, and ultimately, persistence (Astin, 1999; National Survey of Student Engagement, 2007).

Validation Theory

Student validation theory was developed as an extension of student involvement theory (Astin, 1999), with a particular focus on the experiences of nontraditional, first-generation, and ethnic minority students. Prior research by Rendón (1994) found that traditional, White students were more likely to become involved in the academic and social aspects of the institution than students of color. Rendón (1994) discovered that involvement is something that students are expected to do on their own and that the institution's role in fostering student involvement is very passive, in that institutions provide mechanisms through which a student can be involved, but it is ultimately the student's choice whether to do so. Essentially, student involvement is only possible for students who possess the skills and capital—primarily White students and student from middle-class and college educated families—to access these opportunities (Rendón, 1994; Rendón Linares & Muñoz, 2011).

The factors that influenced the ability of nontraditional, first-generation, and culturally diverse students to be involved in the institution were both in- and out-of-class experiences in which individuals took an interest in them. These validating experiences allowed students to overcome their own self-doubt about being in college and to be successful. In particular, the first year of college for these students is contingent upon their ability to become involved in their learning and to have validating experiences from individuals within the institution (faculty) and those outside (family members) (Rendón, 1994). For in-class experiences, faculty play a critical role in providing academic validation for these students. This validation can have many forms, including: showing a genuine concern for teaching, being personable and approachable, treating students equally, and providing meaningful feedback to students (Rendón, 1994). Further, interpersonal validation from faculty and others outside the institution plays a critical role in helping students feel engaged and involved in their learning (Rendón, 1994; Rendón Linares & Muñoz, 2011).

The process of validation is “enabling, confirming, and supportive” and is initiated by individuals “that foster academic and interpersonal development” (Rendón, 1994, p. 44). Validation allows these students to feel capable of learning, to have a sense of self-worth, and to feel recognized and valued (Rendón, 1994). Validation is essential for nontraditional and vulnerable student populations, as it “serves as the means to move students toward greater internal strength resulting in increased confidence and agency in shaping their own lives” (Rendón, Linares & Muñoz, 2011, p. 17).

Psychological Perspective on Student Retention

Psychological Theory

In contrast to the sociological theories presented by Tinto (1993), Astin (1999), and Rendón (1994), a psychological model presupposes that psychological theories and processes ultimately influence a student's level of academic integration and socialization, which, in turn, influences retention. Four psychological theories directly influence the psychological model of student retention developed by Bean and Eaton (2000), including: self-efficacy theory, coping behavioral theory, attribution (locus of control) theory, and attitude-behavior theory. Self-efficacy, defined as "an individual's perception of his or her ability to act in a certain way to assure certain outcomes," is vital to students believing they can be successful in college (Bandura, 1997; Bean & Eaton, 2001, p. 76). Those with high self-efficacy beliefs are able to "sustain the perseverant effort needed to succeed" (Bandura, 1994, p. 14; Bandura, 1997). Additionally, coping behaviors allow students to adapt to new environments, and an internal locus of control allows students to view themselves as vital to their own success or failure (Bean & Eaton, 2001).

Bean and Eaton's (2000) model argues that a student's past behavior, beliefs, and norms influence the way a student interacts with the college environment. When students enter college, they will encounter many academic and social interactions, and how they react to these interactions will be based partially on past experience and partly on how successful they are at "choosing strategies to negotiate in their new environment" (Bean & Eaton, 2000, p. 56). Many psychological processes are firing during these interactions, including students' ongoing assessments of their own self-efficacy, their coping choices, and attributions of strategies that they find to be successful (Bean & Eaton, 2000). Through these interactions, students develop a new perspective (Bean & Eaton, 2000). If these processes are productive, students will improve their perspectives of self-efficacy, coping strategies will produce less stress and increased confidence, and students will feel in control of their environment and future (Bean & Eaton, 2000). The immediate results of these feelings will be increased academic and social integration, which, as Tinto (1993) argues, leads to academic success.

Student Success Perspective on Student Retention

Student Expertise Theory

Padilla (1999) proposes a model of college student retention based on his research on retention of successful Chicano/a students, in which "certain inputs go in and certain outputs come out" (p. 133), and the in-between processes are known as the "black box" (p. 135). Students enter a college campus, experiences transpire, and students either dropout or graduate from the institution. In this view, the "campus experience can be seen as a black box that contains many potential barriers" (Padilla, 1999, p. 135), and when students are able to overcome these barriers, they are able to successfully graduate from the institution. These barriers are different for each student, and the barriers vary based on their "salience" and the ability for the student to overcome a particular "configuration of barriers" (Padilla, 1999, p. 135). Students who are successful, then, possess expert

3 LITERATURE REVIEW

knowledge about these barriers that allow them to avoid or overcome them. This knowledge includes two components: theoretical and heuristic knowledge (Padilla, 1999; 2001).

Theoretical knowledge includes the knowledge students acquired through coursework and studies in high school, whereas heuristic knowledge is acquired through lived experiences while in college (Padilla, 1999). As students enter the institution and engage in college life, their theoretical and heuristic knowledge is used and tested in overcoming barriers. If a student has an insufficient level of theoretical or heuristic knowledge to overcome or avoid a barrier, then the student must acquire the knowledge needed in order to overcome the barrier. If they are unable to acquire this knowledge, then the student will not be able to overcome the barrier and those who are unable to overcome multiple barriers are more likely to drop out from the institution (Padilla, 1999; 2001).

In summary, the dominant theorem on student retention fall into three categories: sociological, psychological, and student success perspectives. Sociological perspectives emphasize students' socialization experiences to the college environment as being predictive of retention. Sociological perspectives include Tinto's (1975) interactionist theory, Astin's (1999) student involvement theory, and Rendón's (1994) student validation theory. Interactionist theory posits academic and social integration as predictors of college student retention and departure. Student involvement theory suggests inputs, outputs, and the college environment influence student retention, with the amount of time and energy a student devotes to their academic experience being predictive of retention decisions. Student validation theory focuses on the experiences of nontraditional, first-generation, and ethnic minority students, and suggests that campus involvement is largely left up to students to navigate independently, mostly benefiting those with adequate capital to successfully access involvement opportunities. Psychological perspectives find that psychological processes influence students' academic integration and socialization, which then influences retention. Past behaviors, beliefs, and norms influence how a student interacts with, and reacts to, the college environment (Bean & Eaton, 2000). Finally, student success theories examine predictors of successful retention. Padilla's (1999) student expertise theory describes the campus environment as a "black box" containing many barriers for students to overcome. Students who successfully graduate from college are seen as possessing expert knowledge on these barriers and how to overcome them.

Social Reproduction Theory

Beyond the prominent retention theories, another important factor in evaluating students' ability to be successful in college is the inequalities between students of various racial and socioeconomic backgrounds. The literature on social reproduction theory examines schooling as an entity with varied outcomes based on social capital, cultural capital, and habitus (Bourdieu, 1977; Coleman, 1988). Social capital is a tool leveraged "as a resource for persons" (Coleman, 1988, p. 598) and is viewed as the "benefits of strong social bonds" (Traub, 2000, p. 57). Individuals with high social capital have norms, social values, relationships, and networks that "facilitate coordination and cooperation for mutual benefit" (Putnam, 1995, p. 2). Social capital is generated through the relationships between parents and their children, and parents and other adults (Perna, 2006).

Cultural capital refers to “the system of attributes, such as language skills, cultural knowledge, and mannerisms, that is derived, in part, from one’s parents and that defines an individual’s class status” (Perna, 2006, p. 111). Individuals in middle and upper-class families have the most valued forms of cultural capital, and this capital is passed from parent to child (Bourdieu, 1977). Habitus is a “system of dispositions [that] acts as a mediation between structures and practice” (Bourdieu, 1977, p. 487). Factors including race, ethnicity, social class, and the amount of social and cultural capital blend together into one’s habitus. As noted by Bergerson (2009), “habitus acts as an unconscious lens through which individuals view their options and make decisions based on what feels comfortable for them, given their background characteristics” (p. 37).

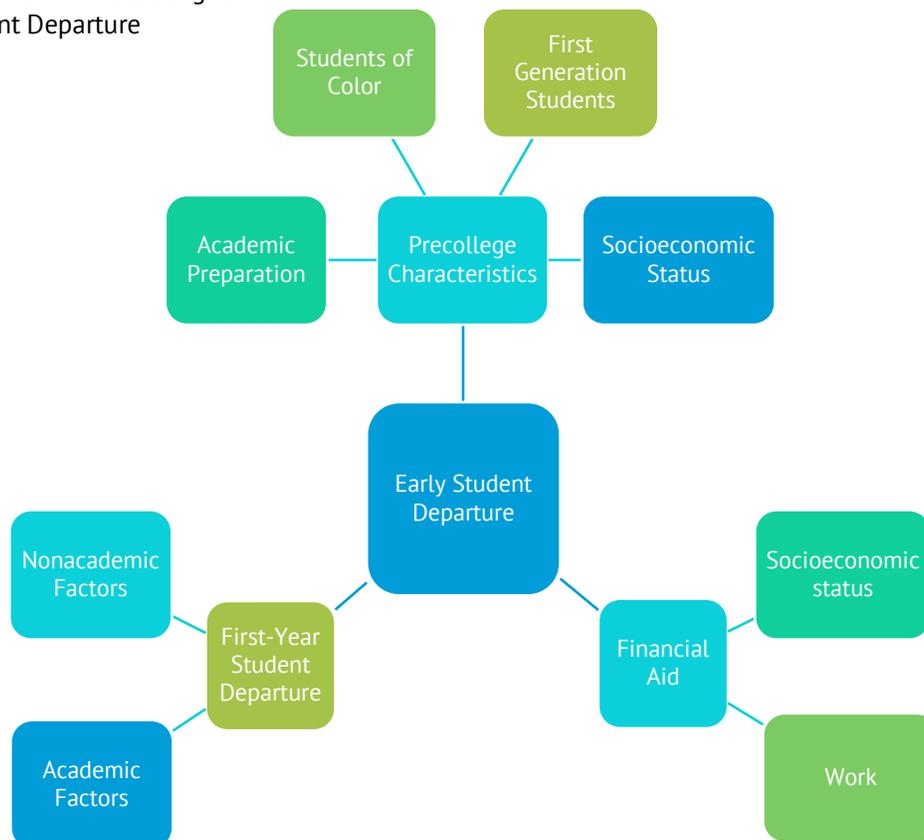
Social reproduction theory argues that schools reproduce inequality by only acknowledging and valuing the cultural capital of middle and upper-class families so that those without cultural capital are unable to obtain it (Bourdieu, 1977). As a result, students from lower classes are unable to obtain the capital needed to understand and take advantage of educational resources, including accessing and enrolling in college (Perna, 2006). Social reproduction theory is clearly evident in schooling today: White students tend to have parents with higher levels of education and income and more social and cultural capital than Black students (Gamoran, 2001). These differences in backgrounds consistently account for “about one-third of the test score gap and for almost all the inequality in college entry and graduation among Black and White high school graduates” (Gamoran, 2001, p. 137).

In short, the level of social and cultural capital a student possesses impacts their ability to access and successfully navigate through college systems. Students from more privileged backgrounds and with wider social capital networks benefit from college systems that were tailored to their level of capital. Students with fewer or lesser valued forms of cultural capital are less able to access the information and resources needed to successfully navigate and persist through college systems. In the section that follows, we expand upon specific factors and student characteristics that are associated with early student departure.

Factors Contributing to Early Student Departure

A great deal of research has sought to identify the factors that most impact college student retention and persistence (Braxton et al., 2014; Kalsbeek, 2013; Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Pascarella & Terenzini, 2005; Tinto, 1975). Traditional lenses of study have included examining the campus experience and students’ precollege characteristics that shape retention and persistence outcomes, but research has grown to include examinations of the impact of institutional policies, such as financial aid, on student outcomes (Braxton et al., 2014; Kalsbeek, 2013; St. John, 1990; Tinto, 1975).

Figure 1: Factors Contributing to Early Student Departure



Precollege Characteristics

Numerous studies examine the precollege characteristics of students who stop out of college. Tinto (1987) cautions attributing college success to such individual characteristics, as institutions must also be held accountable. Nonetheless, although precollege characteristics should not be considered in isolation, research demonstrates they do impact students' persistence decisions (Kuh et al., 2008; Pascarella & Terenzini, 2005). Some characteristics that studies have shown impact college persistence include high school achievement, race, and gender (Ishitani, 2006).

Academic Preparation

Students' pre-college academic preparation has been found to be a strong predictor of college persistence. In particular, the quality of a student's K-12 education, including the level of curricular rigor, level of math completed, performance on standardized test scores, and high school GPA have been shown to correlate to one's likelihood of entering and completing college (Elkins, Braxton, & James, 2000; Flores & Oseguera, 2013; Gifford, Briceño-Perriott, & Mianzo, 2006; Immerwhar et al., 2008; Ishitani & DesJardins, 2002; Kalsbeek, 2013; Kuh et al., 2008; Perna, 2006).

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There is little disagreement among researchers that access to a rigorous, high quality K-12 education is critical to increasing students' likelihood of persisting through college, with a lack of access to quality college preparatory instruction often cited as a leading cause of premature student departure (Flores & Oseguera, 2013; Immerwhar et al., 2008; Perna, 2006). In their extensive literature review of the research on higher education attainment, Flores & Oseguera (2013) support the claim that a positive relationship exists between students' academic rigor in high school, level of math achieved, and their progression through college. Interestingly, Flores & Oseguera (2013) also found that rigor need not be in the form of Advanced Placement (AP) courses in order to have a positive impact on college persistence outcomes, and that the effects of a rigorous curriculum are particularly profound for students from disadvantaged backgrounds (Flores & Oseguera, 2013; Long et al., 2012).

High school GPA and performance on standardized test scores are two of the strongest predictors of college retention and persistence (Hoffman & Lowitzki, 2005; Kim, 2015; Kobrin et al., 2008; Noble & Sawyer, 2004; Westrick et al., 2015). GPA measures both cognitive and non-cognitive factors that lead to college success, such as effort, attendance, and motivation, whereas standardized tests, such as the ACT, primarily measure cognitive characteristics (Noble & Sawyer, 2004). In a predictive correlational study of 7,045 regular and special admission students, Kim (2015) found that high school GPA and ACT scores were the strongest predictors of college retention. In addition, Westrick et al. (2015) found that ACT composite scores are highly correlated to first-year academic performance in college, impacting students' second and third-year retention. This trend held across various institutional selectivity levels (Westrick et al., 2015). However, it should be noted that standardized test scores are less predictive of Latinx and Black students' college persistence (Arbona & Nora, 2007; Shen et al., 2012; Westrick et al., 2015). Studies have suggested that institution size and demographic makeup impact the predictive validity of standardized test scores on student persistence, particularly that the predictive strength of test scores decreases at larger institutions and at institutions with higher low-income and student of color populations (Arbona & Nora, 2007; Shen et al., 2012).

Students of Color

Students of color are at a higher risk of attrition than their non-minority counterparts, with approximately 46% of Black and Latinx students who enter college completing within six-years (Berkner, He, & Cataldi, 2002; Kuh et al., 2008). This risk of dropping out of college is cited as stemming from specific stressors that students of color experience. These stressors include "financial stress; academic stress; time management (conflicts between school work and jobs, family, and social activities); family problems; social problems; transportation; health" (Phinney & Haas, 2003, p. 714). Smedley, Myers & Harrell's (1993) quantitative study at a large, predominantly white university, found that "sociocultural" and "contextual stressors" impacted students of color and their ability to adapt to college. Padilla, Trevino, Gonzalez, & Trevino's (1997) research, using an "unfolding matrix" technique at a large research university, discovered four specific areas of stressors that impact students of color, including: discontinuity (difficulties transitioning into college); lack-of-nurturing (need for more support services); lack-of-presence barriers (not being able to see oneself in curriculum and faculty); and resource barriers (needing additional financial

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support). As a result of these stressors, students of color believe they are provided “fewer supports needed for successful integration into college life” (Padilla, Trevino, Gonzalez, & Trevino, 1997, p. 133).

One key element found to impact the retention of students of color is academic integration (Donovan, 1984; Eimers & Pike, 1997; Smedley, Myers & Harrell, 1993; Terenzini et al., 1994). Donovan (1984) further established that academic integration was especially important to the retention of Black students, having a more significant impact than precollege characteristics (Eimers & Pike, 1997). Research demonstrates a significant correlation exists between minority student achievement stresses and GPA, which indicates the vulnerability students of color grapple with due to conflicting academic expectations and questions regarding college readiness (Smedley, Myers & Harrell, 1993).

First-Generation Students

First-generation college students made up thirty percent of students enrolled in higher education in 2015 (Opidee, 2015). Research consistently demonstrates that first-generation students are more likely to drop-out of college in their first year than non-first-generation students (Ishitani, 2003; 2006; Thayer, 2000; U.S. Department of Education, 1998). One of the reasons for their increased attrition is first-generation students’ lack of knowledge regarding how to navigate the higher education system (Galvez-Kiser, 2006; Pascarella et al., 2004). This lack of knowledge stems from first-generation students experiencing less encouragement and support from family and close friends (Cabrera, Stampen, & Hansen, 1990; Elkins, Braxton, & James, 2000; Hsiao, 1992; Terenzini, Springer, Yaeger, Pascarella, & Nora, 1995). Research demonstrates that adapting to the college environment is a significant disjunction for first-generation students due to breaking family tradition (Elkins, Braxton, & James, 2000; Terenzini et al., 1994). First-generation students also come into college with less access to college experience information (Thayer, 2000; Willelt, 1989). As a result, these students “are likely to lack knowledge of time management, college finances and budget management, and the bureaucratic operations of higher education” (Thayer, 2000, p. 4).

Socioeconomic Status

Family income and socioeconomic status impact college student retention (Braxton, Brier, & Hossler, 1988; Hossler & Vesper, 1993; Ishitani & DesJardins, 2002; Thayer, 2000). Students from low-income families are less likely to graduate from college before the age of 24, as higher socioeconomic status is positively correlated with college integration and success (Ishitani & DesJardins, 2002; Mortenson, 1997; Pascarella & Chapman, 1983; Thayer, 2000). There are a variety of reasons for these differences, including the need to work more hours while in college (Ishitani & DesJardins, 2002; Iwai & Churchill, 1982).

Financial Aid

College completion hinges on students’ ability to access and afford college (Bergerson, 2009; Cabrera & La Nasa, 2001; Castleman & Long, 2016; Doyle, 2013; Perna, 2006; Venezia et al., 2005).

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Braxton et al. (2014) posited that when students are less concerned about paying for college they have more energy to spend on psychosocial engagement, which is associated with increased persistence. Rising college costs have built a barrier to college completion that especially impacts students from lower income backgrounds (Adelman, 2006; Boatman & Long, 2016; Cabrera & LaNasa, 2001; Dynarski, 2008; Kane, 1999; St. John, 1990). Thus, securing adequate financial aid is critical to students entering college and persisting through to graduation (Bergerson, 2009; Cabrera & La Nasa, 2001; Doyle, 2007; Perna, 2006).

Financial Aid and Low Socioeconomic Student Persistence

Financial aid has differential effects on college persistence based on students' socioeconomic status (Bergerson, 2009; Bowen & McPherson, 2016; Charles et al., 2009; Immerwhar et al., 2008). It is well-documented that rising college costs is the biggest barrier to persistence for low-income students (Bowen & McPherson, 2016; Braxton et al., 2014). Students from low-income families are especially sensitive to fluctuations in aid (Bok, 2013; Bergerson, 2009; De la Rosa, 2006; Delbanco, 2012). Studies have shown that if college costs are perceived as too high, low-income students are more likely to stop out (De la Rosa, 2006; Delbanco, 2012). However, fluctuations in price have a much smaller effect on higher income students, which has added to disparities in attainment by income (Kane, 1999).

Work

Studies have shown that the more hours students work, especially in off-campus jobs, the less likely they are to persist and graduate in a timely manner; however, findings have been inconclusive (DesJardins et al., 2010; Mamiseishvili, 2010). Studies have shown that low-income students are increasingly reliant on working wages as a means to pay for college and students must weigh the opportunity costs associated with attending college, particularly potential lost income, when making persistence decisions (Castleman & Long, 2016; DesJardins et al., 2010; Mamiseishvili, 2010; Pascarella & Terenzini, 1991). If college is perceived as being too expensive or not worth the cost, low-income students may choose to stop out and work instead (Bowen & McPherson, 2016; Mamiseishvili, 2010). However, how students view their dominant role while in college, either as primarily a college student or as a worker, may also influence their persistence decisions. Mamiseishvili (2010) found that working students who viewed their role as a college student as their primary priority were more likely to persist no matter how many hours they worked. If students worked in jobs relevant to their academic interests, work was shown to have a positive effect on persistence (Warren, 2002). Mamiseishvili (2010) notes, "students who are motivated and drive to persist and view college as a valuable investment might do their best not to sacrifice or put aside their academic aspirations because of employment" (p. 72). Therefore, there is value in institutions striving to keep employed students motivated and integrated into college campuses.

DesJardins et al. (2010) described three options college students have in how to spend their time: working, studying, or participating in extracurricular activities. Spending more time in one area reduces the amount of time left to spend on the other two. Comparing low-income students to

their high-income peers across nine years, Walpole (2003) found that low-income students tended to work more hours, earn lower GPAs, and were less involved on campus as compared to their more affluent peers. Some studies have shown that working may also lead to increased time to degree, which has been associated with higher college costs and student loan debt (Bowen & McPherson, 2016; DeSimone, 2008). Bowen & McPherson (2016) found that when prolonged time to degree is connected to increased borrowing, low-income students are more likely to question the value in continuing to pursue a college degree and are more likely to drop out. Finally, it has been suggested that financial aid can reduce the number of hours that students must work to cover college costs, freeing up time to spend on academic and social engagement activities such as studying or participating in community service (Boatman & Long, 2016; Castleman & Long, 2016; DesJardins et al., 2010).

Factors Contributing to Departure Decisions in the First Year

The first year of college has been a focus of retention discussions for almost 160 years as colleges attempt to improve attrition (Colton, Connor, & Shultz, 1999; Levine, 1991). However, researchers continue to grapple with how to best address student retention, as attrition rates have remained fairly constant over the past several decades (DeBerard, Spielmans, & Julka, 2004; Porter, 1990). Researchers agree that students are most likely to drop out their first year, which is likely a result of the stress and challenges that accompany the transition from high school to college (Galvez-Kiser, 2006; Hoffman, Richmond, Morrow, & Salomone, 2002; Lu, 1994; Spady, 1970; Tinto, 1975; Tinto & Goodsell, 1993).

There are numerous reasons why first-year students leave college, including institutional shortcomings (e.g., lacking support structures) and factors uncontrollable at the institutional level (e.g., students' changing academic goals) (Lau, 2003). Some of the factors that impact first-year attrition include a student's background (e.g., race), level of college integration (e.g., academic and social), external influences outside college (e.g., family and friends), institutional types/factors (e.g., public vs. private), and financial aid (Baker & Velez, 1996; Galvez-Kiser, 2006). Additional research has examined factors of first-year attrition through the lens of perceived obstacles and students' success in developing strategies to overcome them (Clark, 2005). Obstacles included first-year student self-perceptions of personal weakness and lack of skills, as well as feelings of a lack of control (Clark, 2005). These students may question their academic abilities and whether they belong in the academic environment. It is important for students to develop personal strategies to overcome such obstacles, and, "in the most extreme cases, students may devise maladaptive strategies, relying upon inappropriate high school alternatives for addressing college challenges" (Clark, 2005, p. 312). Students can also develop strategies to overcome obstacles through gaining heuristic knowledge, the learning acquired through lived experiences while in college (Padilla, Trevino, Gonzalez, & Trevino, 1997; Padilla, 1999).

Academic and Nonacademic Challenges

First-year attrition decisions are influenced by both academic and nonacademic factors, including academic self-confidence, financial challenges, family obligations, time management, study habits,

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integration into the institution, and social support and involvement (Bean, 1990; Braxton, 2000; Braxton, Hirschy, & McClendon, 2004; Braxton & McClendon, 2001; Kennedy, Sheckley, & Kehrhahn, 2000; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2007; Kuh et al., 2008; Lotkowski, Robbins, & Noeth, 2004; Mangold, Bean, Adams, Schwab, & Lynch, 2003; O'Brien & Shedd, 2001; Tinto, 1993; Wyckoff, 1998). However, decades of research have demonstrated that the factors that most impact retention are academic in nature (Hoffman, Richmond, Morrow, & Salomone, 2002; Lotkowski, Robbins, & Noeth, 2004; Terenzini & Pascarella, 1978). For example, various studies have used structural equation modeling or regression methodologies to demonstrate that college GPA has been linked to college persistence (Bean, 1982, 1983; Cabrera et al., 1992, 1993; Ishitani & DesJardins, 2002; Pascarella, 1980; Spady, 1970, 1971; Tinto, 1975) with first-year GPA having a positive effect on retention (Ishitani & DesJardins, 2002; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1978; Spady, 1971). In these studies, a higher first-year student GPA predicted a decreased likelihood of dropping out of college (Ishitani & DesJardins, 2002).

Educational expectations and aspirations also impact student attrition, with higher student expectations and aspirations being correlated with a decreased likelihood of dropping out (Bean, 1982; Ishitani, 2006; Ishitani & DesJardins, 2002; Metzner & Bean, 1987; Pascarella, 1980; Pascarella & Terenzini, 1980). Hoffman, Richmond, Morrow, & Salomone (2002) found that incoming first-year students see college academic expectations as their greatest stressor, and Lotkowski, Robbins, & Noeth (2004) found that the strongest predictors of dropping out were “academic-related skills, academic self-confidence, and academic goals.” (p. 7). Furthermore, time spent studying also influences a student’s success in their first year (Clark, 2005).

Academic Advising

Although academic factors are most influential for attrition, non-academic factors often complement these decisions. Academic advising, for instance, plays a role in student success and college retention, and studies demonstrate that students cite a lack of academic advising as a contributor to their decision to drop out (Pascarella & Terenzini, 2005; Styron Jr., 2010). Metzner’s (1989) study focused on the impact of academic advising quality on first-year commuter student attrition at a large, public university, and found that although the direct effect of academic advising was not significant, the indirect effects demonstrated “high-quality advising was negatively related to attrition” (p. 437). Lower quality advising was correlated with higher attrition rates, but even poor advising had some impact in reducing attrition compared to no advising at all (Metzner, 1989).

Support Systems and Social Networks

Although academic factors play a critical role in student retention, a sense of belonging and support systems are also important factors that contribute to first-year success. Numerous researchers have contributed to the body of literature that supports the notion that “the more academically and socially involved individuals are—that is, the more they interact with other students and faculty—the more likely they are to persist” (Tinto, 1998, p. 168). Support systems have a significant impact on student persistence, with perceptions of a lack of support correlating

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with higher attrition (Elkins, Braxton, & James, 2000; York-Anderson & Bowman, 1991). Social support serves as a buffer to the increased stress students experience from transitioning into the college environment, as well as serving as a predictor of academic achievement (Arthur, 1998; Cutrona et al., 1994; DeBerard, Spielmans, & Julka, 2004; Fisher & Hood, 1987; Towbes & Cohen, 1996). Faculty and staff play a critical role in supporting new students, with student perceptions of the approachability of faculty and staff being correlated with attrition (Styron Jr, 2010). Although research demonstrates that both academic and social support impacts attrition, the level of impact varies according to the educational setting and student population (Braxton, Vesper, & Hossler, 1995; Cabrera, Castaneda, Nora, & Hengstler, 1992; Kraemer, 1997; Nora, 1987; Pascarella, Smart, & Ethington, 1986; Terenzini et al., 1994; Tinto, 1998; Williamson & Creamer, 1988). Tinto (1998) further argues that student engagement and social support is most important within the first ten weeks “when the transition to college is not yet complete and personal affiliations are not yet cemented” (p. 169).

Separation from Family & Friends

Students’ families and high school friends can serve as both support mechanisms and negative influences for freshmen as they transition to college (Eimers & Pike, 1997; Terenzini et al., 1994). Tinto (1987) argues that students have a greater likelihood of persisting if a separation occurs from family and friends in the home environment. Additional research supports Tinto’s theory, finding that separation from previous values positively influenced persistence decision-making and retention (Elkins, Braxton, & James, 2000). However, the separation experience is not the same for every student. Separation is potentially more difficult for commuter students, students of color, and first-generation students, as these students may feel they are rejecting family values and high school friends in order to enter and stay in college (Braxton & Brier, 1989; Elkins, Braxton, & James, 2000; Tinto, 1975, 1987, 1993). Some researchers disagree with these findings, stating that family and friend support is important, specifically for students of color (Bean & Hull, 1984; Cabrera & Nora, 1994; Eimers & Pike, 1997; Hendricks, Smith, Caplow, & Donaldson, 1996; Terenzini et al., 1994). Research demonstrates parent engagement positively influences students’ personal development, academic achievement, and social integration in college (Kolkhurst et al., 2010; Kuhn & Franklin, 2008; Sax & Wientraub, 2014).

Commuting to Campus

The majority of college students enrolled today live off campus and commute for classes (Horn, Neville, & Griffith, 2006; Kirk & Lewis, 2015; Tinto, 1999). In fact, many students attend school on a part-time basis and have obligations outside of college that can limit their ability to spend time on campus outside of class time (Tinto, 1999). Studies have found that students who live off campus and commute for classes “are much more likely to withdraw from an institution than those living on campus” (Pascarella, Duby, Miller, & Rasher, 1981, p. 330; Astin, 1973a; Astin, 1973b; Iffert, 1958; Newcomb, 1962). Commuters are less likely than resident students to engage in educational, social, and cultural activities, as well as with faculty, staff, and peer students (Chickering, 1974). A study of first-year students at the University of Nevada, Reno, through the use of campus Student Information System data and an administered survey, found that commuter

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students are less active in co-curricular programs and work more hours off campus (Cavote & Kopera-Frye, 2007).

Our review of the literature highlights several key findings and areas of exploration for our study. Previous research demonstrates that pre-college academic preparation is a strong predictor of college persistence (Elkins, Braxton, & James, 2000; Flores & Oseguera, 2013; Gifford, Briceño-Perriott, & Mianzo, 2006; Immerwhar et al., 2008; Ishitani & DesJardins, 2002; Kalsbeek, 2013; Kuh et al., 2008; Perna, 2006). In addition, certain student demographics are at higher risk of attrition than others. Specifically, students of color, particularly Black and Latinx, are at a higher risk of attrition compared to non-minority students (Ishitani, 2006). First-generation students are also more likely to drop out of college in the first year than their counterparts (Ishitani, 2003; 2006; Thayer, 2000; U.S. Department of Education, 1998). Research shows that there are several factors colleges should consider in mitigating college attrition. Living on campus has proven to play a role in retention, with students living off campus and commuting being more likely to dropout of college (Astin, 1973a; Astin, 1973b; Iffert, 1958; Newcomb, 1962; Pascarella, Duby, Miller, & Rasher, 1981). The cost of college is continually addressed in the literature, but financial aid has differential effects on persistence based on socioeconomic status (Bergerson, 2009; Bowen & McPherson, 2016; Charles et al., 2009; Immerwhar et al., 2008). Key areas of campus life that positively contribute to retention include academic factors (advising and faculty engagement) (Pascarella & Terenzini, 2005; Styron Jr, 2010), a sense of belonging and support systems (Arthur, 1998; Cutrona et al., 1994; DeBerard, Spielmans, & Julka, 2004; Elkins, Braxton, & James, 2000; York-Anderson & Bowman, 1991; Fisher & Hood, 1987; Tinto, 1998; Towbes & Cohen, 1996), and the educational expectations and aspirations of students (Bean, 1982; Ishitani, 2006; Ishitani & DesJardins, 2002; Metzner & Bean, 1987; Pascarella, 1980; Pascarella & Terenzini, 1980). The literature demonstrates there are many factors that attribute to student success and retention that must be considered when assessing first-year student persistence.

Our Study

This study aims to identify the pre-college characteristics of first-year CSUEB students that predict stopping out during the first year, and to understand the experiences of high-risk students both in and outside the classroom that contributed to their decision to persist to a second year. In doing so, we hope to uncover why students who are at the highest risk of early departure choose to stay in college, and what practices, supports, and experiences (both on and off campus) aided in that decision. Our study is rooted in the sociological perspective, with Tinto's (1975) interactionist theory and Rendón's (1994) student validation theory, as well as Bourdieu (1977) and Coleman's (1988) social reproduction theory underpinning our approach to student retention. Tinto's (1975) interactionist theory is fitting for the CSUEB context as it takes into consideration the influence of students' precollege characteristics as well as the academic and social experiences both on campus and in one's larger community that impact students' persistence decisions. Rendón's (1994) student validation theory is especially relevant given that CSUEB's student population is the most diverse of any public four-year university in the United States (Feulner, 2016). Student validation theory posits that student involvement hinges on students possessing the skills and capital needed

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to access campus involvement opportunities, and that students from first-generation, non-traditional, and culturally diverse backgrounds are more likely to get involved when they have validating experiences in which an individual takes a personal interest in them (Rendón, 1994). In a diverse institution such as CSUEB, we expect that students at high-risk of early departure who persisted to the second year will report positive validating experiences with faculty, peers, and/or members of their broader community (i.e. family, high school friends, etc.) that supported their academic and social integration, as well as their decision to persist. Finally, social reproduction theory contributes to the theoretical underpinning of our study as it acknowledges that schools reproduce social inequality by not valuing certain forms of social and cultural capital. The amount of social and cultural capital students possess impacts their ability to navigate college systems. Given the diversity of the student body at CSUEB, we would expect that the amount of social and cultural capital students possess will be linked to their academic success.

This study contributes to the literature on first-year student retention and persistence in several important ways. First, while much research has focused on why students leave an institution and the factors that put certain students at higher risk of early departure, our study seeks to understand why “high-risk” students stay in college. Thus, our study departs from the majority of previous research that adopts a deficiency perspective. Instead, we focus primarily on the factors and experiences that support the successful retention and persistence of high-risk students beyond their first year of college. Second, while much of the prior research has focused on student retention at highly selective colleges and universities, the majority of the nation’s college students are enrolled in public, access-focused institutions (Barnett, 2011; Goldrick-Rab, 2010; Ma & Baum, 2016). Our study contributes to the literature by examining first-year persistence within a public, four-year, access-focused university—an environment that better aligns with the reality of many college students’ experiences. Third, CSUEB has a student population with a broad representation of socioeconomic statuses, as well as no dominant racial or ethnic student population. Studies have suggested that the predictive validity of some precollege characteristics, such as standardized test scores, are lessened for students of color and also at institutions with very diverse student populations (Arbona & Nora, 2007; Shen et al., 2012; Westrick et al., 2015). Our study adds a much-needed perspective to the literature by examining the influencers of first-year students’ retention and persistence decisions within a campus environment where being a member of a racial, ethnic, or socioeconomic minority group is the norm, not the exception. Finally, much of the literature on retention and persistence examines residential students on traditionally residential campuses; however, a majority of American college students commute and attend commuter institutions (Horn, Nevill, & Griffith, 2006; Kirk & Lewis, 2015; Tinto, 1999). Furthermore, of the studies that focus on retention and persistence within commuter contexts, many focus primarily on community colleges. Our study helps to fill the gap in the college retention and persistence literature by examining both residential and commuter students at a four-year, predominantly commuter university.

The three primary goals of this research study are to:

1. quantitatively examine, through the use of campus administrative data, the factors that predict students stopping out in the first year;

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2. capture the experiences of individual students who have persisted to their second year through one-on-one interviews; and
3. offer best practice recommendations from the literature to address issues identified for students at-risk of stopping out.

The research design is a mixed methods approach, with both qualitative and quantitative components. A mixed methods research strategy allows us to uncover the variables that are statistically related to a student's decision to stop out, as well as explore a deeper understanding of the experiences that allow students with risk factors to persist through their second year. The research questions are:

1. What student characteristics are significant predictors of first-time, first-year students at California State University, East Bay stopping out or leaving the institution by the end of their first year?
2. What are the experiences of first-time students with risk factors who persisted to their second year at California State University, East Bay?
3. What interventions does the literature suggest California State University, East Bay can implement to increase first-time, first-year student retention rates?

In a diverse institution such as CSUEB, we hypothesize that students at high-risk of early departure who persisted to the second year will report positive validating experiences with faculty, peers, and/or members of their broader community (i.e. family, high school friends, etc.) that supported their academic and social integration as well as their decision to persist. We also hypothesize that students at high-risk of departure will have lower high school and college GPAs, are members of an underrepresented minority group, or are first-generation college students.

To answer our first research question, we used administrative data to conduct a regression analysis designed to determine which variable(s) are predictive of a student's decision to drop out in the first year. To address our second research question, interviews were conducted with students who possess dropout risk factors (as identified in research question 1), but who persisted beyond their first year at CSUEB. Finally, to answer the third research question, we conducted a literature review (based on the findings from research question 2) regarding best practices for first-year support resources and supplemental services, both academic and co-curricular in nature, that positively influence first-year student retention and graduation rates.

Data

Quantitative

A quantitative data analysis was used to answer research question 1. The target population to which the findings of the quantitative analysis are applicable are all first-time, first-year students at CSUEB. The unit of analysis for the quantitative data is the individual student; the population is all first-time, first-year students at CSUEB; and the sample is all first-time, first-year students enrolled at CSUEB from 2012 to 2015.

Student administrative data were collected from student applications to CSUEB and recorded in CSUEB's central student data system, the Student Success Collaborative. This system is a software tool commercially available to colleges and universities by EAB Global, Inc. Data was provided by CSUEB for students who enrolled at the institution in 2012, 2013, 2014, and 2015 and includes information on students' background characteristics (i.e. gender, race/ethnicity, age, home zip code), their high school academic performance (i.e. high school GPA, SAT scores, number of AP classes taken), and their college academic performance at CSUEB (i.e. quarter units attempted and earned, quarter GPAs and cumulative GPAs). Within each category, the variables include:

Student Background Characteristics	Student Academic Progress Characteristics	Student Academic Progress Characteristics
<ul style="list-style-type: none"> • Gender • Race/Ethnicity • Age at Application • Home Zip Code • Pell Grant Eligibility Status • First-Generation Status • Cohort Year 	<ul style="list-style-type: none"> • High School Attended • High School Cumulative GPA • SAT Scores (Composite, Math, Verbal, Writing) • ACT Scores (Composite, English, Math, Reading, Scientific Reasoning, Writing) • Number of AP Classes Taken 	<ul style="list-style-type: none"> • Declared Major • Quarter Performance (Units Attempted, Earned; Term GPA, Cumulative GPA) for Fall, Winter, Spring, Summer quarters

Qualitative

To address our second research question, we employed a qualitative data analysis. Results of the aforementioned quantitative analysis were used to develop a profile of students at a higher risk of dropping out from CSUEB than their cohort peers. This profile was used to identify students with risk factors who persisted to the second year. Specifically, interviews were conducted with students who possessed the risk factor(s) identified in answering our first research question. The inclusion and exclusion criteria for the interviews were:

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none">• First-time students• Second or third-year students¹• Students who completed at least 45 credits• Students who possess at least 1 risk factor• Enrolled at CSUEB in winter 2018 quarter	<ul style="list-style-type: none">• Transfer students• Students who did not persist to second-year• Students with less than 45 credits earned• Students without any risk factors• Students not enrolled in winter 2018

Data was collected from interviews conducted at the CSUEB campus on February 5 and 9, 2018. CSUEB sent recruitment emails to the 284 students who met the inclusion criteria, as well as frequent reminder emails to the student sample. Students signed up for interviews by completing a survey administered via Qualtrics, an online survey tool. Students were contacted by email to confirm the date, time, and location of their interview, and were sent a reminder text message the day prior to the scheduled interview. Interviews were conducted in private offices and conference rooms on the CSUEB campus, and interviews were audio recorded using iPads. All students signed consent forms prior to beginning the interviews and were given a copy of the consent form for future reference.

Sample

Quantitative

For the student administrative data, we employed a purposive sampling strategy, a nonprobability sampling strategy that allowed us to select all students from the 2012 to 2015 cohorts (Babbie, 2008). The sample provided by CSUEB for analysis included all first-time, first-year students who started at CSUEB in fall 2012, 2013, 2014, and 2015 and were followed through graduation or drop out. The inclusion and exclusion criteria for the administrative data included:

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none">• First-time students• First-year students• Enrolled at CSUEB from 2012-2015	<ul style="list-style-type: none">• Transfer students• Students enrolled mid-year• Students enrolled before 2012 or after 2015

¹ Third-year students were included to ensure a large enough sample size for recruiting students to interview.

² Data for the fall 2016 cohort was not yet available at the time of this study.

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In order to prepare the data for analysis, each variable was reviewed to determine if any missing values were present. Missing data were found in a number of variables, and the cases with missing values were removed from the dataset. A summary of the variables and the number of missing cases that were excluded are found in Table 1.

Table 1
Missing Data Removed from Sample

Variable	N	# Missing Values	Revised N	% Deleted Cases
Pell Grant Eligible	6187	64	6123	1.0
HS GPA	6123	226	5897	3.7
SAT Score	5897	48	5849	.8
Winter Quarter GPA	5849	4	5845	.06
Total	6187	342	5845	5.5

The dataset originally included 6,187 cases, and after removing missing data in four variables (Pell Grant Eligible, High School GPA, SAT Score, and Winter Quarter GPA), the final dataset included 5,845 cases, a reduction of 342 cases, or 5.5 percent of the original dataset.

Demographics of the sample population are presented in Table 2 as follows:

Table 2
Descriptive Statistics for the Sample

	M	SD
Age upon Entry	18.22	.58
High School GPA	3.11	.38
AP Classes Taken	0.70	1.40
SAT Scores (Reading + Math)	916.73	146.79
Fall Term GPA	2.80	1.00
Winter Term GPA	2.68	1.12
Winter Cumulative GPA	2.78	.90
Spring Term GPA	2.55	1.23
Spring Cumulative GPA	2.75	.90
Fall Units Attempted	13.75	1.69
Fall Units Earned	8.55	4.06
Winter Units Attempted	13.56	3.73
Winter Units Earned	9.66	4.72
Spring Units Attempted	13.17	4.77
Spring Units Earned	9.85	5.22
Total Units Earned	28.06	12.12
% Enrolled in Year 2	78.9	
% Female	65.5	
% White	9.8	
% Hispanic	44.2	
% Asian	19.3	
% Other Race/Ethnicity	26.6	
% Pell Grant Eligible	61.1	

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% First-Generation	64.2
% Declared Major	83.8
% from East Bay Zip Code	54.0

Notes: $n = 5845$

As these data reveal, CSUEB is a very diverse institution, with no dominant racial or ethnic group, and a majority of students are Pell Grant eligible (61.1%) and/or first-generation (64.2%). About half (54%) of the students reside in the two counties closest to the campus (East Bay Zip Code), and a majority of students declare a major upon entry into the institution (83.8%). The average SAT score (critical reading plus math) is 916.73, which falls in the 26th percentile, as compared to a nationally representative sample of high school juniors and seniors (The College Board, 2017). In regards to academic performance at CSUEB, students' term GPAs decrease from the fall to spring quarters, but the number of units earned per quarter increases during this same time period. Also, students tend to attempt many more credits than they actually earn, a trend consistent across the first year.

Qualitative

The qualitative data analysis employed a purposeful sampling strategy, which allowed for the selection of students based on the persistence risk factors. Purposeful sampling also allows for an “emphasis on in-depth understanding” of the concept being studied (Patton, 2002, p. 46). Using this strategy, two of the authors, Guerin and Greenwell, interviewed ten students who met the inclusion and exclusion criteria identified in answering research question 1. After completing the predictive modeling and identifying risk factors that contribute to a student's decision to leave CSUEB in the first year, these inclusion and exclusion criteria were provided to CSUEB. CSUEB contacted the students who met the criteria by email, inviting them to sign up to interview using an online registration form. Interviews took place during the sixth week of the winter quarter (February 5-9, 2018). A small incentive of a \$25 Amazon.com or Starbucks gift card was offered to encourage students to participate. Email confirmations were sent to students to confirm their interview day, time, and location, and a text message was sent to each student the day prior to the scheduled interview to remind them of the details. Prior to starting each interview, students were asked to review and sign a one-page consent form, and interviews lasted between thirty minutes to one hour. All interviews were conducted on the CSUEB campus in private administrative conference rooms. A copy of the interview protocol is provided in Appendix A.

Ten interviews were completed with current second and third-year students who met the inclusion criteria. Student names have been changed in this report to protect the anonymity of interviewees. Of the ten students interviewed, 70 percent were female and 70 percent were first-generation. In regards to race and ethnicity, 40 percent of student were Hispanic/Latino, 30 percent Black/African American, and 10 percent White.

Methods

Quantitative

The student administrative data was imported into the Statistical Package for Social Sciences (SPSS) software to complete the quantitative analysis.

In order to complete the analysis, some variables had to be modified. First, Gender, Pell Grant Eligibility Status, and First-Generation Status were recoded into binary variables, with 1 = Female; Pell Grant Eligible; and First-Generation, respectively. The Race/Ethnicity variable was recoded into new variables for each of the primary racial/ethnic groupings at the institution: White; Hispanic/Latino; Asian; and All Other Races. For each of these variables, 1 equaled the race/ethnicity (e.g., White), and 0 included all other students. Second, since some students took the SAT exam, whereas others took the ACT, a new variable was created. All ACT scores were recoded into SAT scores using the concordance tables published by The College Board (The College Board, 2015). Third, the Major variable was recoded into a new binary variable (Declared=1, Undeclared=0) to identify those students without a declared major upon entry into college. Fourth, in order to examine cumulative academic performance at CSUEB, a new variable was created that summed the total units earned in the fall, winter, and spring quarters. Finally, the Home Zip Code variable was recoded into a binary variable for students living in the East Bay counties of Contra Costa and Alameda (1) and all other areas (0). Zip codes for these counties were obtained from the US Census database of zip codes (USNavGuide LLC, 2010).

To analyze the data, we began by examining the descriptive statistics on key student variables to obtain a grounding in the characteristics of students in the sample. We further explored the characteristics of students in the sample and potential relationships between variables by conducting Pearson's correlation coefficient tests on each of the variables. We then conducted t-tests to examine statistically significant differences between groups of students at CSUEB. Specifically, we ran t-tests to examine differences between students who dropped out in the first year and those who persisted to year 2. From there, we further explored differences between students by demographic characteristics, such as gender, race/ethnicity, Pell Grant eligibility status, first-generation status, and home zip code. We then employed Analysis of Variance (ANOVA) tests to compare differences between three or more groups of students. We examined differences for students by race/ethnicity on their college performance and whether or not they persisted to year 2. The results of these tests informed the design of our Ordinary Least Squares (OLS) regression models, which allowed for the identification of variables that negatively or positively influence whether or not a student will drop out of CSUEB by the end of the first year.

For our OLS regression, the dependent variable (Y) was Year 1 Retention (whether or not a student enrolled in classes in the fall quarter of their second year). Year 1 Retention, is a binary variable, with 1 equating to persisted to the second year. The independent variables were divided into three categories: (1) student background characteristics, (2) student academic preparation characteristics (high school performance), and (3) student academic progress characteristics (college performance). The regression equation is:

$$y = \beta_0 + \beta_1 \text{Student Background Characteristics} + \beta_2 \text{High School Performance} + \beta_3 \text{College Performance} + \varepsilon$$

Qualitative

Interviews with students were designed as semi-structured interviews, with a pre-established interview protocol (See Appendix A). The interview protocol was developed using the theoretical framework outlined in the literature review. Specifically, the protocol aimed to investigate the academic and social integration themes within Tinto's interactionist model of student retention; themes related to student validation, as reflected in Rendón's student validation theory of student retention; and the influence of social and cultural capital, per Bourdieu and Coleman's social reproduction theory. The protocol included questions in six categories: (1) validation, (2) academic persistence, (3) academic preparation, (4) social capital, (5) college costs/financial aid, and (6) first-generation status. Within each category, certain questions were considered priority questions that should be asked of all students, with others serving as backup and/or follow-up questions. For each category, the number of required and optional questions are included in Table 3.

Table 3
Interview Protocol Categories

Category	Required Questions	Optional Questions	Total
Validation	4	2	6
Academic Persistence	2	1	3
Academic Preparation	3	0	3
Social Capital	2	1	0
College Costs/Financial Aid	2	0	2
First-Generation Status	0	3	3
Total	13	7	20

Interviews were audio recorded using portable electronic devices (iPads). The recordings were transcribed verbatim and all transcriptions were imported into NVivo, a qualitative data software program, for the analysis. After the transcripts were imported, we used a thematic content analysis approach to analyze the data, which involves reviewing the transcripts and identifying themes and patterns that uncover deeper levels of meaning and understanding (Saldaña, 2009). To start, we applied a structural coding schema, which is an approach that allows for the identification of broad themes in the data, which then “form the basis of an in-depth analysis within and across topics” (MacQueen et al., in Saldaña, 2009, p. 68). Open coding was used to assign sections of text to the primary themes identified in our literature review (Charmaz, 2006). These initial themes are included in Appendix B.

From there, we developed a code frequency report, which allowed us to identify which themes occurred most frequently in the interviews. We then repeated the structural coding process three more times to delve further into the data and identify deeper themes that emerged across students (Saldaña, 2009). In a process known as analyst triangulation, each of the authors performed an independent round of coding and analysis with feedback from the other two authors (Bradbury &

Mather, 2009; Patton, 2002). Parada-Villatoro performed the initial structural coding schema in alignment with the aforementioned dominant themes and identified new themes that emerged from the text. Greenwell performed a second round of axial coding, extrapolating deeper subthemes and relationships from within the broader thematic framework. Guerin performed a third round of analysis, checking dominant themes and sub-themes for coding consistency and thematic fit. The authors jointly reviewed findings after each of the three rounds of coding to check for consistency of interpretation and to strengthen the trustworthiness of findings. The themes that emerged from the coding process informed the organizational structure for the presentation of our findings.

Research Question 1

Our first research question asks: *What student characteristics are significant predictors of first-time, first-year students at California State University, East Bay stopping out or leaving the institution by the end of their first year?*

First, we examined relationships between variables through the use of correlation matrices. These results revealed many weak correlations, with a few moderate and strong correlations. The strength of relationships was determined using Cohen's guidelines, which states that coefficients of 0.5 or higher are considered strong or large effect sizes (Hemphill, 2003). The strongest correlational relationships are presented in Table 4.

Table 4
Pearson Correlation Coefficients with Strong Relationships Between Variables

Variable	Fall Units Earned	Winter Units Earned	Total Units Earned
SAT Score	.61***	.45***	.53***
Fall Quarter GPA			.62***
Winter Cumulative GPA			.68***
Spring Cumulative GPA			.69***

*Notes: n = 5845; *p<0.1; **p<0.05; ***p<0.01*

The strongest correlational relationship was found between Spring Cumulative GPA and Total Units Earned (0.69), meaning that as a student's spring cumulative GPA increases, so does the total units earned over the first year. This relationship between college GPAs and total units earned increases in strength from the fall quarter to the end of the first year. Also, SAT scores are correlated with units earned, although the strength of this correlation decreases from the fall quarter to the end of the first year.

In comparing the students who persisted to year 2 and those who did not, some key differences exist between these groups of students. Results of t-tests for differences between students who persisted to the second year and those who dropped out are presented in Table 5.

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Table 5

Results of t-tests for Differences between Students Persisting vs. Dropping Out

Variable	Retained	Not Retained	Difference
<u>Academic Preparation</u>			
HS GPA	3.14	2.99	0.15***
AP Classes	0.75	0.52	0.23***
SAT Composite	925.88	882.61	43.27***
<u>Academic Progress</u>			
Fall Units Earned	9.21	6.11	3.10***
Winter Units Earned	10.88	5.10	5.78***
Spring Units Earned	11.46	3.84	7.62***
Total Units Earned	31.55	15.04	16.51***
Fall Term GPA	3.05	1.84	1.21***
Winter Cum GPA	3.05	1.80	1.25***
Spring Cum GPA	3.03	1.71	1.32***

Notes: $n = 5845$; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Students who persisted to the second year, on average, had 0.15 points higher high school GPAs, took 0.23 more AP classes in high school, and had 43.27 points higher composite SAT scores. In regards to their college academic progress, students who persisted to year two earned 3.10 units more than students who dropped out in the fall quarter, and this difference increased to 7.62 units by the spring quarter. Students who persisted to the second year also had 1.21 points higher fall quarter GPA, and this difference increased to 1.32 points higher for the spring cumulative GPA.

Subgroups of students were then compared by gender, race/ethnicity, first-generation status, and Pell Grant eligibility status to determine if differences existed between these groups of students in their academic performance and progress at CSUEB. The results of these t-tests are provided in Table 6.

Table 6

Results of t-tests for Subgroups of Students on College Academic Performance

Variable	Group 1	Group 2	Difference
<u>Gender</u>	<u>Male</u>	<u>Female</u>	
Fall Term GPA	2.69	2.85	-0.16***
Spring Cum GPA	2.61	2.82	-0.21***
Fall Units Earned	8.80	8.43	0.37***
Spring Units Earned	9.59	9.99	-0.40**
Total Units Earned	28.06	28.07	0.01
<u>Pell Grant Eligibility</u>	<u>Not Eligible</u>	<u>Eligible</u>	
Fall Term GPA	2.96	2.69	0.27***
Spring Cum GPA	2.90	2.65	0.25***
Fall Units Earned	9.47	7.97	1.50***
Spring Units Earned	10.77	9.26	1.51***
Total Units Earned	30.77	26.34	4.43***

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Variable	Group 1	Group 2	Difference
<u>First-Generation Status</u>	<u>Not First-Generation</u>	<u>First-Generation</u>	
Fall Term GPA	2.91	2.73	0.18***
Spring Cum GPA	2.86	2.69	0.17***
Fall Units Earned	9.34	8.12	1.22***
Spring Units Earned	10.68	9.39	1.29***
Total Units Earned	30.38	26.77	3.61***
<u>Hispanic/Latino Students</u>	<u>Not Hispanic/Latino</u>	<u>Hispanic/Latino</u>	
Fall Term GPA	2.86	2.72	0.14***
Spring Cum GPA	2.81	2.67	0.14***
Fall Units Earned	8.90	8.12	0.78***
Spring Units Earned	10.21	9.40	0.81***
Total Units Earned	29.12	26.73	2.39***

Notes: $n = 5845$; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The largest difference in units earned and GPAs occurred for students who are Pell Grant eligible, as compared with those who are not eligible; specifically, students who are Pell Grant eligible have, on average, 0.25 points lower spring cumulative GPA and earned 4.43 fewer units by the end of the spring quarter. Also, the second largest differences were between first-generation students and those who are not first-generation, with students who are first-generation having 0.17 points lower spring cumulative GPAs and earning 3.61 fewer units by the end of the spring quarter. The student group with the smallest differences was by gender, with female students, on average, earning 0.21 points higher spring cumulative GPAs, but differences in units earned were no longer statistically significant by the spring quarter.

We were also interested in determining if differences in academic performance existed among three or more groups of students. Given the diverse racial and ethnic makeup of CSUEB, we were able to examine differences by racial/ethnic group. We conducted analyses of variance (ANOVAs) to compare academic performance for each group and found that White and Asian students have higher GPAs and units earned than all other racial and ethnic student groups. Results of these ANOVAs are presented in Table 7.

Table 7

One-Way Analysis of Variance of Race/Ethnicity by GPAs and Units Earned

		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>
Fall Term GPA	Between Groups	170.53	8	21.32	21.73***
	Within Groups	5726.23	5836	.98	
Spring Cum GPA	Between Groups	162.34	8	20.29	25.83***
	Within Groups	4584.25	5836	.79	
Fall Units Earned	Between Groups	5537.95	8	692.24	44.55***
	Within Groups	90683.83	5836	15.54	
Total Units Earned	Between Groups	50501.55	8	6312.69	45.60***
	Within Groups	807978.16	5836	138.45	

Notes: $n = 5844$; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

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The ANOVA test reveals that the analysis is significant for each of the four variables (fall quarter GPA, spring cumulative GPA, fall units earned, total units earned). The F-statistic determines whether the variability between the racial/ethnic group means is larger than the variability of the observations within the racial/ethnic groups. With a p-value of <0.01 for each variable, these results indicate that statistically significant differences exist in the means between the racial/ethnic groups for each of these four variables. However, these results do not reveal where the differences lie for each group. In order to determine the magnitude of the differences in means between the racial/ethnic groups, Tukey HSD post hoc tests were run. Results of the post hoc tests are presented in Table 8.

Table 8
Tukey HSD Post Hoc Results for Race/Ethnicity by GPAs & Units Earned

		Fall Term GPA	Spring Cum GPA	Fall Units Earned	Total Units Earned
Group 1 (A)	Group 2 (B)	<i>Mean Difference (A-B)</i>	<i>Mean Difference (A-B)</i>	<i>Mean Difference (A-B)</i>	<i>Mean Difference (A-B)</i>
Asian	Black	0.45***	0.44***	2.20***	7.15***
Asian	Hispanic/Latino	0.29***	0.30***	1.31***	4.71***
White	Black	0.53***	0.49***	3.24***	8.84***
White	Hispanic/Latino	0.37***	0.35***	2.35***	6.39***

*Notes: n = 5844; *p<0.1; **p<0.05; ***p<0.01*

The post hoc tests revealed that Asian students have higher fall term GPAs than Black and Hispanic/Latino students (0.45 and 0.29 points, respectively), and White students also have higher fall term GPAs than Black and Hispanic/Latino students (0.53 and 0.37 points, respectively). The mean differences between these groups remain fairly constant from the fall quarter GPA to the cumulative GPA at the end of the first year. Additionally, Asian students earn more units in the fall quarter, as compared to Black and Hispanic/Latino students (2.20 units and 1.31 units, respectively), as well as White students (3.24 and 2.35 units, respectively). The difference between these groups increases between the fall quarter and the total units earned over the first year. Specifically, the mean difference in total units earned between White and Black students is 8.84 units and 7.15 units for Asian and Black students.

The results of the t-tests and ANOVAs were used to inform the multiple regression analyses, which allowed us to identify predictors of student persistence to year two.

Factors Predictive of Students Dropping Out

To determine which factors were predictive of students dropping out in the first year, we conducted multiple linear regressions. A baseline model was created with students' demographic characteristics, including gender, race/ethnicity, first-generation status, Pell Grant eligibility status, and home zip code. From there, we added high school academic preparation characteristics, including high school GPA and SAT scores. Results of the baseline regression are presented in Table 9, Model 1. The model accounts for 4.5 percent of the variation in the dependent variable

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(enrolling in year 2), with the female and Asian variables contributing to a greater likelihood to persist, as well as higher high school GPAs, SAT scores, and being from an East Bay zip code.

From there, we added college performance by quarter into each subsequent regression model. These models were run to determine if one quarter was more predictive of students' dropout decisions than another or if cumulative academic performance was the strongest predictor. Based on results from the t-tests and ANOVAs, our hypothesis was that fall quarter performance was likely to be a strong predictor of persistence to the second year. Results of the regression analyses are presented in Table 9.

Table 9
Three Regression Models with Baseline Characteristics (Demographics and High School Performance), Baseline + Fall Quarter Performance, and Baseline + First-Year Performance

Variable	Model 1: Baseline		Model 2: Baseline + Fall Performance		Model 3: Baseline + First-Year Performance	
	B (SE B)	β	B (SE B)	β	B (SE B)	β
Female	.046*** (.011)	.054	.016 (.010)	.019	-.001 (.009)	-.001
White	.005 (.020)	.004	-.032* (.018)	-.023	-.045*** (.016)	-.033
Hispanic	.024* (.013)	.029	.006 (.012)	.008	-.002 (.010)	-.003
Asian	.089*** (.016)	.086	.049*** (.014)	.048	.020* (.012)	.019
HS GPA	.120*** (.014)	.113	-.024* (.013)	-.023	-.108*** (.012)	-.102
SAT Score	.000*** (.000)	.089	-.000* (.000)	-.026	-.000*** (.000)	-.151
Pell Grant Eligible	-.014 (.012)	-.017	.011 (.010)	.013	.018*** (.009)	.022
First-Generation	-.019 (.012)	-.022	-.006 (.010)	-.008	.003 (.009)	.003
East Bay Zip	.054*** (.011)	.066	.055*** (.009)	.068	.059*** (.008)	.072
Fall Units Earned			.008*** (.002)	.082		
Fall Term GPA			.185*** (.006)	.455		
Total Units Earned					.014*** (.001)	.411
Spring Cum GPA					.175*** (.007)	.386
Constant	.119 (.053)		.290 (.050)		.596 (.044)	

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Adjusted R ²	.045	.251	.430
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*Notes: Standard errors in parentheses; n = 5841; *p<0.1; **p<0.05; ***p<0.01*

When fall quarter college academic performance was added into the regression equation, the direction of the high school GPA variable (HS GPA), as well as the SAT scores, variable switched from a positive relationship with persistence to a negative relationship. This finding is contradictory to decades of literature on the influencers on college persistence. In order to investigate this issue further, an additional model (Model 3 in Table 9) was run with cumulative academic performance in the first year. With the inclusion of cumulative academic performance, the relationship between high school GPA and SAT scores and first-year persistence remains negative and statistically significant.

Given the significant shift in the high school GPA variable, we ran tests for multicollinearity in the data (Williams, 2015). Our hypothesis was that high school GPA is closely correlated with academic performance in the first year, and with the inclusion of all four variables (high school GPA, SAT score, units earned, and college GPAs), the stability of the high school GPA and SAT score variables are threatened. To test for multicollinearity, we ran bivariate correlations on all variables but did not find any relationships stronger than 0.7. We also ran our Table 9, Model 3 regression results with collinearity diagnostics. Full results of the diagnostic testing are included in Appendix C.

The Collinearity Statistics results include Tolerance values for each variable, which allows us to examine the amount of variance between variables. When the Tolerance value is less than 0.2, at least 80 percent of the variance in an independent variable in the model is shared with some other independent variables in the model. The Variance Inflation Factor (VIF) values are the reciprocal of the Tolerance values and are calculated as $1/\text{Tolerance}$. Results do not reveal Tolerance values less than 0.2 or VIF values higher than 10, which would indicate multicollinearity is present in the model. Collinearity diagnostics are an alternative method of assessing multicollinearity in the model. If a dimension in the regression model has a high condition index (over 15) or a low Eigenvalue (close to 0), this indicates a collinearity problem in the data. Results revealed a number of Eigenvalues close to 0 (dimensions 9, 10, 11, and 12) and Condition Indices greater than 15 (dimensions 11 and 12). Finally, we examined the strength of the correlations of the regression coefficients. The largest correlation found was between the Total Units Earned and Spring Cumulative GPA regression coefficients at 0.66 (Williams, 2015).

Given that the tests for multicollinearity were mixed, and that the relationship between persistence and high school GPA defies research and conventional logic on the impact of academic performance on college persistence, we decided to remove the high school GPA variable from consideration. We left the SAT score variable in the model, as the beta value was not as large as for high school GPA. We then compared the new equation (Model 4) against Model 3 and found that the removal of the high school GPA variable did not significantly alter the strength of other predictors in the model, although it did reduce the adjusted R² from .430 to .421. However, we felt Model 4 was the best model given the instability of the high school GPA variable. Our final model is summarized in Table 10.

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Table 10

Final Regression Model: Baseline + First-Year Performance (no HS GPA)

<i>Model 4</i>		
Variable	<i>B (SE B)</i>	β
Female	-.013 (.009)	-.015
White	-.051*** (.016)	-.037
Hispanic	-.004 (.010)	-.005
Asian	.009 (.012)	.009
SAT Score	-.000*** (.000)	-.164
Pell Grant Eligible	.018** (.009)	.022
First-Generation	-.002 (.009)	-.002
East Bay Zip	.054*** (.008)	.066
Total Units Earned	.014*** (.001)	.402
Spring Cum GPA	.163*** (.006)	.360
Constant	.353 (.035)	
Adjusted R ²	.421	

*Notes: Standard errors in parentheses; n = 5841; *p<0.1; **p<0.05; ***p<0.01*

Across all models, being White was statistically and negatively related to persistence, whereas across almost all models being Asian was positively related to persistence. In Model 2, being Asian increased the likelihood of persisting to year two by 4.9 percent and being White decreased the likelihood of persisting to year two by 3.2 percent; in Model 3, being Asian increased the likelihood of persisting to year two by 2 percent and being White decreased the likelihood by 4.5 percent. In Model 4, being White decreased the likelihood of persistence by 5.1 percent, and being Asian was no longer statistically significant.

In addition, in Model 4, being Pell Grant eligible increased the likelihood of persisting to year two by 1.8 percent and being from an East Bay zip code increased the likelihood of persisting by 5.4 percent. Academic performance in the first year is also significant, with a one-point increase in the total units earned over the first year increasing the likelihood of persisting by 1.4 percent. Spring cumulative GPA has the strongest relationship with year two persistence, with a one-point increase in spring cumulative GPA increasing the likelihood of persisting by 16.3 percent.

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Based on these models, the following variables were the most important and consistently significant predictors of students dropping out before the second year: (1) Race (being White and not being Asian), (2) not being from an East Bay zip code, (3) having a low number of Total Units Earned, and (4) having a low Spring Cumulative GPA. These predictors were used to identify the students to interview in answering research question 2.

Research Question 2

Our second research question asks: *What are the experiences of first-time students with risk factors who persisted to their second year at California State University, East Bay?*

Students contacted for interviews were in the 2015 and 2016 cohorts (students in their second and third year at CSUEB). When the inclusion/exclusion criteria were provided to CSUEB, we discovered that in the 2015 cohort, there were only 148 White students, and of those, only 65 weren't from an East Bay zip code. As a result, we decided to remove the White race/ethnicity variable from the inclusion criteria in order to ensure our recruitment sample was large enough to elicit a sufficient number of interviews.

In addition, for the total units earned and cumulative GPA variables, we began by considering only students who had values in the lowest 25th quartile of all students in the sample. At this level, only 49 students in the 2015 cohort met the inclusion criteria. We decided to alter the inclusion criteria to include students who had total units earned and cumulative GPAs at the 35th percentile or lower. These inclusion criteria elicited a total recruitment sample of 137 students in the 2015 cohort, and 147 students in the 2016 cohort, for a total of 284 students.

Pulling from a sample of 284 students from the 2015 and 2016 cohorts, ten individual interviews were conducted over one week in the winter 2018 quarter with students who met our inclusion criteria of not identifying as Asian, possessing total units earned and cumulative college GPAs at the 35th percentile or lower, and not being from an East Bay area zip code.

Thematic Findings

Andrew, Araceli, Giselle, Jamie, Juan, Misha, Nikki, Reina, Tina, and Tony come from a variety of socioeconomic, ethnic, and academic backgrounds, but their stories of persistence carry common threads. All ten students experienced difficulties transitioning to college their first year, and these difficulties included navigating college systems, meeting academic expectations, and balancing time management. However, each student also shared common interventions, often in the form of support from faculty, peers, family, and academic resource programs, that supported their retention beyond the first year.

Pre-College Academic Preparation

Students had mixed experiences on how well high school prepared them for college. Some took advantage of AP or IB classes and other opportunities to learn about college, whereas others

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attended schools that had low expectations of students. Seven of the ten students interviewed felt that their high school had prepared them for college, especially students who had completed a college-preparatory curriculum such as Advanced Placement (AP), International Baccalaureate (IB), or Advancement Via Individual Determination (AVID) courses. Several students cited high expectations on writing assignments as helpful in preparing them to complete college-level work. In some instances, students felt that their high school courses were harder than some of their first-year writing courses. As Andrew stated:

I was in an IB program. So the work was intense a lot of the times. It made some of the stuff I do [at CSUEB] feel not easy, but I feel like I'm prepared for it. Like, they give us writing assignments and essays and all the other kids cringe. But a 1500-word essay is something I would write every Tuesday as a warm up. So it's something I was ready for.

Furthermore, participation in college preparatory programs developed students' understanding of their learning style and how to apply it in the college setting. As Nikki shared:

We [had] to do Cornell notes on every chapter... so that helped me learn how to take notes in college, because in college they don't give you a format... By college you should know how you learn, you know.

Students who felt their high school had not adequately prepared them for college noted a lack of resources, culture of low-expectations, and an administrative emphasis on increasing high school graduation rather than college preparation. They described feeling especially overwhelmed by the amount of effort needed to succeed in college courses as compared to their high school courses. In particular, these students struggled to adjust to the difference in academic expectations of their college professors as compared to their high school teachers. Students described having to learn how to take notes for the first time, how to do research and write formal papers, and how to find the right balance of time needed to study and complete assignments. As Juan describes:

In high school they were more focused on getting us out to graduate instead of giving us the tools that we need [for] what happens after we graduate and we're in a college. Because when I first came here I was kind of in shock that I was going to have to be studying constantly in order to pass my classes and stuff like that.

However, among students who felt that their high schools hadn't prepared them for college, all could cite at least one teacher or important figure in their life that inspired and/or supported their college aspirations. These important figures facilitated students' transition to college by providing a source of motivation and information on college. Giselle recalled her eighth-grade teacher making her feel smart for the first time and inspiring her to pursue college:

I remember I had goosebumps... [I was] like, 'Wow, I like this guy.' He's, cool. He doesn't look down [on me]. [He said] 'Who sits in the front? Good students do.' And it was the first time in my life I actually sat in the front row.

While the academic preparation of students varied, all received some form of support in high school, whether academic or emotional, that prepared them for college. Some students benefited from rigorous college preparatory curricula and programs that aided in the transition to college coursework. Students who felt less prepared for college often benefited from a positive adult presence in their life that pushed them beyond low expectations and served as a source of confidence, college information, and inspiration.

Academic Integration

Students' academic integration into CSUEB was fostered through formal programs and services offered by CSUEB and supportive, validating relationships with faculty and staff. Students felt that faculty were approachable, took an interest in their intellectual development, and challenged them to think critically. Interactions with faculty were described as personal, authentic, and facilitated a sense of community. Faculty relationships helped students feel comfortable asking questions and seeking assistance both in and outside the classroom. Despite experiencing academic challenges their first year in college, students were able to connect with a variety of academic support and advising offices. Surprisingly, only one student reported participating in programs specifically for first-generation or low-income students, such as the Educational Opportunity Program (EOP). Students often found out about these services through faculty and were encouraged to take advantage of them.

Formal Programs & Services

All students took advantage of formal programs and support services offered by CSUEB in some capacity. These programs were helpful in keeping students academically integrated into the institution by providing tutoring services, a structured first-year curriculum with longitudinal classmates and professors, and support programs that combined tutoring, individualized attention, and support in selecting courses.

Tutoring services included the Student Center for Academic Achievement (SCAA) and the Sophomore Transition Enrichment Program (STEP). Students found SCAA to be helpful due to its convenient location in the library and that it offered individual and group tutoring in English and math. However, SCAA wasn't always the right fit or offered the right supports students needed. Several students mentioned that long wait times and limited subject offerings. Andrew described:

I feel like they should offer more subjects for people because they only have math and English and I think they recently started doing physics, which is cool, but...chemistry would be incredibly helpful. Or for statistics, they don't have one-on-one tutors. They only have group tutoring, which I found extremely distracting.

Beyond tutoring, students often realized they needed additional support in the areas of academic advising, navigating college systems, and career coaching. Several students found these in the STEP program and deeply valued the personal connections they made with STEP coaches and mentors. Jamie and Araceli both commented that STEP provided a suite of services that helped them and made them feel cared for and supported as a whole student. Jamie noted:

STEP coaches help us with getting classes and just general stuff...They have tutors too, specifically for STEP students so that I don't have to go to the SCAA and wait a long time or something. And they're really supportive. They're really helpful because they care about my education.

Araceli commented:

You have the extra help with having tutors for like English. Then you have a STEP coach, which is like your mentor, which I think they're fourth year [students] I think... You have that extra boost. They will help you figure stuff out. We [even] have our own counselor...

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Students frequently mentioned that their first-year General Studies (GS) courses served as a source of academic support, as well as information regarding other support services available on campus. All first-year students enroll in a cohort-based general education learning community. In this model, small cohorts of first-year students take a common set of classes with a small group of faculty for their entire first year. The program is structured to build close bonds among students and faculty and further students' academic success. Students reported that faculty frequently shared campus resources with them and encouraged them to take advantage of enrichment services. Students also practiced time management activities (with varying levels of success) and learned about library and tutoring resources in their GS courses.

Interestingly, academic advising services were less utilized by interviewees, and a lack of high-quality advising was detrimental to students who were not part of a formalized program that incorporates advising into its structure. These students reported having difficulty receiving advising on choosing a major and navigating academic systems. Students felt "left in limbo" and passed around from office to office. Misha described how the difficulties she experienced attempting to secure academic advising led to her decision to change majors:

I would go to the offices and stuff, but they wouldn't really help you [or] give it to you straight... you would just be [left] in limbo... I went to the pre-nursing office, but they didn't talk to me since they don't talk to [students] unless they're [already] in the nursing program... They'd be like, 'Go to this event,' or something, and you're like, yeah. It just kind of irritated me because they were there and they wouldn't even talk to you about things you needed to do. ... I was really hoping to become a nurse, and, that was really hard for me to change [my major]. I was under so much stress.

[High-Quality Interactions with Faculty](#)

High-quality interactions with faculty proved critical in facilitating students' academic integration into CSUEB. A common theme throughout students' experiences was important and validating faculty interactions. These experiences occurred mostly within the classroom and included engaging in students' intellectual development and promoting their academic and professional success. Students didn't feel like they were "just a number" to faculty, but part of a community.

One-on-one interactions with faculty made students feel valued as individuals and increased their comfort level in asking questions and seeking help. It mattered to students that faculty thought about their interests and recommended them for courses and other opportunities and made them feel validated. As Giselle exemplified:

When a professor makes you feel comfortable, you as a person, it does make you...How can I say? I feel less discouraged if I raised my hand, like they don't look down at you...

Being recognized as adults with responsibilities that extend beyond the classroom was important to many students. Faculty were noted as being flexible and willing to work with students beyond the classroom. Andrew shared:

I've had awesome professors and I feel like that's been very key because they work with me and stuff. Even though there's large classrooms, they still talk to you individually and understand that I have stuff to do that's not school-related as well, like work and paying rent and stuff like that.

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Students felt that faculty wanted them to succeed and were willing to work with them to achieve their goals. On several occasions students mentioned faculty members going above and beyond to advocate for them. As Andrew highlighted:

There was a job fair... and I was talking to somebody and she [a professor] came over and started hyping me up immediately to the recruiters. That was cool. She helped shine a big bright light. She sold me better than I sold me, basically.

Finally, faculty employed innovative teaching styles to get to know students better and to build their critical thinking skills. Araceli talked about an assignment her GS professor assigned where students had to make a presentation about themselves and present it to the class. She shared that the presentation is what “got the strong relationship going for us.”

In short, faculty utilized formal and informal techniques to engage with students in authentic ways both in and outside of the classroom. These interactions left students feeling validated as both students and young adults. Authentic engagement with faculty made students feel that faculty were approachable and increased their comfort level in seeking academic support. Students also appreciated that faculty recognized their many responsibilities outside of the classroom and valued the flexibility that faculty afforded them. Formal academic support programs and services provided the structure many students needed to successfully navigate college systems in addition to receiving tailored tutoring. Students who did not participate in formal support programs experienced struggles that sometimes derailed their college and career plans.

Social Integration

Peer support, coworkers, campus support offices, and high-quality interactions with faculty facilitated a strong sense of social connection to CSUEB. Nine of the ten students felt connected to the campus. Each of these relationship types offered students different forms of support that facilitated their social integration to CSUEB in unique ways. On-campus peer support provided students with college information, social outlets, and accountability partners. Off-campus peer relationships provided students with emotional support that sustained their commitment to college through taxing life experiences. Campus support offices and administrative staff provided students with tools to manage stress, outlets to express various parts of their identities, and welcoming spaces to find structured support on campus. Finally, high-quality interactions with faculty also facilitated students’ social integration to campus by serving as a connection point to campus resources and contributing to the sense of a family-like atmosphere on campus.

[Peer Support and Coworkers](#)

On-Campus Peers

Nearly all of the interviewees lived on campus their first year of college, providing them with ample opportunities to engage with peers outside of class, attend university-sponsored activities, and explore their identities as independent adults. Many students met their on-campus friends through CSUEB programs and initiatives, their GS class, and residence halls. Even though most students moved off campus later in their academic careers, many credited their affinity for CSUEB

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to living on campus as a first-year student. Students described a close-knit, “bubble”-like community. Jamie explained the challenges for students living off campus and attending events:

The people that live on the hill are probably more connected to campus just because it's close. I was talking to one of my friends the other day and we were like, some of these events have less than 10 or 20 people come cause everyone comes [to CSUEB] from far away, they don't want to drive back once they go home. The commuter part of it makes it so less people are connected...

On-campus relationships with peers provided interviewees with a community where they could find emotional and academic support when other relationships fell short. While students maintained pre-college friendships, their college relationships often superseded in importance. On-campus peer groups tended to be small, but intimate. On-campus peers supplemented social capital gaps for interviewees by providing “information shortcuts” such as helping students navigate online financial aid systems or providing tips on how to save money on books that ultimately helped students become more self-sufficient in navigating college systems. They also served as accountability partners in keeping students committed to their studies. Araceli shared:

I have a small group of friends that I can rely on here. I take some of my classes with them and we'll support each other through it, and, we'll just be on top of one another. Whatever we need to get assignments done.

Giselle described an information shortcut her roommate taught her:

Veronica, my roommate, the one that I mentioned earlier that she has the computer, because I was like, 'I don't know how to look at my financial aid,' and she was opening up my portal teaching me.

Off-Campus Peers

For some students, coworkers and romantic relationships offered critical emotional support through stressful life events that helped keep them committed to continuing their college education. Coworkers were described as being supportive of students' academic aspirations both emotionally and through tangible behaviors. For example, Andrew described:

They [coworkers] go out of their way to rearrange the schedule and everybody switches to move me to where I need to be so I can get my school stuff done... I've been having a little bit of trouble the last few weeks balancing work and school, but they help as much as they can.

Coworkers also offered a reprieve from “school talk”, which some students felt dominated their conversations with on-campus peers. Giselle appreciated being able to talk about “real-life” topics with her coworkers:

My coworkers are really cool... It's cool having friends outside of school because sometimes when it's just school friends, they just want to talk about school, school, school and not life or reality.

Romantic partners offer emotional support through difficult life experiences. Romantic partners offered encouragement and accountability to students as they struggled with stress, financial issues, and the death of family members. They encouraged students to focus on their “why” for going to college and pushed them to remain committed to their educational goals during stressful times. Nikki described the supportive behaviors her boyfriend exhibits:

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He's just been so awesome. ... he always tells me, 'I wish I could be in school right now. So always take advantage of it.' If I need to finish an essay because I had work all day, he's up with me until, you know, until I finish. So just little things like that, it helps to not be alone.

Support Offices Provide Social Integration Opportunities to Students

Student support offices supported their social integration by providing opportunities for students to explore different aspects of their identities and access physical and mental health services. Mental health counseling services were especially valuable in developing stress management skills in students. Several students noted turning to this office to manage anxiety, stress, and coping with major life events, such as the death of a parent. One student mentioned relying on techniques learned during counseling sessions to cope with stress in a variety of life situations. Diversity offices, the library, and the health center provided students additional outlets to explore their identities, academic interests, and to blow off steam. Students cited support office staff as being approachable and serving as key figures in making them feel like they belonged on campus. Tony described a supportive relationship with his EOP counselor:

They support me with my academics and even other events that happen on campus, like my taekwondo, scheduling, everything. One of my counselors was close with my assistant coach, so she knows when things are and she asked me, 'how's this going?'... and it really makes me feel like a person rather than just a student or even a number, you know?

High-Quality Interactions with Faculty

Like academic integration, faculty also support students' social integration to CSUEB through high-quality interactions both in and outside of the classroom. Students report important experiences outside of class, including personal conversations where faculty show a genuine interest in students' interests and well-being. These interactions facilitated a sense of trust between students and faculty that contributed to a family-like environment on campus.

Social & Cultural Capital

Home background influenced the social and cultural capital that students had to pull from in navigating college their first year at CSUEB. Parents and parental figures served as crucial support for most students, but the level of support received varied greatly by the parent's educational attainment. The parents with the most formal education were able to provide emotional and tangible support to their children. They expected their children to go to college and provided actionable advice based on experience. Parents with limited or no college experience offered emotional support but were less able to provide the tangible supports their children needed to navigate college. Parents with no college experience tend to emphasize how proud they are of their children being in college and tend to motivate their children to finish college by emphasizing the economic benefits. First-generation students tend to rely on structured programs (e.g., STEP) and/or peers to help them navigate through. Regardless of educational level, parents were of little help in directing students to specific on-campus support services. Students found these supports

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through mostly informal channels on campus such as peers, flyers, campus emails, and faculty recommendations.

[Importance of Familial Relationships](#)

Parents and parental figures, particularly mothers, are important sources of support for these students. Parents speak often with students, provide financial support, encourage them to go to college, and are seen as people students can talk to.

Mothers and Maternal Figures

Nine of the ten students interviewed had a close relationship with their mother or a maternal figure and noted this support as being particularly salient in their life. Students recalled the sacrifices their mothers made for them as being a motivator to continue school. As Nikki stated:

She's [her mom] been in school I think since I was in third grade. She started with her associate's, bachelor's, and then she got her masters and she had a kid, she had to cook, she had to clean, she had to come to my shows, all that... I always think, if she can do it and she got straight A's... I'm like, there's no reason you can't.

Parental Education Level

Parental education level also influences the kinds of supports parents offer their children. Students whose parents completed a bachelor's degree were able to relate to their child's college experience on a personal level and prepare them for potential challenges. They were also able to provide important navigational guidance concerning on-campus living and advising on the kinds of college options available to their child. Parents with limited or no college experiences offered emotional support to their child but were not able to provide navigational guidance. These parents often encouraged their child to "do what they couldn't do" and emphasized financial and employment benefits as motivation for students to persist with their schooling.

Differences in how levels of support varied by parents' education level can be seen in the following examples. Both of Jamie's parents earned bachelor's degrees and were able to provide her with tangible support and advice:

Both of my parents have bachelor's degrees so it was always kind of expected of me... I kind of already knew what to expect coming in. Like they told me about their experience and dorming and living away from home and stuff.

Students whose parents had some college experience but didn't complete a degree encouraged their children to persist so that they could finish what "they couldn't". For example, Araceli states:

My mom, she didn't finish college and I guess she wanted us to not make the mistake she did, and not go to college and finish off a degree.

Students whose parents had no college experience didn't necessarily expect their child to go to college but were proud that their children were in college. These parents were less able to offer support in navigating college but tried to financially and emotionally support their children's

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education. For instance, Giselle's mother didn't go to college and didn't think Giselle would either. She was of little help to Giselle in providing tangible advice, but tried to understand her experiences:

And it's funny because she doesn't understand [college] so she tries to support me, but honestly it's not very useful.

Knowledge of Available Campus Support Services

Students learn about campus resources and support services from a variety of sources, including email, faculty, GS classes, orientation, flyers, campus social events, peers, and word of mouth, but not from parents. Regardless of their parents' educational attainment, these students learned about campus support services mostly from informal channels. Word of mouth from peers and recommendations from faculty were common, but a surprising number of students learned of services by chance through flyers, passing by an office, and email. Only one student mentioned orientation as a source of information for campus support services.

Finances

Paying for college was a common concern among students. Interviewees employed similar strategies for paying for college, such as taking advantage of federal and state financial aid, securing scholarships, taking out loans, and working. Most students' parents provided financial support through Parent PLUS loans, providing periodic spending money, or making payments on tuition. For some students, college costs also included sending money back home to help with family responsibilities. Debt avoidance was a common theme. Nearly all students work to support day-to-day living expenses and to keep their loan debt down. Furthermore, while all students lived on campus their first year at CSUEB and generally found it to be a valuable experience, most felt the financial burden of living on campus outweighed the social benefits.

Familial Financial Support

Many students received financial support from their parents. Parents helped to pay tuition, buy books, pay rent, and provide spending money. Parents and extended family also financially support students by allowing them to live at home to reduce college costs.

A few students contribute to their family's finances. Students of color and first-generation students reported sending money home to their families, and students who contributed towards their family's financial situation often lived with a family member and felt an obligation to support their family's well-being. For example, Reina's father passed away unexpectedly and Reina worried about her mother; she explained:

My mom, with the money from my father's situation, she had just bought a house and so I'm like, if she ever needs help with bills or anything, then my money goes to her.

Tony lives with his grandmother to save on housing costs. It is important to Tony that he not be a financial burden to his grandmother so he set up a system to help cover his costs. He shared:

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I'm with my grandma right now and we set up 100 bucks a month just to be there and to help out with rent. And, I pay for my own food and gas.

[Working to Supplement Financial Aid](#)

Nearly all students had to supplement their income with work to keep student loan debt down and they sometimes struggled to strike the right balance between work and school. They initially prioritized working more hours to offset college costs, but quickly noticed a negative impact on their academic performance. These students made a conscious choice to reduce their work hours in order to free up time for their academics. This choice was facilitated by supportive employers and access to alternative income streams such as parent contributions and taking out small loans to cover living expenses. Still, work is a choice that these students found to be non-optional. While they may have taken breaks from working, they had plans to return to work once their academics stabilized. Misha described her decision to quit working to prioritize school:

I quit my job last year and I've been trying to focus more on my classes because it was really hard trying to keep up a good job and then I have classes. Especially when I was a nursing major. I think now I would definitely find work because I'm an English major so that is easier to do. So I'm definitely going to look for a job.

[Housing & Living Situation Changes](#)

As described in previous sections, most students moved off campus after their first year, even if they enjoyed the experience of living in the residence halls, due to the high cost of on-campus housing. The fear of incurring additional student loan debt drove the decision to move off campus. Students opted to live with friends in an apartment near campus or move back home with their parents or an extended family member. While students recognize that there are still financial and social costs associated with commuting (i.e. car insurance, gas, fewer opportunities to engage in campus activities), students felt the tradeoff was worth it to avoid additional debt. This held true across students from all income levels. Andrew described his thought process:

If I had to live on campus, I would have to take out a loan and then I have to pay back that loan later. Whereas if I live off campus and I just pay rent and commute and stuff, at least at the time it seemed like a cheaper option.

Nikki enjoyed her time living on campus, but felt the costs weren't justified:

The dorms are just so expensive and it's not really worth it in my opinion. I loved my experience, being on campus, but I do not think they're worth it for the amount that they charge.

[Time Management/Study Skills/Balancing School and Work](#)

Struggling with time management was a common experience among students, particularly for those who worked. Balancing many school demands with newfound freedom as a college student proved challenging. Study groups were helpful to students in achieving a balance, as well as taking advantage of campus academic resources.

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As described, students who worked struggled to find an equilibrium between work and academic demands. Students often overestimated their ability to work more hours at the beginning of the year and had to make corrections to allow more time for their studies and a social life. Tony described this experience:

This quarter I've been working about 20 [hours per week]. Last spring quarter I was working 40 or more, but this semester I cut down so I can juggle class, taekwondo and everything equally.

Students appreciated having empathetic employers and coworkers who altered work schedules so that they could focus on their academics. Andrew described this experience:

Well they [his employer] understand... if we get the new schedule... and I tell them, I can't make it because I'm in class or I don't want to work the night shift that day because I have a big assignment to do.

Study groups proved to be a useful tool for students in carving out dedicated time in their week for academics. Students felt accountable to their study group peers and found the groups to be a source of motivation. Students met with their study groups informally in the library, and often spontaneously, but also made formal appointments with campus services such as the SCAA. In this way, study groups provided social and academic connections to peers as well as the larger CSUEB community. Jamie described her study group in the following passage:

And we're like, OK, let's study together... And one of those people, he goes to the SCAA a lot to study. So he'll let us know, 'Hey, I'm going to the SCAA. Anyone want to come study?' [And I will respond] 'I'm on campus, let's do it!'

This study provides insight as to why high-risk first-time, first-year college students persist to their second year using the conceptual frameworks of Tinto's (1975) interactionist theory, Rendón's (1994) student validation theory, and Bourdieu (1977) and Coleman's (1988) social reproduction theory. Factors predictive of students dropping out in the first year were identified, and ten students were interviewed who possessed these risk characteristics. The quantitative sample reflected the student demographics of CSUEB, an important foundation for this study, given the diverse student body at CSUEB. The study had mixed success in addressing our two hypotheses. Our first hypothesis—that students at high-risk of departure have lower high school and college GPAs, are members of an underrepresented minority group, or first-generation college students—was not fully validated. However, further findings supported our second hypothesis that students at high-risk of early departure who persisted to the second year had validating experiences with faculty, peers, and/or members of their broader community (i.e. family, high school friends) that supported their academic and social integration and decision to persist. This study supports the literature regarding first-year college attrition but presents new findings that deserve further exploration in future research. In particular, future researchers should further investigate the risk factors that predict persistence in the first year and the effectiveness of interventions that are supportive of these high-risk students.

Importance of Pre-College Academic Preparation

First-time, first-year students at CSUEB are academically underprepared when compared to national data, with CSUEB students falling within the 26th percentile for SAT scores (critical reading plus math) (The College Board, 2017). This is of concern given high school GPA and performance on standardized test scores having been proven to be two of the highest predictors of overall college retention and persistence (Hoffman & Lowitzki, 2005; Kim, 2015; Kobrin et al., 2008; Noble & Sawyer, 2004; Westrick et al., 2015). Our study reveals surprising findings. In particular, SAT scores and high school GPAs become negative predictors of persistence when college academic performance was added to the regression model. These findings were unexpected, given the dearth of research suggesting the opposite relationship. However, these findings may support previous studies which have shown that the predictive validity of SAT scores decreases at larger institutions with a greater number of low-income and student of color populations (Arbona & Nora, 2007; Shen et al., 2012). This finding warrants further research, particularly at other public, diverse student campuses.

Our interview findings support Tinto's (1975) interactionist theory, and the impact of students' pre-college characteristics on persistence. The qualitative findings demonstrate that college preparatory courses aided students in their transition to college coursework. The majority of interviewees articulated how a high school college-preparatory curriculum, such as AP courses, prepared them for the transition to college. Pre-college academic preparation has been found to be a strong predictor of college persistence, including the level of curricular rigor, level of math completed, performance on standardized test scores, and high school GPA (Elkins, Braxton, &

James, 2000; Flores & Oseguera, 2013; Gifford, Briceño-Perriott, & Mianzo, 2006; Immerwhar et al., 2008; Ishitani & DesJardins, 2002; Kalsbeek, 2013; Kuh et al., 2008; Perna, 2006). A minority of the students, however, conveyed a lack of preparation for college by their high schools, leading to feeling overwhelmed with the transition to college. An important mitigating factor for these students was the inclusion of a teacher or important adult figure in their life that supported their college aspirations. This finding is especially important for first-year students and their self-perceptions of personal weakness and lack of academic skills in preventing college dropout (Clark, 2005). Interviewees shared stories of feeling they weren't good enough for college until a high school teacher supported them and empowered them to believe in themselves.

Our research demonstrates the importance of strong academic rigor in high school and/or supportive authority figures for helping students enroll in college. These factors provide students with greater confidence, leading to persistence in the first year of college. Research demonstrates the effects of a rigorous curriculum and supportive high school environment are particularly profound for students from disadvantaged backgrounds (Flores & Oseguera, 2013; Long et al., 2012).

Academic and Social Integration in the First Year

Students at CSUEB who persisted to the second year earn more course units and have higher GPAs each quarter than for students who drop out by the end of the first year. These findings are not surprising given that college GPAs are an important predictor of retention (Kim, 2015). Additionally, the gap in GPAs and units earned between students who persisted and those who did not grew wider with each subsequent quarter. This is an important reminder of the importance of ensuring students are academically and socially integrated into an institution as soon as possible in the first term.

This study also revealed that both Asian and White students at CSUEB have higher fall term and cumulative GPAs at the end of the first year, as compared to Black and Hispanic/Latino students. In addition, both Asian and White students earn more units in the fall quarter, as compared to Black and Hispanic/Latino students, and the difference increases significantly between the fall term and the total cumulative units earned by the end of the first year. These findings are consistent with previous studies that found White students were able to more easily integrate both academically and socially in an institution than students of color (Rendón, 1994). In addition, White students tend to have parents with higher levels of education and income and more social and cultural capital than Black students (Gamoran, 2001). However, in this study, our results showed that being White actually decreased the likelihood of persisting to year two by 5.1 percent. Given CSUEB's diverse campus climate and White students comprising 16 percent of the student population, this may be an institution-specific finding. In comparing the socioeconomic background of White students, as compared to the other racial/ethnic groups at CSUEB, 37 percent are Pell Grant eligible and 42 percent of White students are first-generation, which is in line with other racial/ethnic groups on campus. A full breakdown of the Pell Grant eligibility and first-generation status of all students by racial/ethnic group can be found in Table 11.

6 DISCUSSION

Table 11

Cross Tabulations of Race/Ethnicity by Pell Eligibility & First-Generation Status

Variable	Not Eligible	Pell Eligible	Not First-Gen	First-Gen
American Indian/Alaska Native	30%	70%	30%	70%
Asian	51%	49%	49%	51%
Black	24%	76%	47%	53%
Hawaiian/Other Pacific Islander	33%	67%	17%	83%
Hispanic/Latino	26%	74%	20%	80%
Multiple Ethnicity	51%	49%	48%	52%
Nonresident Alien	94%	6%	27%	73%
Unknown	50%	50%	47%	53%
White	67%	37%	58%	42%
Total	39%	61%	36%	64%

Notes: n = 5845

Studies have found that socioeconomic status impacts college student retention (Braxton, Brier, & Hossler, 1988; Hossler & Vesper, 1993; Ishitani & DesJardins, 2002; Thayer, 2000) and first-generation students are more likely to drop-out of college than non-first-generation students in their first year (Ishitani, 2003, 2006; Thayer, 2000; U.S. Department of Education, 1998). Given the demographic makeup of White students at CSUEB, the high proportion of first-generation and Pell Grant eligible students may account for the finding that being White indicates a lower likelihood of persisting to the second year.

Students shared stories of academically integrating into CSUEB through formal support services and validating interactions with faculty and staff. These findings support Tinto's (1975) interactionist theory, demonstrating students' academic and social experiences on campus and in one's larger community have a positive impact on student persistence. Further, research demonstrates academic and social integration are key elements in positively impacting the retention of students of color (Donovan, 1984; Eimers & Pike, 1997; Smedley, Myers & Harrell, 1993; Terenzini et al., 1994). One key aspect of both academic and social integration that arose from our study was students' feeling that faculty were approachable, took an interest in them, and challenged them to think critically. Rendón's (1994) validation theory supports this finding, which posits that first-year college success is contingent upon active learning and validating experiences from individuals within the institution. Faculty knowing students by name, assisting them with their coursework, and making connections with them outside of the classroom all proved critical in facilitating interviewees' academic integration into CSUEB. Also, although research shows first-generation students are most at-risk of attrition, our analysis did not find first-generation status to be a significant predictor of persistence at CSUEB (Galvez-Kiser, 2006; Pascarella et al., 2004). This finding may reflect the impact of CSUEB faculty and staff, who support first-year students of color and first-generation students in their successful academic and social integration, as well as that being a first-generation student is not a minoritized status at CSUEB (Tinto, 1998).

Beyond interpersonal connections with faculty and staff, our research also demonstrates the importance of students utilizing a variety of academic support resources. Throughout our study, a theme of self-advocacy and a sense of agency arose from the interviews. First-time, first-year

students react to academic and social interactions when entering college based partially on past experience and success in “choosing strategies to negotiate in their new environment” (Bean & Eaton, 2000, p. 56). Many psychological processes are firing during these interactions, including students’ ongoing assessments of their own self-efficacy, their coping choices, and attributions of strategies that they find to be successful (Bean & Eaton, 2000). All the students interviewed took the initiative to take advantage of support services offered by CSUEB. Tutoring services, structured first-year curriculum, and support programs that combine tutoring and advising helped students in their overall academic integration. Tutoring was particularly important, a resource utilized by all students, which proved to be a key support in students’ academic success. Support systems such as tutoring have a significant impact on student persistence, with perceptions of a lack of support correlating with higher attrition (Elkins, Braxton, & James, 2000; York-Anderson and Bowman, 1991). Although students found CSUEB tutoring services helpful, several students desired more access and expanded academic foci to meet their academic needs.

An additional finding from our study is the quality of academic advising for first-year students at CSUEB. A lack of consistent, high-quality advising had a negative impact on students who were not part of a formalized program that incorporated advising into its structure. Students specifically reported having difficulty obtaining advising on choosing a major and navigating academic systems. Prior studies demonstrate that a lack of academic advising is a contributor to students’ decision to drop out of college (Pascarella & Terenzini, 2005; Styron Jr, 2010). Metzner’s (1989) study focused on the impact of academic advising quality on first-year commuter student attrition at a large, public university (similar to CSUEB) and found indirect effects, demonstrating that high quality advising positively impacted retention and lower quality advising correlating with higher attrition rates (Metzner, 1989). Nonetheless, even poor advising appears to have at least some positive impact in reducing attrition compared to no advising at all (Metzner, 1989).

In regards to their social integration, nine of the ten students interviewed felt connected to the CSUEB campus. They shared that student peers--both on and off campus--and high-quality interactions with faculty provided a strong sense of social connection to CSUEB. This level of social integration is significant, as research shows separation from family and high school friends is potentially more difficult for commuter students, students of color, and first-generation students, as these groups may feel they are rejecting family values in order to be in college (Braxton & Brier, 1989; Elkins, Braxton, & James, 2000; Tinto, 1975, 1987, 1993). It should be noted that all of the students in our sample lived on campus their first year of college, which likely had a positive impact on their social integration. Studies show that a student’s family and high school friends can serve as both support mechanisms and negative influencers for first-time, first-year students as they transition to college (Eimers & Pike, 1997; Terenzini et al., 1994). Rendón’s (1994) student validation theory is especially relevant given that CSUEB’s student population is the most diverse of any public four-year university in the United States (Feulner, 2016).

Our research validates the notion that student involvement hinges on students possessing the skills and capital needed to access opportunities for involvement, and that first-generation, non-traditional, and culturally diverse students are more likely to get involved when they have validating experiences in which an individual takes a personal interest in them (Rendón, 1994).

Both on and off-campus peer support networks also provided students with social outlets and accountability partners, particularly when stressful situations presented themselves. In addition, faculty and staff from CSUEB departments provided students with tools to explore their identities, academic interests, and wellness. Students cited CSUEB faculty and staff as being approachable and serving as key figures in making them feel like they belonged on campus. Previous research supports our findings, demonstrating peer groups, extracurricular activities, and interactions with faculty and staff influence and encourage social integration (Tinto, 1975). Taking all of this into account, academic and social integration affects students' subsequent commitment to an institution, with the greater the levels of these commitments in students, the greater the likelihood the student will persist through college (Braxton, 2000; Tinto, 1975, 1993).

At-Risk Students Building Social and Cultural Capital

This study revealed that Pell Grant eligible students earn fewer college units and have lower college GPAs than students who are not eligible. However, in regards to factors that are predictive of retention, being Pell Grant eligible increased the likelihood of persisting to year two by 1.8 percent. This finding is likely due to the additional support infrastructure provided by CSUEB to this population of students through campus resources. This study also found that being from an East Bay zip code increased the likelihood of persisting by 5.4 percent. Taken together, these two variables may indicate that Pell Grant eligible students are able to benefit from having family members nearby and are more easily able to obtain family support. This is a significant finding in that it appears contradictory to the literature. Hurd, Tan, and Loeb (2016) found that 29% of students from low-income backgrounds persist to graduation, as compared to 55% of middle-income students and 73% of high-income students. The lower persistence rates nationally of low-income students may, in part, be due to these students struggling to obtain the social and cultural capital needed to understand and take advantage of educational resources on campus (Perna, 2006).

The increase in persistence for Pell Grant eligible students at CSUEB demonstrates that these students are able to use their capital to obtain the support they need to persist. Social capital is generated through the relationships between parents and their children, and parents and other adults (Perna, 2006). Relationships with family, particularly mothers, offered emotional, financial, and general support to our interviewees. Tinto's (1986) research argues that students have a greater likelihood of persisting if a separation occurs from family and friends in the home environment. Our research provides a different perspective, with continual family engagement proving to be important to student success. With that said, some interviewees did convey that family members with little or no college experience were less helpful in connecting them with on-campus resources. This falls in line with literature that posits differences in social and cultural capital stemming from parents' educational level impacts the kind of support parents can provide to their children (Perna, 2006). Students with parents who had limited or no college experience offered emotional support but were unable to provide significant information on how to navigate college. First-generation students in our sample tended to rely on structured programs (e.g., STEP) and/or peers to help gain this level of support. Although social reproduction theory argues that schools reproduce inequality by only acknowledging the cultural capital of middle and upper-class

families (Bourdieu, 1977), we found that through campus resources and supportive faculty and staff, students in our study were able to navigate the campus successfully no matter their level of incoming social or cultural capital.

Financing College to a Level of Perceived Financial Security

Paying for college was a common concern among students. This finding is not surprising given that family income and socioeconomic status directly impacts college student retention, with students from lower socioeconomic families being less likely to graduate from college before age 24 (Braxton, Brier, & Hossler, 1988; Hossler & Vesper, 1993; Ishitani & DesJardins, 2002; Mortenson, 1997; Pascarella & Chapman, 1983; Thayer, 2000). Despite the financial concerns, the students in our study were able to manage the costs associated with college and persist past their first year. Interviewees employed multiple strategies to pay for college expenses, including federal and state financial aid, scholarships, loans, and working while in school.

Not accruing debt was a major concern for most of the students interviewed, and almost all worked to support living expenses. This is an important finding as students had to make financial choices that could potentially have negatively impacted their success. One example is that most of the interviewees discussed the positive experience of living on campus their first year at CSUEB, but the financial burden being too great to continue living on campus into their second year. Many had to take out additional loans in order to pay for on-campus housing. The high cost of on-campus housing likely impacts the social integration of students who cannot afford to live on campus their first year. Research shows students who live off campus and commute are less likely to successfully integrate into an institution than students living on campus (Astin, 1973a; Astin, 1973b; Iffert, 1958; Newcomb, 1962; Pascarella, Duby, Miller, & Rasher, 1981). However, our study demonstrates that if students are able to secure adequate financial aid to comfortably cover all living expenses, that the financial burden is not a barrier to persisting through to graduation (Bergerson, 2009; Cabrera & La Nasa, 2001; Doyle, 2007; Perna, 2006).

Nearly all of the students in our sample had to supplement their income with work to reduce student loan debt, sometimes struggling to strike a balance between work and academic demands. Studies show that family socioeconomic status impacts college student retention and low socioeconomic students need to work more hours while in college than other students (Ishitani & DesJardins, 2002; Iwai & Churchill, 1982). Having to work and balance college is particularly concerning for first-generation students and students of color who must manage fiscal stress while needing additional support understanding financial aid and budget management (Phinney & Haas, 2003; Thayer, 2000). However, students in our sample took the initiative to reduce work hours in order to focus on their academics, a decision that likely assisted in their ability to persist. Although the majority of interviewees felt their financial aid packages and hours of work met their overall needs, increased aid would help reduce the number of hours that these students must work to cover college costs, freeing up time to spend on their academic and social engagement (Boatman & Long, 2016; Castleman & Long, 2016; DesJardins et al., 2010). Braxton et al. (2014) posited that when students have less concern with paying for college, they have more energy to spend on psychosocial engagement, which is associated with increased persistence. Another key finding from

students who worked was the need to develop strong time management skills to be successful in their first year. Study groups proved helpful to these students in achieving a balance, as well as taking advantage of campus academic resources. In addition, interviewees took the initiative to reduce their number of work hours and sought assistance from coworkers when needed. Having the ability to balance academics, social activities, family, and work through effective time management is important as it has been proven to be a particular stressor for students of color (Phinney & Haas, 2003).

Limitations and Contributions to the Literature

A number of limitations in this study should be highlighted. Since we did not employ randomized sampling techniques and were only able to include four years of student cohorts in the quantitative analysis, the study is susceptible to bias and sampling error. For the interviews, the email requesting volunteers was distributed during a busy time in the academic year, which limited the number of students who responded and potentially skewed results. Although invitations to interview were sent to 284 students, only 10 volunteered. This sample size may be too small to ensure that the themes are representative of the broader population of students. Also, we did not control for White/Caucasian as a variable in selecting the interview sample in order to ensure a large enough recruitment pool, although the quantitative data demonstrated a significant negative relationship with persistence. Further, only one of the ten students interviewed identified as White/Caucasian. Additional research is needed to understand the negative relationship between persistence and identifying as White/Caucasian. Finally, our study lacked comparison groups. Ideally, a similar qualitative review of students with at-risk characteristics that did not persist past their first year of college would have been conducted. However, due to the inability to reach this student population, the study focused on students with high-risk characteristics who persisted to the second year.

As a study of one institution, a key limitation of this study design is the generalizability of the results to other colleges or universities. CSUEB is one institution in a specific geographical region (West Coast) with unique student demographic characteristics; for example, being uniquely named the most diverse college campus in the United States (Feulner, 2016). Finally, further investigation is needed into the relationship between high school GPA, SAT scores, and college persistence at highly diverse, access-focused college campuses. Our study revealed that high school GPA and SAT scores are negatively related to first-year college persistence, a finding that is in direct opposition to the literature. Our hypothesis is that at an institution such as CSUEB, multicollinearity exists between high school GPA, SAT score, and first-year academic performance, which would account for the reversed directionality of the high school GPA and SAT score variables. Nonetheless, this finding deserves further study. Lastly, given the nature of the research topic, student sample demographics, and personal identities of the researchers, there is a possibility of bias, although there was an attempt to account for such bias through recording interviews and utilizing technology to transcribe and code results.

Despite the limitations, this study contributes to the literature on first-year student retention and persistence in several important ways. This research provides critical information as to why high-

risk students stay in college, as opposed to the deficiency perspective utilized in most research. The findings demonstrate the importance of support mechanisms--both academic and social--in supporting college integration, validating students' experiences, and promoting persistence in the first year. Specifically, advising and tutoring services, as well as support from faculty, staff, family, and friends are essential to supporting the success of high-risk students. In addition, this study demonstrates how college costs impact the student experience, including the ability to live on campus.

By examining first-year student persistence at CSUEB, a public, four-year, access-focused, commuter university that does not have any defined racial or ethnic majority, our results provide a unique perspective that is much-needed in the retention literature. Particularly, our findings of a negative relationship between being Caucasian/White and first-year persistence and a positive relationship between persistence and being Pell Grant eligible suggest that first-year retention theories and strategies based on research completed at predominantly white and elite institutions may not be as applicable within heterogeneous, less elite environments. As America's college campuses become increasingly diverse, researchers should reconsider how to study previously minoritized statuses (i.e. first-generation, low-income, and being a person of color) as they become the new majority. This study's findings, contrary to the literature, suggests historically marginalized students are more likely to persist than their White counterparts when they establish a sense of community and have the appropriate support resources in place. Furthermore, this study offers opportunity for broader comparison of the results as the majority of the nation's college students are enrolled in public access institutions and attend commuter four-year institutions (Barnett, 2011; Goldrick-Rab, 2010; Horn, Nevill, & Griffith, 2006; Kirk & Lewis, 2015; Ma & Baum, 2016; Tinto, 1999). In other words, this study's findings contribute to the literature by being contextualized within a setting that aligns with the majority of college students' campus experiences.

Based on the findings of this study, we offer the following recommendations to CSUEB for improving its first-time, first-year student retention rate. These recommendations answer our study's third and final research question: *What interventions does the literature suggest California State University, East Bay can implement to increase first-time, first-year student retention rates?*

Recommendation 1: Expand Academic Advising Services

Our first recommendation is for CSUEB to increase its academic advising services for first-year students. This can take two forms: (1) increasing the number of students who are able to participate in existing formalized support programs, such as ACCESS and STEP, and (2) expanding the academic advising services to students not enrolled in these formal programs. In addressing the recommendation to increase the number of students participating in formal programs, CSUEB should target students with identified risk factors who would most benefit from this additional support. As the literature supports and our study found, the characteristics of students who would be appropriate for these programs are first-generation, Pell Grant eligible, and from low performing high schools. For all other first-year students, however, CSUEB should expand its academic advising services. Additionally, CSUEB should leverage their engaged faculty as advisors for students. As our study revealed, high-quality interactions with faculty supported students' academic and social integration, and this was a key component of students' ability to persist. Further, faculty and other advisors should emphasize to students through advising sessions the importance of balancing work and school demands and ensuring that students are not emphasizing work over acquiring course units and earning a high first-year GPA.

Academic advising is crucial to student retention because it allows students to “learn to become members of their higher education community, to think critically about their roles and responsibilities as students, and to prepare to be educated citizens of a democratic society and a global community” (NACADA, 2016). There are many approaches to offering academic advising, however, most fall into one of five categories: prescriptive, proactive, developmental, learning-centered, and appreciative. Prescriptive advising is an information-based approach in which advisors are considered experts on program requirements, courses, majors, and institutional policy. Students come to these types of advisors with information-based questions, and it usually is a one-way interaction where advisors share and students receive information (He & Hutson, 2016). Proactive advising (also referred to as intrusive advising) is an approach focused on supporting at-risk students. In this approach, advisors determine the types of support these students need to prevent issues in their progression (He & Hutson, 2016). Developmental advising is the “most fundamental and comprehensive approach to advising practice” (Grites, 2013, p. 45).

Developmental academic advising is an approach that encourages the advisor to have a holistic view of the student in order to help them take full advantage of their educational experience and to foster success in academic, personal and career spheres (Grites, 2013). The term was first

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articulated in 1982 and has remained the primary approach to advising today. Learning-centered advising emphasizes student learning outcomes as a result of advising, and advising sessions are structured similar to lessons, with objectives, checks for understanding, feedback, and guidance to closure with reinforcement of key concepts (He & Hutson, 2016). Finally, appreciative advising “promotes the cognitive, metacognitive, and affective development of students based on developing an appreciative mindset” (He & Hutson, 2016, p. 217). In appreciative advising, the advisor asks positive, open-ended questions to help students organize their educational experiences and achieve their goals (Bloom, Hutson, & He, 2013).

No single approach to advising will work for all students, as students interpret their experiences based on their own sociological and cultural background. Therefore, it is important for CSUEB to employ the approaches to advising that fit with the needs of its students.

This type of academic engagement is essential to student retention and success. In Tinto’s (1993) interactionist theory of student retention, academic advising is considered a key tool for fostering academic and social integration into an institution, thereby positively influencing student retention. Academic advising is “a way to connect students to the campus and help them feel that someone is looking out for them” (Kuh et al., 2005, p. 214). Additionally, Bean and Eaton (2002) argue in their psychological theory of student retention, that academic advising is essential to student success because good academic advising “link[s] a student’s academic capabilities with his or her choice of courses and major, access to learning resources, and a belief that the academic pathway a student is traveling will lead to employment after college. Advising should be done well so students recognize their abilities and make informed choices” (Bean, 2005, p. 226).

Academic advising has also been found to have a positive influence on student retention in college (Crockett, 1985; Habley, 1981; Habley & McClanahan, 2004; Swecker, Fifolt, & Searby, 2013). A study at a four-year comprehensive research institution with a high population of first-generation students (30%) found that for every meeting with an advisor, the likelihood that a student persists in the first year increased by 13 percent (Swecker, Fifolt, & Searby, 2013). Additionally, a study of first-time, full-time freshman students at a large urban public research university found that students who used academic advising as compared to those who didn’t had higher first and second-term GPAs, and first-year cumulative GPAs (Kot, 2014). Another study of a private coaching service that partnered with colleges found that students with a coach were 5.2 percentage points more likely to persist through 12 months, and 4 percentage points more likely to receive a degree (Bettinger & Baker, 2014).

However, other studies have found no impact of academic advising on persistence, although those studies suffered from small sample sizes and a lack of student participation in the advising programs to measure any change (Mayhew et al., 2016). The student services literature supports the conclusion that the most effective interventions are those that “integrate a number of support services or other components” such as a first-year seminar plus peer advising, tutoring, and shared residence halls (Mayhew et al., 2016, p. 389; Noble, Flynn, Lee, & Hilton, 2007). Since CSUEB already utilizes a number of support services for students, including peer advising, residence halls, and a cohort-based, longitudinal first-year curriculum, academic advising is an important additional

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support service for those students not enrolled in a formal program. Importantly, academic advising is a “locus of learning” and “it is not a service that directs students to the place where they can learn” (Lowenstein, 2013, p. 245). Advisors are teachers and advising is an important place for students to learn about CSUEB, themselves, and their personal, academic, and career goals.

Recommendation 2: Expand Family Engagement

Our second recommendation is to enhance parent and family engagement efforts to be more inclusive of the families of CSUEB’s majority student population: first-generation, low-income, and/or of diverse cultural backgrounds. The students included in this study overwhelmingly reported that strong relationships with their parents and extended family served as a key source of emotional support and motivation that facilitated their successful college transition and persistence. Research has shown that parent engagement has a positive influence on students’ personal development, academic achievement, and social integration in college (Kolkhurst et al., 2010; Kuhn & Franklin, 2008; Sax & Wientraub, 2014).

Many parent and family programs in higher education institutions were developed to best serve the majority population of parents and family members--those who come from White, heterosexual, middle and upper-class backgrounds (Wartman, Savage & ASHE, 2008). Methods of serving first-generation and diverse students’ families have only recently begun to be explored (Kiyama et al., 2015). The literature posits that first-generation parents can better support their children when they are aware of campus resources and services and able refer them properly (Kiyama et al., 2015). By developing the cultural and social capital of families with less college experience, families can better support their child’s development and success in college (Fann, McClafferty, Jarsky, & McDonough, 2009; Kiyama et al., 2015; Wartman, Savage & ASHE, 2008). Kiyama et al. (2015) states, “the first step of developing or enhancing parent and family programs on campus include assessing the parental needs of the campus population and developing a mission statement and program that focuses on addressing those needs through services that fit within the institutional mission” (p. 53). Thus, it is critical that parents of first-generation, low-income, and diverse students are oriented to campus resources to increase their level of support provided to their student (Fann et al., 2009).

We specifically recommend the following areas for increasing the engagement of CSUEB families:

Parent and Family Web Portal

CSUEB should update the Parent and Family Programs website to become a dynamic portal that is welcoming of first-generation, low-income, and diverse families. At the time of this publication, the Parent and Family Programs website requires considerable knowledge of college systems and vocabulary to navigate, which may feel exclusionary to first-generation families. In addition, the website is written exclusively in English, thereby excluding families with limited mastery of the English language. Finally, the content of the website primarily contains links to other university websites, and mostly benefits a middle and upper-class audience that has familiarity with college systems. The literature suggests that a portal that is inclusive of first-generation families should

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clearly identify and list contact information of key office personnel, be available in multiple languages, and contain exclusive content that specifically addresses the needs of first-generation families.

Parent and Family Orientation

In addition to enhancing the information available on the web, the first-year orientation program should be reviewed and revised to offer workshops specifically for first-generation and multicultural families. In a recent survey, more than 98% of colleges and universities reported that they offered parent-specific sessions during orientation (Savage & Petree, 2013). Research has found that family and parent orientations serve as prime opportunities to engage families in their students' educational process and to establish relationships between campus staff and families (Ward-Roof, Heaton, & Coburn, 2008). Furthermore, for commuter campuses, such as CSUEB, it is especially important that students' families feel welcomed by the institution to increase students' institutional commitment (Braxton et al., 2014).

CSUEB currently offers a one-day parent orientation that incorporates many of the best practices suggested by the literature, including opportunities for families to go on campus tours, meet professional staff, attend resource fairs, and attend workshops on FERPA, health and safety, financial aid, and how to support students through their transition to college (Kiyama et al., 2015). We recommend building off this experience by involving first-generation, low-income, and diverse families in identifying additional areas of need for orientation programming (Wartman & Savage, 2008), as well as reviewing and enhancing curriculum for families with limited college-going experience. Potential topics should include preparing parents for their child's' shifting balance of work, school, and home responsibilities, specifically the need to prioritize school over work; understanding academic systems and how to navigate them as parents; and their rights as parents to engage with the university (Kiyama et al., 2015; Price, 2008; Ward-Roof et al., 2008). Furthermore, we recommend providing orientation sessions in languages commonly spoken by CSUEB parents (i.e. Spanish). Research has shown that language barriers can lead to feelings of isolation among parents and families in higher education settings (Fann et al., 2009; Price, 2008). Providing orientation sessions and materials in the dominant languages of families can increase the sense of belonging and facilitate the development of trust between parents and institutions (Price, 2008).

Departmental Partnerships

Finally, CSUEB should strengthen partnerships between the Office of Parent and Family Programs and other campus offices with strong connections to low-income and diverse student communities. Kiyama et al. (2015) posit that working collaboratively with diversity and inclusion offices such as Latinx, Black, and LGBTQQI+ cultural centers is critical when establishing trust with families and building inclusive programming. Price (2008) notes that parent and family program staff must educate themselves on the cultural values of the families they serve in order to establish bonds of trust. In particular, collaborations between academic affairs, student affairs, and parent and family resource offices in the creation of cultural competency training for faculty and staff supports the

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development of a trusting, welcoming, and inclusive environment for all families and solidifies institutional commitment to family engagement (Kiyama et al., 2015). Further, CSUEB should leverage their faculty in developing and offering programming to students and their families, as another opportunity to strengthen the academic and social integration of students.

Recommendation 3: Expand Tutoring Services & Supplemental Instruction

All of the students interviewed mentioned taking advantage of academic support services offered by CSUEB. Academic support tends to take one of two approaches: providing support to the individual student and their learning needs and providing support to the course content that is particularly challenging for students to learn. We recommend that CSUEB strengthen its initiatives in both types of academic support for students.

Tutoring Services

In supporting the individual student's learning needs, CSUEB should expand its availability of tutoring services. Most students interviewed utilized SCAA at least once in their time at CSUEB, however, some expressed frustration with wait times and the lack of tutoring services available in areas other than English and math. As a result, CSUEB should expand its tutoring services in order to be more accessible to students and to offer support in a broader range of subject areas.

Numerous studies suggest that participating in tutoring is associated with high GPAs and course pass rates (Boyland, Bliss, & Bonham, 1997). One study of students who participated in peer tutoring found positive correlations between hours and weeks in tutoring and course grades. They also found that by examining the performance of students who had to repeat courses, that students earned higher grades on the second attempt when engaged in peer tutoring as opposed to those who repeated the course without tutoring services (Colver & Fry, 2016). These findings were particularly strong for first-generation students. Additionally, tutoring was found to improve students' understanding of course content, their ability to complete assignments, and their self-confidence as students (Colver & Fry, 2016).

Tutoring also has a positive effect on the retention of students at-risk of dropping out due to low GPAs, underprepared academic backgrounds, and poor decision-making skills (Laskey & Hetzel, 2011; Rheinheimer & McKenzie, 2011). In a study of undeclared students, researchers found that students who sought tutoring services were 2.7 times more likely to persist as compared to students who did not use tutoring services (Rheinheimer & McKenzie, 2011). One study also discovered the importance of helping students to access tutoring services early in the first year. Students who used tutoring services early in the first year significantly improved their academic performance, thereby positively influencing their retention (Rheinheimer, Grace-Odeleye, Francois, & Kusorgbor, 2010). Finally, early interventions with tutoring services have been found to positively increase retention rates for Hispanic students (Gallard, Albritton, and Morgan, 2010).

One form of tutoring is peer tutoring, in which students in third and fourth years provide tutoring to first-year students. Peer tutoring not only helps students improve academically but is "a social

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process where motivation and learning skills improve through social interaction” (Dvorak, 2004, p. 44). Tutoring provides peer support to students who struggle in the transition to college, in particular, low-income and first-generation students (Boylan et al., 1997; Engle et al., 2008; Kuh, et al., 2010). Peer tutoring fosters campus engagement for tutees and builds a sense of community among all students (Engle et al., 2008). However, peer tutoring is most impactful when peer tutors are well-trained in supporting the social integration of students (Boylan et al., 1997).

Supplemental Instruction

In supporting the academic content in the first year, CSUEB should consider the use of Supplemental Instruction (SI) to support students’ academic success in high-risk courses. Typically, this includes courses where thirty percent or more of students receive grades of D or F, or withdraw (Congos & Schoeps, 1998). As a result, SI does not stigmatize low performing students but rather focuses on the course content and how to make it easier for all students to learn.

SI is an “academic support program that provides regularly scheduled, out-of-class, peer-facilitated sessions that are open to all students in the course” (Hurley, Jacobs, & Gilbert, 2006, p. 11; Congos & Schoeps, 1998). The SI model is based on behavioral learning principles that state (Hurley et al., 2006):

- Behavior is based on positive reinforcement.
- Complex tasks must be broken down into their component parts.
- Effective study strategies lead to high academic performance.
- Modeling must be done of study strategy behaviors.

Student attendance in the SI sessions are optional, and sessions are facilitated by students who were previously successful in the course and who complete a training session on how to lead an SI course (Hurley et al., 2006). SI facilitators attend all sessions of the regular class, take notes, read the course material, and conduct at least three 50-minute SI sessions a week. SI facilitators are crucial in guiding students in “learning appropriate study strategies, such as note taking, graphic organization, questioning techniques, vocabulary acquisition, and tests preparation, while also reviewing content material” (Hurley et al., 2006, p. 11). SI is effective because the sessions are engaging and participatory, and students do not passively receive content. It also provides students with a peer learning experience that is collaborative and promotes integration into the academic culture of the institution (Hurley et al., 2006).

Research on the effectiveness of SI demonstrates that, overall, it improves students’ course grades, improves retention rates, and increases graduation rates by roughly ten percent (Congos & Schoeps, 1998). In a study of SI and the performance of developmental education students in an introductory biology course, researchers found that students who participated in SI earned fewer Ds and Fs, and submitted more extra-credit work, attended more classes, attended more help sessions, and took advantage of more office hours than students not involved in SI (Moore & LeDee, 2006). Another study found that SI students had significantly higher final course grades than non-SI students in a science course (Congos & Schoeps, 1998). A study at another CSU

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institution, San Francisco State University, found that students who used SI were more likely to enroll in subsequent courses in that discipline than students who did not use SI, and that the course completion rates for underrepresented minority students who used SI were higher than all other non-SI students (Peterfreund, Rath, Xenos, & Bayliss, 2007-2008). Finally, in a study of first-year students in history courses, researchers found that students with low SAT scores who attended two or more SI sessions had a rate of achieving an A or B course grade that equaled the rate for students with high SAT scores (Ryan & Glenn, 2002-2003). These findings support the conclusion that SI can even help first-time, first-year students with low academic ability to perform at a higher level in the first year of college (Ryan & Glenn, 2002-2003).

Both tutoring services and SI can be cost-effective options for CSUEB. Both require relatively minimal amounts of training for peer tutors, SI peer facilitators, and faculty leaders. Also, students who participate in tutoring and/or SI and retain as a result means the institution retains tuition income that otherwise would have been lost once students dropped out (Congos & Schoeps, 1998). Training in launching an SI program at CSUEB is provided by the International Center for Supplemental Instruction at the University of Missouri-Kansas City (UMKC, 2018).

Recommendation 4: Offer Emergency Aid to Students

Our fourth recommendation is for CSUEB to implement an emergency aid and micro-grant financial aid program for students. There is ample evidence that the cost of college is linked to student persistence (Kruger, Parnell, & Wesaw, 2016). While students take advantage of financial aid to finance their education, often students live at the edge of being able to afford daily expenses. If an emergency occurs and they need to cover an unexpected cost, they are forced to decide whether or not to continue with college. Often times, these expenses lead to a student stopping out or dropping out of an institution (Chaplot, Cooper, Johnstone, & Karandjeff, 2015; Dachelet & Goldrick-Rab, 2015). This is particularly troubling, as research continually demonstrates that students who take out loans for college and who drop out without earning a degree have higher unemployment rates than those who graduate, and have higher loan default rates (Nguyen, 2012). In order to ensure these students are able to successfully remain enrolled, colleges have become increasingly aware of the reality that many students will encounter these types of financial emergencies, and institutions have implemented steps to assist students through such financial struggles (Kruger, Parnell, & Wesaw, 2016).

CSUEB currently offers a Book Voucher program, which is a form of emergency aid for students that provides up to \$500 for textbooks (CSUEB, 2018b). However, there are many other types of emergency aid that could be offered, including one-time grants, loans, vouchers, and scholarships in amounts less than \$1,500:

Type of Aid	Primary use
Vouchers	To cover textbooks, meals from the dining hall, or transportation passes
Completion Scholarships	To cover outstanding account balances for students ready to graduate
Emergency Loans	To cover financial hardships that result from the timing of financial aid distributions

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Type of Aid	Primary use
Food Pantries	To address student food insecurities
Restricted/Unrestricted Grants	To cover expenses for students who encounter unexpected hardships

Source: Kruger, Parnell, & Wesaw, 2016, p. 10

A key challenge for many programs implementing emergency aid is how to define the criteria of what constitutes a financial emergency (Geckeler, 2008). However, a survey of 102 emergency aid programs across the country found that nearly all programs (90%) used a definition of emergency as something that is “unforeseen”, “unexpected” or “sudden” (Dachelet & Goldrik-Rab, 2015, p. 8). Additionally, the types of expenses most often covered through emergency aid programs included medical care, living expenses (housing/rent, utilities), transportation, and/or childcare (Dachelet & Goldrik-Rab, 2015). A second challenge is funding these emergency grant programs. However, many schools have leveraged donations from the institutions’ faculty and staff, alumni, local businesses, friends of the college, and through fundraising events. Programs have reported that these types of philanthropic requests are appealing to donors, who are able to feel that a small contribution will have a major impact on a student’s success (Chaplot et al., 2015; Geckeler, 2008).

Evidence of the success of these emergency aid programs is growing, as more research is being conducted on these programs. For instance, Georgia State University offers an emergency tuition program and has reportedly brought 2,600 students back to re-enroll. In 2012-13, they offered average grants of \$900 to needy senior students, and 70 percent of students with this aid graduated within two semesters (Baum, McDemmond, & Jones, 2014). Additionally, in a study by the nonprofit MDRC in 2009, low-income students were given awards of up to \$1,000 for two semesters, and their term-to-term re-enrollment rates were 30 percent higher than for students without the awards (Chaplot et al., 2015).

Adoption of emergency aid programs for students will allow them to address financial emergencies if and when they arise, and to reduce the pressure for students to work to cover the unexpected financial obligations.

This study is an important addition to the literature on college retention. Although retention is one of the most studied topics in higher education (Tinto, 2006), college retention rates have not significantly increased over the past three decades (Braxton et al., 2014; DeBerard, Spielmans, & Julka, 2004; Porter, 1989). The literature directs policymakers and higher education administrators to pay special attention to the first year of college, as students are most likely to drop out in their first year due to the challenges of transitioning into college (Braxton et al., 2014; Galvez-Kiser, 2006; Hoffman, Richmond, Morrow, & Salomone, 2002; Lu, 1994; Spady, 1970; Tinto, 1975; Tinto & Goodsell, 1993). Research also provides insight into the challenges that special student populations face, including first-generation, low socioeconomic status, students of color, and commuter students. However, the preponderance of such research focuses on a deficiency-based perspective, as opposed to identifying key factors that lead to at-risk students' persistence and success (Stephens, Hamedani, & Destin, 2014).

This study has built off previous research with a focus on why at-risk students persist beyond their first year at California State University East Bay. Specifically, this study offers key findings regarding first-year student success through the frameworks of Tinto's (1975) interactionist theory, Rendón's (1994) student validation theory, and Bourdieu (1977) and Coleman's (1988) social reproduction theory, including the importance of pre-college preparation and family/peer networks in developing social and cultural capital; academic and social integration within the first year; and fiscal security as it relates to college and living costs. In addition, this study provides unique findings that deserve further investigation, including the negative relationship between being Caucasian/White and first-year persistence, and the positive relationship between persistence and being Pell Grant eligible. The findings from our study informed our recommendations, which were to increase academic advising, family engagement, and tutoring/Supplemental Instruction programs, as well as establish an emergency aid program for students. We acknowledge our findings may be unique to CSUEB and its particular context as an access-focused, primarily commuter, highly diverse college campus. However, with the demographics of the United States shifting toward a minority-majority nation (Wazwaz, 2015, July), the findings and recommendations of this study offer important insights and opportunities for further research. We recommend additional studies on the risk factors that predict persistence in the first year within very diverse campus settings and the effectiveness of interventions that support these high-risk students to uncover potential future trends on college campuses and best practices to support students at risk of dropping out in the first year.

- Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, DC: U.S. Department of Education.
- Arbona, C., & Nora, A. (2007). The influence of academic and environmental factors on Hispanic college degree attainment. *Review of Higher Education, 30*, 247-269.
- Arthur, N. (1998). The effects of stress, depression, and anxiety on postsecondary students' coping strategies. *Journal of College Student Development, 39*(1), 11-22.
- Astin, A. W. (1973a). The impact of dormitory living on students. *Educational Record, 54*(9), 204-210.
- Astin, A. W. (1973b). Measurement and determinants of the outputs of higher education. In L. Solomon & P. Taubma (Eds.), *Does college matter? Some evidence on the impacts of higher education* (pp. 107-127). New York: Academic Press.
- Astin, A. W. (1985). Involvement: The cornerstone of excellence. *Change, 17*(4), 35-39.
- Astin, A. W. (1987). Retaining and satisfying students. *Educational Record, 68*(1), 36-42.
- Astin, A. W. (1993). What matters in college? *Liberal Education, 79*(4), 4-15.
- Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 40*(5), 518-529.
- Babbie, E. (2008). *The basics of social research* (4th ed.). Belmont, CA: Thompson Higher Education.
- Baker, T. L., & Velez, W. (1996). Access to and opportunity in postsecondary education in the United States: A review. *Sociology of Education, 69*(Extra Issue: Special Issue on Sociology and Educational Policy: Bringing Scholarship and Practice Together), 82-101.
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachandran (Ed.), *Encyclopedia of human behavior* (Vol. 4., pp. 71-81). New York: Academic Press.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman and Company.
- Barnett, E. (2011). Validation experiences and persistence among community college students. *The Review of Higher Education, 34*(2), 193-230.
- Baum, S., & Ma, J. (2012). *Trends in college pricing*. New York: The College Board. Retrieved from <https://trends.collegeboard.org/sites/default/files/college-pricing-2012-full-report-121203.pdf>
- Baum, S., McDemmond, M., & Jones, G. (2014). *Institutional strategies for increasing affordability and success for low-income students in the regional public four-year sector: Tuition and financial aid*. Washington, DC: HCM Strategists, LLC and Bill & Melinda Gates Foundation. Retrieved from http://hcmstrategists.com/maximizingresources/images/Tuition_Paper.pdf
- Bean, J. P. (1982). Student attrition, intentions, and confidence: Interaction effects in a path model. *Research in Higher Education, 17*(4), 291-320.
- Bean, J. P. (1983). The application of a model of turnover in work organizations to the student attrition process. *The Review of Higher Education, 6*(2), 129-148.
- Bean, J. P. (1990). Why students leave: Insights from research. In D. Hossler, J. P. Bean, & Associates (Eds.), *The strategic management of college enrollments* (pp. 147-169). San Francisco: Jossey Bass.
- Bean, J. P. (2005). Nine themes of college student retention. In A. Seidman (Ed.), *College student retention: Formula for success* (pp. 215-244). Westport, CT: Praeger.

9 REFERENCES

- Bean, J., & Eaton, S. B. (2000). A psychological model of college student retention. In J. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 48-61). Nashville, TN: Vanderbilt University Press.
- Bean, J., & Eaton, S. B. (2001). The psychology underlying successful retention practices. *Journal of College Student Retention*, 3(1), 73-89.
- Bean, J., & Eaton, S. B. (2002). A psychological model of college student retention. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 48-61). Nashville, TN: Vanderbilt University Press.
- Bean, J. P., & Hull, D. F. (1984). Determinants of black and white student attrition at a major southern state university. Paper presented at an annual meeting of the American Educational Research Association, New Orleans.
- Belenky, M. F., Clinchy, B. M., Goldberger, N. R., & Tarule, J. M. (1986). *Women's ways of knowing: The development of self, voice, and mind* (Vol. 15). New York: Basic books.
- Bell, A., Rowa-Kenyon, H., & Perna, L. (2009). College knowledge of 9th and 11th grade students: Variation by school and state context. *Journal of Higher Education*, 80(6), 663-685.
- Bergerson, A. A. (2009). College choice and access to college: Moving policy, research, and practice to the 21st century. *ASHE Higher Education Report*, 35(4), 1-141.
- Bergman, M. M. (Ed.). (2008). *Advances in mixed methods research*. London: SAGE Publications Ltd.
- Berkner, L., He, S., and Cataldi, E.F. (2002). *Descriptive summary of 1995-96 beginning postsecondary students: Six years later (NCES 2003-151)*. U.S. Department of Education. Washington, DC: National Center for Education Statistics.
- Bettinger, E. P., & Baker, R. B. (2014). The effects of student coaching: An evaluation of a randomized experiment in student advising. *Educational Evaluation and Policy Analysis*, 36(1), 3-19.
- Bettinger, E., Long, B., Oreopoulos, P., Sanbonmatsu, L. (2012). The role of application assistance and information in college decisions: Results from the H&R Block FAFSA experiment. *The Quarterly Journal of Economics*, 127(3), 1205-1242.
- Billson, J. M., & Terry, M. B. (1982). *In search of the silken purse: Factors in attrition among first-generation students* (Rev.). Revision of a paper presented at the Annual Meeting of the Association of American Colleges (Denver, CO, January 1981). Retrieved from <https://eric.ed.gov/?id=ED214431>
- Bloom, J. L., Hutson, B. L. & He, Y. (2013). Appreciative advising. In J. K. Drake, P. Jordan, & M. A. Miller (Eds.), *Academic Advising Approaches*. San Francisco, CA: Jossey-Bass.
- Boatman, A., & Long, B. (2016). Does financial aid impact college student engagement? Evidence from the Gates Millennium Scholars program. *Research in Higher Education*, 57(6), 653-681.
- Bok, D. (2013). *Higher education in America*. Princeton, NJ: Princeton University Press.
- Bourdieu, P. (1977). Cultural reproduction and social reproduction. In J. Karabel & A. H. Halsey (Eds.), *Power and ideology in education* (pp. 487-511). Oxford, UK: Oxford University Press.
- Bowen, W., Chingos, M., & McPherson, M. (2011). *Crossing the finish line: Completing college at America's public universities*. Princeton, NJ: Princeton University Press.
- Bowen, W. G., & McPherson, M. S. (2016). *Lesson plan: An agenda for change in American higher education*. Princeton, NJ: Princeton University Press.
- Boyer, E. L. (1987). *College: The undergraduate experience in America*. New York: Harper & Row, Publishers, Inc.

9 REFERENCES

- Boylan, H., Bliss, L., & Bonham, B. (1997). Program components and their relationship to student success. *Journal of Developmental Education, 20*(3), 2-4, 6, 8.
- Bozick, R., & Ingels, S. J. (2008). *Mathematics course taking and achievement at the end of high school: Evidence from the education longitudinal study of 2002* (NCES 2008-319). Washington, DC: National Center for Education Statistics.
- Bradbury, B., & Mather, P. (2009). The integration of first-year, first-generation college students from Ohio Appalachia. *NASPA Journal, 46*(2), 258-281.
- Braxton, J. M. (Ed.). (2000). *Reworking the student departure puzzle*. Nashville, TN: Vanderbilt University Press.
- Braxton, J. M., & Brier, E. M. (1989). Melding organizational and interactional theories of student attrition: A path analytic study. *The Review of Higher Education, 13*(1), 47-61.
- Braxton, J. M., Brier, E. M., & Hossler, D. (1988). The influence of student problems on student withdrawal decisions: An autopsy on "autopsy" studies. *Research in Higher Education, 28*(3), 241-253.
- Braxton, J., Doyle, W., Hartley, H., Hirschy, A., Jones, W., & McLendon, M. (2014). *Rethinking college student retention*. San Francisco, CA: Jossey-Bass.
- Braxton, J. M., Duster, M., & Pascarella, E. T. (1988). Causal modeling and path analysis: An introduction and an illustration in student attrition research. *Journal of College Student Development, 29*(3), 263-272.
- Braxton, J. M., Hirschy, A. S., & McClendon, S. A. (2004). *Understanding college student departure: ASHE-ERIC Higher Education Report, Volume 30, Number 3*. John Wiley & Sons.
- Braxton, J. M., & McClendon, S. A. (2001). The fostering of social integration and retention through institutional practice. *Journal of College Student Retention, 3*(1), 57-71.
- Braxton, J. M., Shaw Sullivan, A. V., & Johnson, R. M. (1997). Appraising Tinto's theory of college student departure. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research, Volume XII* (pp. 107-164). Flemington, NJ: Agathon Press.
- Braxton, J. M., Vesper, N., & Hossler, D. (1995). Expectations for college and student persistence. *Research in Higher Education 36*(5), 595-611.
- Cabrera, A. F., Castaneda, M. B., Nora, A., & Hengstler, D. (1992). The convergence between two theories of college persistence. *The Journal of Higher Education, 63*(2), 143-164.
- Cabrera, A. & La Nasa, S. (2001). On the path to college: Three critical tasks facing America's disadvantaged. *Research in Higher Education, 42*(2), 119-149.
- Cabrera, A. F., & Nora, A. (1994). College students' perceptions of prejudice and discrimination and their feelings of alienation: A construct validation approach. *The Review of Education/Pedagogy/Cultural Studies, 16*(3-4), 387-409.
- Cabrera, A. F., Nora, A., & Castaneda, M. B. (1993). College persistence: Structural equations modeling test of an integrated model of student retention. *The Journal of Higher Education, 64*(2), 123-139.
- Cabrera, A. F., Stampen, J. O., & Hansen, W. L. (1990). Exploring the effects of ability to pay on persistence in college. *The Review of Higher Education, 13*(3), 303-336.
- California State University, East Bay. (2016a). Orientation. Retrieved from <http://www.csueastbay.edu/ceas/orientation/theCampus.html>
- California State University, East Bay. (2016b). Student data. Institutional Research, Analysis and Decision Support. Retrieved from <http://www.csueastbay.edu/ir/students/index.html>

9 REFERENCES

- California State University (2018a). Graduation Initiative 2025. Retrieved from <https://www2.calstate.edu/csu-system/why-the-csu-matters/graduation-initiative-2025>.
- California State University, East Bay. (2018b). *Book vouchers*. Retrieved from <http://www.csueastbay.edu/financialaid/types-of-aid/book-vouchers.html>
- California State University, East Bay. (2018c). *University history*. Retrieved from <http://www.csueastbay.edu/about/university-history.html>
- Carnevale, A. P., Jayasundera, T., & Cheah, B. (2012). *The college advantage: Weathering the economic storm*. Washington, DC: The Georgetown University Center on Education and the Workforce. Retrieved from <https://cew.georgetown.edu/cew-reports/the-college-advantage/>
- Carnevale, A. P., Smith, N., & Strohl, J. (2013). *Recovery: Projection of jobs and education requirements through 2020*. Washington, DC: The Georgetown University Center on Education and the Workforce. Retrieved from <https://cew.georgetown.edu/cew-reports/recovery-job-growth-and-education-requirements-through-2020/>
- Castleman, B., & Long, B. (2016). Looking beyond enrollment: The causal effect of need-based grants on college access, persistence, and graduation. *Journal of Labor Economics*, 34(4), 1023-1061.
- Cavote, S., & Kopera-Frye, K. (2007). Non-traditional student persistence and first year experience courses. *Journal of College Student Retention*, 8(4), 477-489.
- Chaplot, P., Cooper, D., Johnstone, R., & Karandjeff, K. (2015). *Beyond financial aid: How colleges can strengthen the financial stability of low-income students and improve student outcomes*. Indianapolis, IN: Lumina Foundation. Retrieved from <https://www.luminafoundation.org/files/publications/BFA/Beyond.Financial.Aid.pdf>
- Charles, C., Fischer, M., Mooney, M., & Massey, D. (2009). *Taming the river: Negotiating the academic, financial, and social currents in selective colleges and universities*. Princeton, NJ: Princeton University Press.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide to qualitative analysis*. Thousand Oaks, CA: Sage Publications.
- Chickering, A. W. (1974). *Commuting versus resident students: Overcoming the educational inequities of living off campus*. San Francisco: Jossey Bass.
- Choy, S. (2001). *Students whose parents did not go to college: Postsecondary access, persistence, and attainment. Findings from the condition of education 2001*. Washington, DC: National Center for Education Statistics. Retrieved from <https://nces.ed.gov/pubs2001/2001126.pdf>
- Clark, M. R. (2005). Negotiating the freshman year: Challenges and strategies among first-year college students. *Journal of College Student Development*, 46(3), 296-316.
- Clark, J. M., & Halpern, D. F. (1993). The million-dollar question: Can an intensive learning experience help lowest-quartile students succeed in college? *Journal of Instructional Psychology*, 20(1), 29-39.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95-S120.
- Colton, G. M., Connor Jr, U. J., Shultz, E. L., & Easter, L. M. (1999). Fighting attrition: One freshman year program that targets academic progress and retention for at-risk students. *Journal of College Student Retention*, 1(2), 147-162.
- Colver, M., & Fry, T. (2016). Evidence to support peer tutoring programs at the undergraduate level. *Journal of College Reading and Learning*, 46(1), 16-41.

9 REFERENCES

- Congos, D. H., & Schoeps, N. (1998). Inside supplemental instruction sessions: One model of what happens that improves grades and retention. *Research and Teaching in Developmental Education, 15*(1), 46-61.
- Crockett, D. S. (1985). Academic advising. In L. Noel, R. Levitz, & D. Saluri (Eds.), *Increasing student retention* (pp. 244-263). San Francisco, CA: Jossey-Bass.
- Crutchfield, R. (2016). Serving displaced and food insecure students in the CSU. California State University. Retrieved from <http://www.calstate.edu/AcadAff/documents/ServingDisplacedandFoodInsecureStudentsintheCSUJanuary20163.8.16.pdf>
- Cutrona, C. E., Cole, V., Colangelo, N., Assouline, S. G., & Russell, D. W. (1994). Perceived parental social support and academic achievement: an attachment theory perspective. *Journal of Personality and Social Psychology, 66*(2), 369-378.
- Dachelet, K., & Goldrick-Rab, C. (2015). *Investing in student completion: Overcoming financial barriers to retention through small-dollar grants and emergency aid programs*. Madison, WI: Wisconsin HOPE Lab. Retrieved from http://wihopelab.com/publications/Investing-in-Student-Completion-WI-Hope_Lab.pdf
- De la Rosa, M. L. (2006). Is opportunity knocking? Low-income students' perceptions of college and financial aid. *American Behavioral Scientist, 49*(12), 1670-1686.
- DeBerard, M. S., Spielmans, G., & Julka, D. (2004). Predictors of academic achievement and retention among college freshmen: A longitudinal study. *College Student Journal, 38*(1), 66-80.
- Delbanco, A. (2012). *College: What it was, is, and should be*. Princeton, NJ: Princeton University Press.
- DeSimone, J. (2008). *The impact of employment during school on college student academic performance* (NBER working paper 14006). Cambridge, MA: National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w14006>
- Desjardins, S., McCall, B., Ott, M, & Kim, J, (2010). A quasi-experimental investigation of how the Gates Millennium Scholars Program is related to college students' time use and activities. *Educational Evaluation and Policy Analysis, 32*(4), 456-475.
- Donovan, R. (1984). Path analysis of a theoretical model of persistence in higher education among low-income black youth. *Research in Higher Education 21*(3), 243-259.
- Doyle, W. R. (2007). The political economy of redistribution through higher education subsidies. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. XXII, pp. 335-410). New York: Springer.
- Doyle, W. R. (2013). *A new partnership: Reshaping the federal and state commitment to need-based aid*. Washington, DC: Committee on Economic Development. Retrieved from <https://files.eric.ed.gov/fulltext/ED544377.pdf>
- Drake, J. K., Jordan, P., Miller, M. A. (Eds.). (2013). *Academic advising approaches: Strategies that teach students to make the most of college*. San Francisco, CA: Jossey-Bass.
- Dudick, J., Mathews, B., & Cady, C. (2016). Hunger on campus: The challenge of food insecurity for college students. Retrieved from http://studentsagainsthunger.org/wp-content/uploads/2016/10/Hunger_On_Campus.pdf
- Dvorak, J. (2004). Managing tutoring aspects of the learning assistance center. *Research for Educational Reform, 9*(4), 39-51.

9 REFERENCES

- Dynarski, S. (2008). Building the stock of college-educated labor. *Journal of Human Resources*, 43(3), 576-610.
- Eimers, M. T., & Pike, G. R. (1997). Minority and nonminority adjustment to college: Differences or similarities? *Research in Higher Education*, 38(1), 77-97.
- Elkins, S. A., Braxton, J. M., & James, G. W. (2000). Tinto's separation stage and its influence on first-semester college student persistence. *Research in Higher Education*, 41(2), 251-268.
- Engle, J., Tinto, V., & Pell Institute for the Study of Opportunity in Higher Education. (2008). *Moving beyond access: College success for low-income, first generation students*. Washington, DC: The Pell Institute. Retrieved from <https://files.eric.ed.gov/fulltext/ED504448.pdf>
- Fann, A., McClafferty Jarsky, K., McDonough, P. (2009). Parent involvement in the college planning process: A case study of P-20 collaboration. *Journal of Hispanic Higher Education*, 8(4), 374-393.
- Ferguson, R. F. (2008). What we've learned about stalled progress in closing the Black-White achievement gap. In K. Magnuson, & J. Waldfogel (Eds.), *Steady gains and stalled progress: Inequality and the Black-White test score gap* (pp. 320-343). New York: Russell Sage Foundation.
- Feulner, N. (2016). Spotlight on diversity: Cal State East Bay's students and inclusive programs gain national attention, top rankings lists. *East Bay Today*. Retrieved from <https://www.ebtoday.com/stories/spotlight-on-diversity>
- Fine, M. (1988). De-institutionalizing educational inequity: Contexts that constrict and construct the lives and minds of public-school adolescents. In Council of Chief State School Officers (Ed.), *School success for students at risk* (pp. 89-119). Orlando: Harcourt Brace Jovanovich Publishers.
- Fisher, S., & Hood, B. (1987). The stress of the transition to university: a longitudinal study of psychological disturbance, absent-mindedness and vulnerability to homesickness. *British Journal of Psychology*, 78(4), 425-441.
- Flores, S., & Oseguera, L. (2013). Public policy and higher education attainment in a twenty-first century racial demography: Examining research from early childhood to the labor market. In Paulsen, M. B. (Ed.), *Higher Education Handbook of Theory and Research* (pp. 513-560). Dordrecht, The Netherlands: Springer Science + Business Media.
- Freeman, K. (1997). Increasing African Americans' participation in higher education: African American high school students. *Journal of Higher Education*, 68(5), 523-550.
- Furstenberg, F. F., & Hughes, M. E. (1997). The influence of neighborhoods on children's development: A theoretical perspective and a research agenda. In J. Brooks-Gunn, G. J. Duncan, & J. L. Aber, *Neighborhood poverty volume II: Policy implications in studying neighborhoods* (pp. 23-47). New York: Russell Sage Foundation.
- Gallard, A. J., Albritton, F., & Morgan, M. W. (2010). A comprehensive cost/benefit model: Developmental student success impact. *Journal of Developmental Education*, 34(1), 10-25.
- Galvez-Kiser, A. I. T. (2006). *An analysis of the factors that contribute to the persistence of college students from their freshman to sophomore year*. Ph.D. dissertation, Texas State University - San Marcos, United States - Texas. Retrieved from ProQuest Digital Dissertations database. (Publication No. AAT 3203843).

9 REFERENCES

- Gamoran, A. (2001). American schooling and educational inequality: A forecast for the 21st century. *Sociology of Education*, 74(Extra Issue: Current of Thought: Sociology of Education at the Dawn of the 21st Century), 135-153.
- Geckeler, C. (2008). *Helping community college students cope with financial emergencies: Lessons from the Dreamkeepers and Angel Fund emergency financial aid programs*. Oakland, CA: MDRC. Retrieved from https://www.mdrc.org/sites/default/files/full_383.pdf
- Gifford, D. D., Briceno-Perriott, J., & Mianzo, F. (2006). Locus of control: academic achievement and retention in a sample of university first-year students. *Journal of College Admission*, 191, 18-25.
- Goldrick-Rab, S. (2010). Challenges and opportunities for improving community college student success. *Review of Educational Research*, 80(3), 437-469.
- Grites, T. J. (2013). Developmental academic advising. In J. K. Drake, P. Jordan, & M. A. Miller (Eds.) *Academic advising approaches: Strategies that teach students to make the most of college* (pp. 45-59). San Francisco: Jossey-Bass and the National Academic Advising Association.
- Habley, W. R., & McClanahan, R. (2004). *What works in student retention? Four-year public colleges*. Iowa City, IA: American College Testing.
- Habley, W. R. (1981). Academic advisement: The critical link in student retention. *National Association of Student Personnel Administrators Journal*, 18(4), 45-50.
- Hallinan, M. T. (1994). Tracking: From theory to practice. *Sociology of Education*, 67(2), 79-84.
- Hays, R. B., & Oxley, D. (1986). Social network development and functioning during a life transition. *Journal of Personality and Social Psychology*, 50(2), 305.
- He, Y., & Hutson, B. (2016). Appreciative assessment in academic advising. *The Review of Higher Education* 39(2), 213-240.
- Hemphill, J. (2003). Interpreting the magnitudes of correlation coefficients. *American Psychologist*, 58(1), 78-79.
- Hendricks, A. D., Smith, K., Caplow, J. H., & Donaldson, J. F. (1996). A grounded theory approach to determining the factors related to the persistence of minority students in professional programs. *Innovative Higher Education*, 21(2), 113-126.
- Hoffman, J. L., & Lowitzki, K. E. (2005). Predicting college success with high school grades and test scores: Limitations for minority students. *The Review of Higher Education*, 28(4), 455-474.
- Hoffman, M., Richmond, J., Morrow, J., & Salomone, K. (2002). Investigating "sense of belonging" in first-year college students. *Journal of College Student Retention*, 4(3), 227-256.
- Horn, L. J. (1998). *Stopouts or stayouts? Undergraduates who leave college in their first year*. Washington, DC: National Center for Education Statistics. Retrieved from <https://nces.ed.gov/pubs99/1999087.pdf>
- Horn, L., Nevill, S., & Griffith, J. (2006). *Profile of undergraduates in US postsecondary education institutions, 2003-04: With a special analysis of community college students*. NCES 2006-184. Washington, DC: National Center for Education Statistics. Retrieved from https://nces.ed.gov/pubs2006/2006184_rev.pdf
- Hossler, D., Schmit, J., & Vesper, N. (1999). *Going to college: How social, economic, and educational factors influence the decisions students make*. Baltimore: The Johns Hopkins University Press.
- Hossler, D., & Vesper, N. (1993). An exploratory study of the factors associated with parental saving for postsecondary education. *The Journal of Higher Education*, 64(2), 140-165.

9 REFERENCES

- Hsiao, K. P. (1992). *First-generation college students*. ERIC Digest. Los Angeles, CA: ERIC Clearinghouse for Junior Colleges. Retrieved from <https://files.eric.ed.gov/fulltext/ED351079.pdf>
- Hurd, M., Tan, S., & Loeb, E. (2016). Natural mentoring relationships and the adjustment to college among underrepresented students. *American Journal of Community Psychology, 57*, 330-341.
- Hurley, M., Jacobs, G., & Gilbert, M. (2006). The basic SI model. In M. E. Stone and G. Jacobs (Eds.), *Supplemental instruction: New visions for empowering student learning: New directions for teaching and learning* (No. 106, pp. 11-22). San Francisco, CA: Jossey Bass.
- Iffert, R. E. (1958). *Retention and withdrawal of college students*. Bulletin 1958, No. 1. Washington, DC: U.S. Government Printing Office. Retrieved from <https://files.eric.ed.gov/fulltext/ED543830.pdf>
- Immerwahr, J., Johnson, J., & Gasbarra, P. (2008). *The iron triangle: College presidents talk about costs, access and quality*. San Jose, CA: The National Center for Public Policy and Higher Education and Public Agenda. Retrieved from <https://files.eric.ed.gov/fulltext/ED503203.pdf>
- Inch, E. (2016). California State University, East Bay: Campus success plan. Hayward, CA: California State University, East Bay. Retrieved from <https://www2.calstate.edu/csu-system/why-the-csu-matters/graduation-initiative-2025/Campus%20Plans/east-bay-campus-plan.pdf>
- Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *The Journal of Higher Education, 77*(5), 861-885.
- Ishitani, T. T., & Desjardins, S. L. (2002). A longitudinal investigation of dropout from college in the United States. *Journal of College Student Retention, 4*(2), 173-201.
- Ishitani, T. T., & Reid, A. M. (2015). First-to-second-year persistence profile of commuter students. *New Directions for Student Services, 2015*(150), 13-26.
- Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods, 18*(1), 3-20.
- Iwai, S. I., & Churchill, W. D. (1982). College attrition and the financial support systems of students. *Research in Higher Education, 17*(2), 105-113.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research, 1*(2), 112-133.
- Jury, M., Smedding, A., Stephens, N., Nelson, J., Aelenie, C., Darnon, C. (2017). The experience of low-SES students in higher education: Psychological barriers to success and interventions to reduce social-class inequality. *Journal of Social Issues, 73*(1), 23-41.
- Kalsbeek, D. (2013). Framing retention for institutional improvement: A 4 Ps framework. *New Directions for Higher Education, 161*.
- Kane, T. J. (1999). *The price of admission*. Washington, DC: Brookings Institution.
- Kennedy, P. W., Sheckley, B. G., & Kehrhahn, M. T. (2000). *The dynamic nature of student persistence: Influence of interactions between student attachment, academic adaptation, and social adaptation*. Presented at the 40th Annual Forum. Cincinnati, OH: The Association for Institutional Research. Retrieved from <https://eric.ed.gov/?id=ED445632>
- Kenny, M. E., & Stryker, S. (1996). Social network characteristics and college adjustment among racially and ethnically diverse first-year students. *Journal of College Student Development, 37*(6), 649-658.
- Kim, J. (2015). Predictors of college retention and performance between regular and special admissions. *Journal of Student Affairs Research and Practice, 52*(1), 50-63.

9 REFERENCES

- Kirby, D., & Sharpe, D. (2001). Student attrition from Newfoundland and Labrador's public college. *Alberta Journal of Educational Research*, 47(4), 353-368.
- Kirk, C. M., & Lewis, R. K. (2015). Sense of community on an urban, commuter campus. *International Journal of Adolescence and Youth*, 20(1), 48-60.
- Kiyama, J., Harper, C., Ramos, D., Aguayo, D., Page, L., & Reister, K. (2015). The relationship between college students and their families. *ASHE Higher Education Report*, 40(1), 1-94.
- Kobrin, J., Patterson, B., Shaw, E., Mattern, K., & Barbuti, S. (2008). *The validity of the SAT for predicting first-year college grade point average* (College Board Research Report 2008-5). New York NY: The College Board. Retrieved from <https://research.collegeboard.org/sites/default/files/publications/2012/7/researchreport-2008-5-validity-sat-predicting-first-year-college-grade-point-average.pdf>
- Kolkhorst, B., Yazedjian, A., & Toews, M. (2010). Students' perceptions of parental support during the college years. *College Student Affairs Journal*, 29(1), 47-63.
- Korbin, J., & Coulton, C. J. (1997). Understanding the neighborhood context for children and families: Combining epidemiological and ethnographic approaches. In J. Brooks-Gunn, G. J. Duncan, & J. L. Aber, *Neighborhood poverty Volume II: Policy implications in studying neighborhoods* (pp. 65-79). New York: Russell Sage Foundation.
- Kot, F. C. (2014). The impact of centralized advising on first-year academic performance and second-year enrollment behavior. *Research in Higher Education*, 55(6), 527-563.
- Kraemer, B. A. (1997). The academic and social integration of Hispanic students into college. *The Review of Higher Education*, 20, 163-179.
- Kruger, K., Parnell, A., & Wesaw, A. (2016). *Landscape analysis of emergency aid programs*. Washington, DC: NASPA. Retrieved from https://www.naspa.org/images/uploads/main/Emergency_Aid_Report.pdf
- Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education*, 79(5), 540-563.
- Kuh, G. D., Kinzie, J., Schuh, J. H. & Whitt, E. J. (Eds.). (2005). *Student success in college: Creating conditions that matter* (1st ed.). San Francisco, CA: Jossey-Bass.
- Kuh, G. D., Kinzie, J., Schuh, J. H., Whitt, E. J., & Associates. (2010). *Student success in college: Creating conditions that matter* (2nd ed.). San Francisco, CA: Jossey-Bass.
- Kuh, G. D., Kinzie, J., Buckley, J., Bridges, B., & Hayek, J. C. (2007). Piecing together the student success puzzle: Research, propositions, and recommendations. *ASHE Higher Education Report*, 32(5). San Francisco: Jossey-Bass.
- Kuhn, D., & Franklin, S. (2008). The second decade: What develops (and how)? In W. Damon & R. M. Lerner (Eds.), *Child and adolescent development: An advanced course* (pp. 517-550). Hoboken, NJ: Wiley.
- Lareau, A. (1987). Social class differences in family-school relationships: The importance of cultural capital. *Sociology of Education*, 60(2), 73-85.
- Laskey, M. L., & Hetzel, C. J. (2011). Investigating factors related to retention of at-risk college students. *Learning Assistance Review (TLAR)*, 16(1), 31-43.
- Lau, L. K. (2003). Institutional factors affecting student retention. *Education-Indianapolis then Chula Vista-*, 124(1), 126-136.

9 REFERENCES

- Lee, J. (2012). College for all: Gaps between desirable and actual p-12 math achievement. Trajectories for college readiness. *Educational Researcher*, 41(2), 43-55.
- Levine, A. (1991). *Perspectives on the freshman year*. Columbia, SC: National Resource Center for the Freshman Year Experience.
- Levitz, R. S., Noel, L., & Richter, B. J. (1999). Strategic moves for retention success. *New Directions for Higher Education*, 1999(108), 31-49.
- Levitz, R. S., Noel, L., & Saluri, D. (1985). *Increasing student retention: Effective programs and practices for reducing the dropout rate*. San Francisco, CA: Jossey-Bass.
- Long, M. C., Conger, D., & Iatarola, P. (2012). Effects of high school course-taking on secondary and postsecondary success. *American Educational Research Journal*, 49(2), 285-322.
- Lotkowski, V. A., Robbins, S. B., & Noeth, R. J. (2004). *The role of academic and non-academic factors in improving college retention*. New York: ACT. Retrieved from <https://files.eric.ed.gov/fulltext/ED485476.pdf>
- Loveless, T., & Field, K. (2009). Perspectives on charter schools. In M. Berends, M. G. Springer, D. Ballou, & H. J. Walberg (Eds.), *Handbook of research on school choice* (pp. 99-114). London: Routledge.
- Lowenstein, M. (2013). Envisioning the future. In J. K. Drake, P. Jordan, & M. A. Miller (Eds.), *Academic advising approaches: Strategies that teach students to make the most of college* (pp. 243-258). San Francisco, CA: Jossey-Bass.
- Lu, L. (1994). University transition: Major and minor life stressors, personality characteristics and mental health. *Psychological Medicine*, 24(1), 81-87.
- Ma, J., & Baum, S. (2016). *Trends in community colleges: Enrollment, prices, student debt, and completion*. New York, NY: The College Board. Retrieved from <https://trends.collegeboard.org/sites/default/files/trends-in-community-colleges-research-brief.pdf>
- MacLeod, J. (1995). Social reproduction in theoretical perspective. In J. MacLeod (Ed.), *Ain't no makin it: Aspirations and attainment in a low-income neighborhood* (pp. 11-24). Boulder, CO: Westview Press.
- Mamiseishvili, K. (2010). Effects of employment on persistence of low-income, first-generation college students. *College Student Affairs Journal*, 29(1), 65-74.
- Mangold, W. D., Bean, L. G., Adams, D. J., Schwab, W. A., & Lynch, S. M. (2002). Who goes who stays: An assessment of the effect of a freshman mentoring and unit registration program on college persistence. *Journal of College Student Retention*, 4(2), 95-122.
- Martinez, S. M., Maynard, K., & Ritchie, L. D. (2016). *Student food access and security study*. Oakland, CA: Nutrition Policy Institute. Retrieved from <http://regents.universityofcalifornia.edu/regmeet/july16/e1attach.pdf>
- Mayhew, M. J., Rockenbach, A. N., Bowman, N. A., Seifert, T. A., Wolniak, G. C., Pascarella, E. T., & Terenzini, P. T. (2016). *How college affects students: 21st century evidence that higher education works* (3rd ed.). San Francisco, CA: Jossey-Bass.
- Moore, R., & LeDee, O. (2006). Supplemental instruction and the performance of developmental education students in an introductory biology course. *Journal of College Reading and Learning*, 36(2), 9-20.
- McDonough, P. (1997). *Choosing colleges: How social class and schools structure opportunity*. Albany, NY: State University of New York Press.

9 REFERENCES

- McGrath, M., & Braunstein, A. (1997). The prediction of freshmen attrition: An examination of the importance of certain demographic, academic, financial and social factors. *College Student Journal*, 31(3), 396-408.
- McLaughlin, B. M., & Starr, E. A. (1982). Academic advising literature since 1965: A college student personnel abstracts review. *NACADA Journal*, 2(2), 14-23.
- Metzner, B. S. (1989). Perceived quality of academic advising: The effect on freshman attrition. *American Educational Research Journal*, 26(3), 422-442.
- Metzner, B. S., & Bean, J. P. (1987). The estimation of a conceptual model of nontraditional undergraduate student attrition. *Research in Higher Education*, 27(1), 15-38.
- Meyer, J. W. (1977). The effects of education as an institution. *American Journal of Sociology*, 83(1), 55-77.
- Morrison, L., & Silverman, L. (2012). Retention theories, models, and concepts. In A. Seidman (Ed.), *College student retention: Formula for student success* (2nd ed.) (pp. 61-80). Lanham, MD: Rowman & Littlefield Publishers, Inc.
- Mortenson, T. (1997). Actual versus predicted institutional graduation rates for 1,100 colleges and universities. *Postsecondary Education Opportunity*, 58(1), 1-24.
- Murtaugh, P. A., Burns, L. D., & Schuster, J. (1999). Predicting the retention of university students. *Research in Higher Education*, 40(3), 355-371.
- NACADA. (2006). *NACADA concept of academic advising*. NACADA Clearinghouse. Retrieved from <http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Concept-of-Academic-Advising-a598.aspx>
- National Center for Education Statistics. (2012). *Higher education: Gaps in access and persistence study*. Washington, DC: National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubs2012/2012046.pdf>
- National Center for Education Statistics. (2018a). College navigator: California State University-East Bay. Institute of Education Sciences. Retrieved from <https://nces.ed.gov/collegenavigator/?s=CA&l=93&ct=1&ic=1&id=110574>
- National Center for Education Statistics. (2018b). Integrated Postsecondary Education Data System. Institute of Education Sciences. Retrieved from <https://nces.ed.gov/ipeds/datacenter/institutionprofile.aspx?unitId=acacabb0b2af>
- National Survey of Student Engagement. (2007). *Experiences that matter: Enhancing student learning and success*. Bloomington, IN: Indiana University Center for Postsecondary Research and Planning.
- Newcomb, T. M. (1962). Student peer-group influence and intellectual outcomes of college experience. Personality factors on the college campus. In R. L. Sutherland et al. (Eds.), *Personality factors on the college campus: Review of a symposium* (69-91). Austin, TX: The Hogg Foundation for Mental Health, University of Texas.
- Nguyen, M. (2012). *Degreeless in debt: What happens to borrowers who drop out*. Washington, DC: Education Sector. Retrieved from <https://eric.ed.gov/?id=ED529758>
- Noble, K., Flynn, N. T., Lee, J. D., & Hilton, D. (2007). Predicting successful college experiences: Evidence from a first year retention program. *Journal of College Student Retention*, 9(1), 39-60.
- Noble, J., & Sawyer, R. (2005). Is high school GPA better than admission test scores for predicting academic success in college? *College and University*, 9(4), 17-22.

9 REFERENCES

- Nora, A. (1987). Determinants of retention among Chicano college students: A structural model. *Research in Higher Education* 26, 31-59.
- Nora, A., & Cabrera, A. F. (1996). The role of perceptions of prejudice and discrimination on the adjustment of minority students to college. *The Journal of Higher Education*, 67(2), 119-148.
- Nunez, A. M., & Cuccaro-Alamin, S. (1998). *First-generation students: Undergraduates whose parents never enrolled in postsecondary education*. NCES 98-082. Washington, DC: National Center for Education Statistics. Retrieved from <https://nces.ed.gov/pubs98/98082.pdf>
- O'Brien, C., & Shedd, J. (2001). *Getting through college: Voices of low-income and minority students in New England. The New England Student Success Study*. Washington, DC: Institute for Higher Education Policy. Retrieved from <https://files.eric.ed.gov/fulltext/ED451770.pdf>
- Opidee, I. (2015). Supporting first-gen college students: 24 ideas for guiding students through the social, academic, financial, and administrative challenges of college. *University Business*. Retrieved from <https://www.universitybusiness.com/article/supporting-first-gen-college-students>
- Padilla, R. V. (1999). College student retention: Focus on success. *Journal of College Student Retention*, 1(2), 131-145.
- Padilla, R. V. (2001). *Chicana/o college students: Focus on success*. San Antonio, TX: Hispanic Association of Colleges and Universities. Retrieved from <http://www.hacu.net/images/hacu/padilla2.pdf>
- Padilla, R. V., Trevino, J., Gonzalez, K., & Trevino, J. (1997). Developing local models of minority student success in college. *Journal of College Student Development*, 38(2), 125.
- Pascarella, E. T. (1980). Student-faculty informal contact and college outcomes. *Review of Educational Research*, 50(4), 545-595.
- Pascarella, E. T. (1995). *What have we learned from the first year of the national study of student learning?* University Park, PA: National Center on Postsecondary Teaching, Learning, and Assessment. Retrieved from <https://files.eric.ed.gov/fulltext/ED381054.pdf>
- Pascarella, E. T., & Chapman, D. W. (1983). A multi-institutional, path analytic validation of Tinto's model of college withdrawal. *American Educational Research Journal*, 20(1), 87-102.
- Pascarella, E. T., Duby, P. B., & Iverson, B. K. (1983). A text and reconceptualization of a theoretical model of college withdrawal in a commuter institution setting. *Sociology of Education*, 56(2), 88-100.
- Pascarella, E. T., Duby, P. B., Miller, V. A., & Rasher, S. P. (1981). Preenrollment variables and academic performance as predictors of freshman year persistence, early withdrawal, and stopout behavior in an urban, nonresidential university. *Research in Higher Education*, 15(4), 329-349.
- Pascarella, E. T., Pierson, C. T., Wolniak, G. C., & Terenzini, P. T. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *The Journal of Higher Education*, 75(3), 249-284.
- Pascarella, E. T., Smart, J. C., & Ethington, C. A. (1986). Long-term persistence of two-year college students. *Research in Higher Education* 24(1), 47-71.
- Pascarella, E. T., & Terenzini, P. (1978). The relation of students' precollege characteristics and freshman year experience to voluntary attrition. *Research in Higher Education*, 9(4), 347-366.
- Pascarella, E. T., & Terenzini, P. T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *The Journal of Higher Education*, 51(1), 60-75.

9 REFERENCES

- Pascarella, E. T., & Terenzini, P. (1983). Path analytic validation of Tinto's model. *Journal of Educational Psychology, 75*(2), 215-226.
- Pascarella, E. & Terenzini, P. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco: Jossey- Bass.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (Vol. 2). San Francisco, CA: Jossey-Bass.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Peltier, G. L., Laden, R., & Matranga, M. (2000). Student persistence in college: A review of research. *Journal of College Student Retention, 1*(4), 357-375.
- Perna, L. W. (2006). Studying college access and choice: A proposed conceptual model. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. XXI, pp. 99-157). The Netherlands: Springer.
- Peterfreund, A. R., Rath, K. A., Xenos, S. P., & Bayliss, F. (2007-2008). The impact of supplemental instruction on students in STEM courses: Results from San Francisco State University. *Journal of College Student Retention, 9*(4), 487-503.
- Phinney, J. S., & Haas, K. (2003). The process of coping among ethnic minority first-generation college freshmen: A narrative approach. *The Journal of Social Psychology, 143*(6), 707-726.
- Porter, O. F. (1989) *Undergraduates completion and persistence at four-year colleges and universities: Completers, persisters, stopouts, and dropouts*. Washington, DC: National Institute of Independent Colleges and Universities. Retrieved from <https://files.eric.ed.gov/fulltext/ED319343.pdf>
- Price, J. (2008). Using purposeful messages to educate and reassure parents. In K. C. Carney-Hall (Ed.), *New Directions for Student Services: No. 122. Managing parent partnerships: Maximizing influence, minimizing interference, and focusing on student success* (pp. 29-42). San Francisco, CA: Jossey-Bass.
- Rendón, L. I. (1994). Validating culturally diverse students: Toward a new model of learning and student development. *Innovative Higher Education, 19*(1), 33-51.
- Rendón, L. I., Garcia, M., & Person, D. (2004). *Transforming the first year of college for students of color: The first-year experience monograph series No. 38*. Columbia, SC: National Resource Center for The First-Year Experience and Students in Transition, University of South Carolina. Retrieved from <https://eric.ed.gov/?id=ED503170>
- Rendón Linares, L. I., & Muñoz, S. M. (2011). Revisiting validation theory: Theoretical foundations, applications, and extensions. *Enrollment Management Journal, 5*(2), 12-33.
- Rheinheimer, D. C., Grace-Odeleye, B., Francois, G. E., & Kusorgor, C. (2010). Tutoring: A support strategy for at-risk students. *Learning Assistance Review (TLAR), 15*(1), 23-34.
- Rheinheimer, D., & McKenzie, K. (2011). The impact of tutoring on the academic success of undeclared students. *Journal of College Reading and Learning, 41*(2), 22-36.
- Richardson, R. C., & Skinner, E. F. (1992). Helping first-generation minority students achieve degrees. *New Directions for Community Colleges, 1992*(80), 29-43.
- Riehl, R. J. (1994). The academic preparation, aspirations, and first-year performance of first-generation students. *College and University, 70*(1), 14-19.
- Rodriguez, A. L., Guido-DiBrito, F., Torres, V., & Talbot, D. (2000). Latina college students: Issues and challenges for the 21st century. *NASPA Journal, 37*(3), 511-527.

9 REFERENCES

- Ryan, M. P. & Glenn, P. A. (2002-2003). Increasing one-year retention rates by focusing on academic competence: An empirical odyssey. *Journal of College Student Retention*, 4(3), 297-324.
- Ryland, E. B., Riordan, R. J., & Brack, G. (1994). Selected characteristics of high-risk students and their enrollment persistence. *Journal of College Student Development*, 35, 54-58.
- Saldaña, J. (2009). *The coding manual for qualitative researchers*. London: SAGE Publications Ltd.
- Savage, M., & Petree, C. (2013). *National survey of college and university parent programs*. Minneapolis, MN: University of Minnesota. Retrieved from <http://www.aheppp.org/assets/Parent-Program-Research/2013.pdf>
- Sax, L. J., & Weintraub, D. S. (2014). Exploring the parental role in first-year students' emotional well-being: Considerations by gender. *Journal of Student Affairs Research and Practice*, 51(2), 113-127.
- Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1-17.
- Shen, W., Sackett, P., Kuncel, N., Beatty, A., Rigdon, J., & Kiger, T. (2012). All validities are not created equal: Determinants of variation in SAT validity across schools. *Applied Measurements in Education*, 25(3), 197-219.
- Silva, M. R., Kleinert, W. L., Sheppard, A. V., Cantrell, K. A., Freeman-Coppadge, D. J., Tsoy, E., Roberts, T. & PEARROW, M. (2015). The relationship between food security, housing stability, and school performance among college students in an urban university. *Journal of College Student Retention*, 19(3), 284-299.
- Smedley, B. D., Myers, H. F., & Harrell, S. P. (1993). Minority-status stresses and the college adjustment of ethnic minority freshmen. *The Journal of Higher Education*, 64(4), 434-452.
- Spady, W. G. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange*, 1(1), 64-85.
- Spady, W. G. (1971). Dropouts from higher education: Toward an empirical model. *Interchange*, 2(3), 38-62.
- St. John, E. (1990). Price response in enrollment decisions: An analysis of the high school and beyond cohort. *Research in Higher Education*, 31(2), 161-176.
- Stage, F. K. (1988). University attrition: LISREL with logistic regression for the persistence criterion. *Research in Higher Education*, 29(4), 343-357.
- Stage, F. K., & Hossler, D. (1989). Differences in family influences on college attendance plans for male and female ninth graders. *Research in Higher Education*, 30(3), 301-315.
- Stephens, N., Hamedani, M., & Destin, M. (2014). Closing the social-class achievement gap: A difference-education intervention improves first-generation students' academic performance and all students' college transition. *Psychological Science*, 25(4), 943-953.
- Styron Jr, R. (2010). Student satisfaction and persistence: Factors vital to student retention. *Research in Higher Education*, 6, 1-18.
- Swecker, H. K., Fifolt, M., & Searby, L. (2013). Academic advising and first-generation college students: A quantitative study on student retention. *National Association of Student Personnel Administrators Journal*, 33(1), 46-53.
- Terenzini, P. T., & Pascarella, E. T. (1978). The relation of students' precollege characteristics and freshman year experience to voluntary attrition. *Research in Higher Education*, 9(4), 347-366.

9 REFERENCES

- Terenzini, P. T., Rendón, L. I., Upcraft, M. L., Millar, S. B., Allison, K. W., Gregg, P. L., & Jalomo, R. (1994). The transition to college: Diverse students, diverse stories. *Research in Higher Education, 35*(1), 57-73.
- Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, A. (1995). *First-generation college students: Characteristics, experiences, and cognitive development*. AIR 1995 Annual Forum Paper. University Park, PA: National Center on Postsecondary Teaching, Learning, and Assessment. Retrieved from <https://eric.ed.gov/?id=ED387004>
- Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, A. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education, 37*(1), 1-22.
- Thayer, P. B. (2000). *Retention of students from first generation and low income backgrounds*. Department of Education. Washington, DC: National TRIO Clearinghouse. Retrieved from <https://eric.ed.gov/?id=ED446633>
- The College Board. (2015). Comparing SAT and ACT scores. New York: The College Board. Retrieved from <https://secure-media.collegeboard.org/digitalServices/pdf/sat/cSAT-concordance-flyer.pdf>
- The College Board. (2017). *SAT: Understanding scores 2017*. Miami, FL: The College Board. Retrieved from <https://collegereadiness.collegeboard.org/pdf/understanding-sat-scores.pdf>
- Tierney, W. G. (1999). Models of minority college-going and retention: Cultural integrity versus cultural suicide. *Journal of Negro Education, 68*(1), 80-91.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89-125.
- Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago, IL: University of Chicago Press.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.
- Tinto, V. (1996). Reconstructing the first year of college. *Planning for Higher Education, 25*(1), 1-6.
- Tinto, V. (1998). Colleges as communities: Taking research on student persistence seriously. *The Review of Higher Education, 21*(2), 167-177.
- Tinto, V. (1999a). Taking retention seriously: Rethinking the first year of college. *National Academic Advising Association Journal, 19*(2), 5-9.
- Tinto, V. (1999b). Taking retention seriously: Rethinking the first year of college. *NACADA Journal, 19*(2), 5-9.
- Tinto, V. (2004). *Student retention and graduation: Facing the truth, living with the consequences*. Occasional Paper 1. Washington, DC: The Pell Institute for the Study of Opportunity in Higher Education. Retrieved from <https://eric.ed.gov/?id=ED519709>
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention: Research, Theory & Practice 8*(1), 1-19.
- Tinto, V. (2010). From theory to action: Exploring the institutional conditions for student retention. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (pp. 51-89). Dordrecht, The Netherlands: Springer.
- Tinto, V., & Goodsell, A. (1993). *A longitudinal study of freshman interest groups at the University of Washington*. Washington, DC: Office of Educational Research and Improvement.

9 REFERENCES

- Towbes, L. C., & Cohen, L. H. (1996). Chronic stress in the lives of college students: Scale development and prospective prediction of distress. *Journal of Youth and Adolescence*, 25(2), 199-217.
- Traub, J. (2000, January 16). What no school can do. *New York Times Magazine*, 52-57, 68,81,90-91.
- Turner, S. (2004). Going to college and finishing college: Explaining different educational outcomes. In C. M. Hoxby (Ed.), *College choices: The economics of where to go, when to go, and how to pay for it* (pp. 13-61). Chicago, IL: University of Chicago Press.
- University of Missouri-Kansas City. (2018). The international center for supplemental instruction. University of Missouri-Kansas City. Retrieved from <https://info.umkc.edu/si/>
- U.S. Bureau of Labor Statistics. (2012). The recession of 2007-2009. Retrieved from: <http://www.bls.gov/spotlight/2012/recession/>
- U.S. Department of Education. (1998) *First-generation students: Undergraduates whose parents never enrolled in postsecondary education*. National Center for Education Statistics. Statistical Analysis Report, NCES 98-082. Washington, DC.
- U.S. Department of Education. (2018). IPEDS: California State University-East Bay. National Center for Education Statistics. Retrieved from <https://nces.ed.gov/collegenavigator/?q=california+state+university&s=all&id=110574>
- USNavGuide. (2018). *USPS lookup and boundary map*. Retrieved from <http://www.usnaviguide.com>
- Veenstra, C. P. (2009). A strategy for improving freshman college retention. *The Journal for Quality and Participation*, 31(4), 19-23.
- Venezia, A., Kirst, M., & Antonio, A. (2005). *Betraying the college dream: How disconnected K-12 and postsecondary education systems undermine student aspirations*. Stanford University Bridge Project Policy Brief. Stanford, CA: Stanford University. Retrieved from <https://web.stanford.edu/group/bridgeproject/betrayingthecollegedream.pdf>
- Voigt, L., & Hundrieser, J. (2008). *Student success, retention, and graduation: Definitions, theories, practices, patterns, and trends*. Noel-Levitz Retention Codifications. Retrieved from <http://www.stetson.edu/law/conferences/highered/archive/media/Student%20Success,%20Retention,%20and%20Graduation-%20Definitions,%20Theories,%20Practices,%20Patterns,%20and%20Trends.pdf>
- Walpole, M. (2003). Socioeconomic status and college: How SES affects college experiences and outcomes. *The Review of Higher Education*, 27(1), 45-73.
- Walston, J., & McCarroll, J. C. (2010). *Eighth-grade algebra: Findings from the eighth grade round of the early childhood longitudinal study, kindergarten class of 1998-99*. National Center for Education Statistics. Washington, DC: U.S. Department of Education.
- Ward-Roof, J. A., Heaton, P. M., & Coburn, M. B. (2008). Capitalizing on parent and family partnerships through programming. In K. C. Carney-Hall (Ed.), *New Directions for Student Services: No. 122. Managing parent partnerships: Maximizing influence, minimizing interference, and focusing on student success* (pp. 43-55). San Francisco, CA: Jossey-Bass.
- Warren, J. R. (2002). Reconsidering the relationship between student employment and academic outcomes: A new theory and better data. *Youth and Society*, 33(3), 366-393.
- Wartman, K. L., Savage, M., & Association for the Study of Higher Education. (2008). *Parental involvement in higher education: Understanding the relationship among students, parents, and the institution*. San Francisco: Jossey-Bass.

9 REFERENCES

- Wazwaz, N. (2015, July). It's official: The U.S. is becoming a minority-majority nation: Census data shows there are more minority children under age 5 than whites. *U.S. News and World Report*. Retrieved from <https://www.usnews.com/news/articles/2015/07/06/its-official-the-us-is-becoming-a-minority-majority-nation>
- Westrick, P., Le, H., Robbins, S., Radunzel, J., & Schmidt, F. (2015). College performance and retention: A meta-analysis of the predictive validities of ACT scores, high school grades, and SES. *Educational Assessment*, 20, 23-45.
- Willelt, L. H. (1989). Are two-year college students first-generation college students? *Community College Review*, 17(2), 48-52.
- Williams, R. (2015, January 13). *Multicollinearity*. Notre Dame, IN: University of Notre Dame. Retrieved from <https://www3.nd.edu/~rwilliam/stats2/l11.pdf>
- Williamson, D. R., & Creamer, D. G. (1988). Student attrition in 2- and 4-year colleges: Application of a theoretical model. *Journal of College Student Development* 29(3), 210-217.
- Wood, J.L., Harris III, F., & Delgado, N. (2016). *Struggling to survive - striving to succeed: Food and housing insecurity in the community college*. San Diego, CA: Community College Equity Assessment Lab. Retrieved from <http://ccea.org/food-housing-report/>
- Wyckoff, S. (1998). Retention theories in higher education: Implications for institutional practice. *Recruitment and Retention in Higher Education*, 12(2), 2-7.
- York-Anderson, D. C., & Bowman, S. L. (1991). Assessing the college knowledge of first-generation and second-generation college students. *Journal of College Student Development*, 32(2), 116-122.

APPENDIX A

Interview Protocol

Validation

1. Thinking back to before you started college, what did you expect of going to college? What did you find when you got on campus?
2. *Did your parents or significant family members want you to go to college? Why/why not?
3. *Can you tell me about your relationship with your parent(s) or family members? Has the relationship changed since coming to college? Stayed the same?
4. *Have faculty ever shown a genuine interest in you? Have they shown an interest in your learning? Can you tell me about that experience?
5. Do you feel that the campus recognizes and appreciates your cultural background?
 - a. If yes, in what ways?
6. *In thinking about your success, what supports have made the most difference for you?

Academic Persistence

1. *Do you feel connected to the campus?
2. What activities outside of class are you involved in? On campus or off campus?
3. *Has there ever been a time since you've been here that you thought about reaching out to any University offices or resources for support?
 - a. If yes, which ones have you reached out to?
 - b. Why these? How did you know about these offices?

Academic Preparation

1. *Do you feel your high school classes prepared you for college?
 - a. If yes, can you give me some examples of how high school prepared you?
 - b. If no, how do you think they could have better prepared you?
2. *Are you aware of academic support services at CSUEB available to you?
 - a. If yes, how did you learn about these services?
3. *Have you used any of them? Have you used others?
 - a. If yes, how helpful was it to you?
 - b. If no, why not?

Social Capital

1. *Who are the important adults in your life?
 - a. How do they support you?
2. *Do you have close friends at CSUEB?
 - a. If yes, how did you meet? What do you do together?

- b. If no, have you tried to make friends at CSUEB? What was unsuccessful?
3. Do you have close friends outside CSUEB?
 - a. If yes, how did you meet? Are they in college too? What do you do together?

College Costs/Financial Aid

1. *How do you manage paying for your college expenses?
 - a. Do you work while enrolled in school? Full-time or part-time?
2. *Do you contribute towards your household expenses? How do you do this?

First-Generation Students

1. Why did you decide to come to college? Why do you want to earn a college degree?
2. Are you the first in your family to go to college?
 - a. IF FIRST-GEN: How have you navigated college life as a first-generation student?
 - b. IF FIRST-GEN: As a first-generation college student, what would you say has been the greatest challenge to you thus far in your college experience?
3. Can you think of any circumstances where you felt confused because you had no prior knowledge to draw on where faculty/staff assumed you did?
 - a. Probe: anything outside of the academic experiences including residential life, extra-curricular activities or any non-classroom experiences.

Demographic Questions

1. With what race or ethnicity do you identify?
2. With what gender identity do you identify?

* = *primary questions*

APPENDIX B

First Round of Qualitative Coding

Dominant Themes

1. Academic Integration
2. Academic Prep
3. Advice to Others
4. Agency
5. Expectations of College
6. Finances/College Costs
7. Motivation to Go to College
8. Navigating College
9. Relationships
10. Residential Environment
11. Social Capital
12. Social Integration
13. Support Offices
14. Transition to College
15. Validation

APPENDIX C

Multicollinearity Diagnostics Results

Table 12
 Regression Model 3 with Collinearity Statistics

Variable	Baseline + First-Year Performance		Collinearity Statistics	
	<i>B</i> (<i>SE B</i>)	β	Tolerance	VIF
Female	-.001 (.009)	-.001	.92	1.08
White	-.045*** (.016)	-.033	.76	1.32
Hispanic	-.002 (.010)	-.003	.64	1.57
Asian	.020* (.012)	.019	.68	1.46
HS GPA	-.108*** (.012)	-.102	.81	1.24
SAT Score	.000*** (.000)	-.151	.61	1.65
Pell Grant Eligible	.018*** (.009)	.022	.84	1.19
First Generation	.003 (.009)	.003	.85	1.18
East Bay Zip	.059*** (.008)	.072	.96	1.05
Total Units Earned	.014*** (.001)	.411	.47	2.14
Spring Cum GPA	.175*** (.007)	.386	.37	2.70
Constant	.596 (.044)			
Adjusted R ²	.430			

Notes: standard errors in parentheses; n = 5841; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 13
Collinearity Diagnostics

Dimension	Eigenvalue	Condition Index
1	8.11	1.00
2	1.13	2.68
3	1.00	2.84
4	.45	4.27
5	.37	4.70
6	.32	4.99
7	.27	5.53
8	.22	6.10
9	.09	9.71
10	.04	14.36
11	.01	26.65
12	.01	38.21