Predicting student persistence of community college transfer students to a large, urban, transfer destination four-year institution

by

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The idea of pursuing and achieving a doctoral degree is a feat I would not have fathomed for myself as I embarked on my higher education journey in August of 2002 as a timid freshman at Iowa State University. Through the support and encouragement of mentors throughout my academic and professional journey, I found myself enrolling in the Educational Leadership doctoral program where I have had the opportunity to grow and develop as a student affairs advocate and professional.

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ABSTRACT

The purpose of this study is to investigate the predictors of community college transfer student success. Through exploring student demographics and background characteristics (e.g. race/ethnicity, gender, first-generation student status, socioeconomic status, number of transfer credit hours, attempted/completed credits), significant predictors of community college transfer student persistence and completion can be identified and further explored. Specifically, the study examines three goals: a) the demographic and student characteristics of community college transfer students that influence persistence and completion, b) evidence of transfer shock and its longitudinal effect on student persistence and completion, c) and the identification of equity gaps among student populations (e.g. minority/non-minority, first-generation/non-first generation, and Pell-grant eligible/non-Pell-grant eligible) and educational achievement.

This study adopts four theoretical perspectives to explore predictors of community college transfer student success: 1) Tinto's Longitudinal Model of Institutional Departure theory (1988); 2) Laanan's Transfer Student Adjustment (2001); 3) Bean and Metzner's Nontraditional Undergraduate Student Attrition model (1985) and; 4) lessons learned from Achieving the Dream (2017). Tinto's Longitudinal Model of Institutional Departure (1988) has been widely utilized in retention and persistence research and the framework focuses on pre-entry characteristics, integration, and outcome decision to depart or persist which are vital components within this study (Metz, 2004). Laanan's Transfer Adjustment Theory compliments Tinto's model and provides a framework focusing on psychological, educational environment, and the campus climate that is specific to transfer students as they transition to a new environment. The community college student population consists of a large number of nontraditional students and Bean and Metzner's Nontraditional Undergraduate Student Attrition model considers this

population demographic within the framework. Finally, the study also focuses on the equity gaps that exist among the community college transfer student population and the priorities outlined in the national initiative, Achieving the Dream, lay a strong foundation in identifying predictors that enable, or prevent, transfer student success.

This study employed a longitudinal, quantitative approach, reviewing four years of transcript data through a transcript analysis. Descriptive statistics were used to examine the demographic characteristics of gender, age, race/ethnicity, parental education, first-generation student status, socioeconomic status, transfer credit hours, transfer shock, first-semester and fall-to-fall persistence, and completion. Frequencies were conducted to identify how academic success of students, described by GPA, transfer shock, first semester and fall-to-fall persistence and graduation rates compare among the student demographics of being minority/non-minority, first-generation/non-first-generation, and Pell-grant/non-Pell-grant eligible and a scorecard instrument was developed and further described. Chi-square tests were conducted between student groups to explore any significance in students who experience or do not experience transfer shock. Finally, logistic regressions were conducted to determine the independent variables that were the predictors of community college transfer student persistence and completion.

The results indicated that community college transfer students are largely nontraditional by age and over one-third of the student population are of minority status. Similarly, over one-third of the students were also Pell-grant eligible. First-generation students accounted for almost half of the student population. The majority of students transferring to the four-year, public Urban Transfer institution were also transferring less than 60 credit hours and almost half of these students experience transfer shock during their first semester. While the majority of

students persisted through the first semester at the institution, just over half of the students persisted through the first year. The majority of students had not completed a bachelor's degree by the end of the study.

The results from the frequencies analysis to identify gaps within student groups and academic success, as described by first semester persistence, fall-to-fall persistence, transfer grade point average (GPA), first-semester GPA, transfer shock, and completion identified that minority students often fell below or far below the target rate in comparison to non-minority students. Students who were Pell-grant eligible or first-generation fell below the target, identifying a gap in comparison to the non-minority student population.

The correlations conducted to identify significant relationships between student populations who experience a reduction in GPA after the first semester of transfer indicated no statistical significant relationships in background characteristics including, gender, minority/non-minority, first-generation student status, socioeconomic status, and transfer credit hours. The first logistic regression indicated that students' attempted/completed credit ratio, socioeconomic status, and reduction in first semester GPA significantly predicted fall-to-fall persistence. The second logistic regression indicated that students' attempted/completed credits ratio, reduction in first semester GPA, and transfer credit hours significantly predicted completion among the community college transfer student population.

CHAPTER 1. INTRODUCTION

The transfer student is increasingly becoming the new 'traditional' student on college campuses as students are exploring community colleges as a more affordable pathway to a baccalaureate degree or spending time swirling among campuses trying to find the right major or institutional fit. Between 2006 and 2014, the number of students nationally enrolled in postsecondary institutions has nearly doubled (National Center for Education Statistics, 2016). Nationally, the economy is in high demand for educated and skilled workers to fulfill President Obama's goal of moving the United States to number one in the highest proportion of college graduates in the nation (The White House, 2016). This lofty goal demands higher education administrators to better understand the changing characteristics of students entering the front doors of postsecondary institutions. Even more important, this research should be utilized to implement effective policies, programs, and services that enable students to successfully transition and persist to graduation.

The changing demographics of the population seeking postsecondary education is a valuable characteristic to study as it will help inform administrators and educators in producing initiatives that meet the needs of specific student populations. Projections by the National Center for Education Statistics (2016) identify a 25% increase in Black students, 20% increase in Asian/Pacific Islander students, and a 42% increase for Hispanic students entering higher education institutions from 2010 – 2021.

Also noteworthy, projected numbers of students enrolling in postsecondary education who are considered nontraditional by age is also on the rise with a projected increase of 20% more 25 – 34 year olds and a 25% increase of students enrolling who are 35 years of age or older (Hussar & Bailey, 2013). Characteristics of community college students are more likely to be

nontraditional in age, as well as come from a historically underrepresented population. The American Association of Community Colleges (2016), reported the average age of a community college, degree-seeking student was 28 and 49% of students were white. In addition, 36% of these students reported being first-generation college students (American Association of Community Colleges, 2016). These students experience college differently than a traditional, first-time, first-year student entering a four-year institution and exploring these differences will contribute to changes that can greatly impact how institutions work to retain these students.

The Community College Resource Center (2015) reported as many as 80% of students who choose to begin their academic journey at a community college declare an intent to transfer to a four-year institution to complete a bachelor's degree. While only 25% make it to the four-year institution and, even more concerning, only 17% graduate within six years of making the transfer. Vertical transfer is critical for many underserved students to close the achievement gap and reach upward mobility (Jenkins & Fink, 2015). These numbers are alarming and national attention, research and action is critical in increasing transfer student educational attainment, as well as closing the achievement gap.

In a response to the national agenda for the United States to retain its legacy of being a predominant leader in the nation's economy, this study seeks to explore student characteristics and factors that influence transfer shock, persistence, and completion of community college transfer students after transfer to four-year institutions. Through research, appropriate recommendations can be posited to increase college completion. Specifically, this research was performed on community college transfer students at a large, four-year, public, urban institution.

The selected institution for the study is a large, transfer-feeder institution in an urban setting and often boasts itself as being the most ethnically diverse institution in the state. Similar

to other public, urban institutions, this setting provides the institution opportunities in being a leader in high-impact practices for serving minority students. These student body characteristics make the institution a valuable setting in studying transfer students and their demographics, adjustment, and enrollment patterns.

The institution is classified as Baccalaureate College – Diverse Fields and awards a variety of degrees, ranging from one-year certificates to Master's degrees. The institution enrolls over 21,000 students and roughly 60% of the population consists of transfer students (Office of Institutional Research, 2016). The institution also enrolls many of its students on a part-time basis, which is characteristic of the community college student population. In fall 2012, 41.9% of students enrolled part-time (Office of Institutional Research, 2016). According to many studies, students who enroll part-time are less likely to persist to graduation (Shapiro D. , Dundar, Wakhungu, Yuan, & Harrell, 2015).

The struggle with retention and graduation is evident as the institution's first to second year retention rate for the 2012 transfer student cohort was 66.3%. This is well below the national average of four-year institutions first to second year retention rate of 79.3% as it was reported in the fall of 2013 (National Center Clearinghouse Research Center, 2015). The six-year graduation rate for transfer students hovers around 40%. While the institution lags behind the national average for retention and completion of students at four-year, public institutions, it is not unique among other similar institutions of higher education. Table 1.1 provides a preview of how the study institution compares to other similar institution in regards to six-year completion rates.

Table 1.1

Comparison of 6-year Graduation Rates for Undergraduate Students at Institutions by Size and Carnegie Classification (2015)

Carnegie Classification Baccalaureate College - Diverse Fields	Enrollment	Six-Year Graduation Rate (Bachelor's degree within 150% of normal time)
Institution 1	23261	54%
Institution 2	13709	48%
Institution 3	7889	43%
Institution 4	9397	27%
Study Institution	23019	26%
Institution 5	8381	26%
Institution 6	31405	22%

While the table provides a comparison of the six-year graduation rates for first-year, first-time undergraduate students, rather than transfer students, it is evident that the completion rates for these institutions lag behind the nation's average six-year graduation rate of first-year, first-time undergraduate students at four-year institutions which is 60% (Kena, et al., 2016). There is a dearth of national research pertaining transfer-specific data in regards to retention, persistence, and completion rates and will be further discussed throughout the chapter.

This study will identify the characteristics of the persisting students that enabled the academic success of community college transfer students and provide recommendations to the institution to bolster the persistence and graduation rates of this large population through appropriate intervention strategies. In addition, this study will review effects of transfer shock on student persistence and identify equity gaps among sub-groups of the student population.

Statement of the Problem

The number of students beginning their collegiate career at a community college and transferring to four-year institutions should attract the interest of higher education administrators. It is estimated that over forty percent of the nation's undergraduate students are attending community colleges (Jenkins & Fink, 2015). A range of surveys report as much as 80% of community college students identify their goal is to transfer and earn a bachelor's degree (Handel & Williams, 2012). According to the National Student Clearinghouse report, 39.5% of students who began at a community college between 2008-2014 transferred to another institution. Furthermore, 42.4% of those transfer students found themselves at four-year public institutions to seek bachelor's degrees (Shapiro D., Dundar, Wakhungu, Yuan, & Harrell, 2015). This data may exemplify many students' goals to transfer changes throughout their academic journey. However, the large number of students who actually transfer is reason for four-year institutions to position themselves to be effective feeder institutions to best meet the needs of this population in creating policies and protocol that aid in transfer student retention.

In addition, the diversification of the 'traditional' college student in terms of age, race, and part-time/full-time status is beginning to challenge what higher education administrators define 'traditional' and, moreover, how they allocate resources and incorporate programming and policies to serve this widely changing population. Institutions nationally have dedicated financial and staff resources, implemented policies, and created programming that values the importance of first year programming to aid in retention and persistence of college students. In a largely disproportionate comparison, these allocations have served a 'traditional' first-time, first-year students to best assist them with their transition to the many facets of academic life, often neglecting transfer student populations (Tobolowsky & Cox, 2012).

An important issue that relates to the national agenda of increasing social mobility is providing access and appropriate supports to close the achievement gap. According to The Condition of Education (2016), between 1995 and 2015, 36% of students who were 25 to 29-years of age attained a bachelor's or higher degree. Over this same period, the gap between White and Black students who were 25 to 29-years of age who attained a bachelor's or higher degree grew from 13% to 22%. Similarly, the gap between White and Hispanic students increased from 20% to 27% (Figure 1.1) (Kena, et al., 2016).

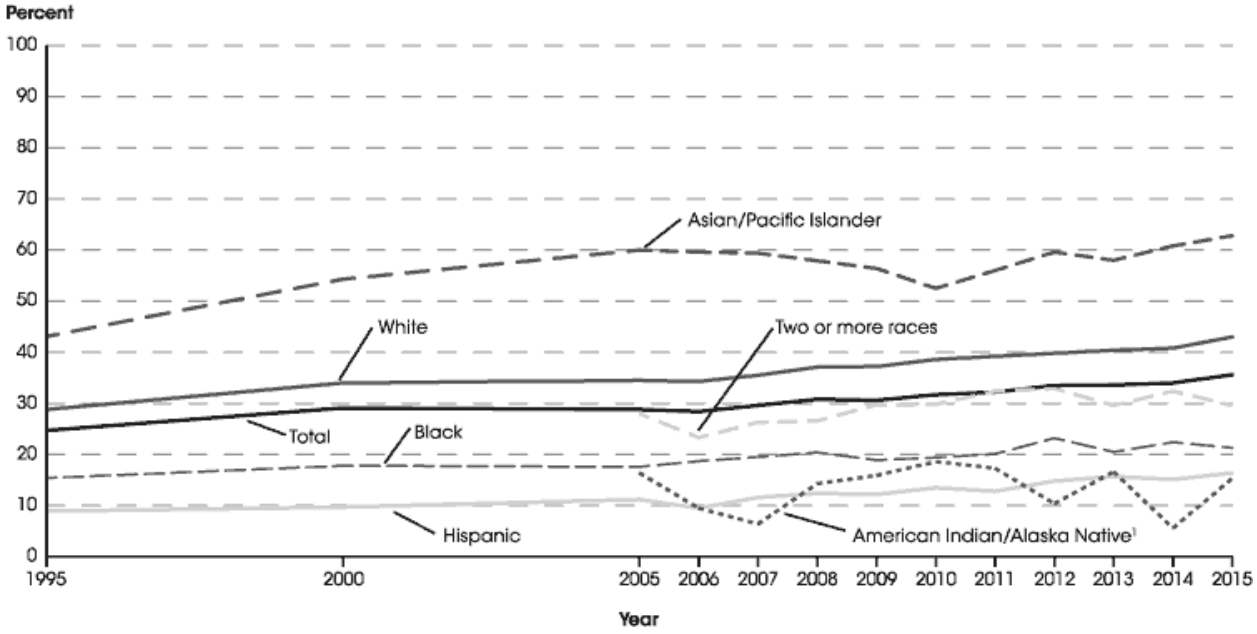

Figure 1.1 Annual Social and Economic Supplement, selected years, 1995–2015. Adapted from the Condition of Education Report 2016 by Kena, et al., 2016. Adapted with permission.

These deep educational gaps of student educational attainment influence the economic gap among historically underrepresented populations. These gaps increase the pressure for community colleges and four-year institutions to create clear pathways for students to access and achieve their goals of earning a bachelor's degree. Through access and increasing student

supports to influence student completion, the nation can begin to close these economic gaps and lead to a more prosperous economy.

A final concern that prevents policymakers and administrators in making data-driven decisions to aid in the national success of the community college transfer student population is the lack of national data. The current federal data-collect agency, IPEDS, collects a wide array of information in regards to student characteristics, educational outcomes, and trends. However, it is insufficient in reporting basic information concerning students who transfer and earn a bachelor's degree (Handel, 2011). While this study will contribute to providing data on transfer student completion, the dearth of national figures to check for accountability will contribute to a limitation of adequately measuring what is deemed transfer student success.

Purpose of Study

In an effort to contribute to research to close the educational achievement gap, this study seeks to provide measureable variables that predict community college transfer student persistence and graduation. Through analyzing the pre-college characteristics of incoming transfer students and evidence of transfer shock on the longitudinal semester-to-semester persistence and graduation rates of community college transfer student, stakeholders can implement policies and programming to best serve this population. In addition, demographic characteristics, such as ethnicity, first-generation student status, and socioeconomic status will be further explored for significant relationships to persistence and graduation. Providing student-centered initiatives geared to student populations begins with a better understanding of the needs of these specific groups.

Research Questions

1) What are the background characteristics and demographics of community college transfer students enrolled at a four-year, public, and Urban Transfer destination colleges?
    a. What are the background characteristics and demographics of community college transfer who persist from fall-to-fall?
    b. What are the background characteristics and demographics of community college transfer who persist to completion?
2) How does academic success, as described by GPA, first semester and fall-to-fall persistence, and graduation, at the four-year institution compare among minority/non-minority students, first-generation/non-first-generation students, and Pell-grant/non-Pell-grant eligible students?
3) Are there significant differences between students who experience and do not experience transfer shock as described by student background characteristics, such as race/ethnicity, gender, first-generation student status, socioeconomic status, and number of transfer credit hours?
4) What are predictors of community college student transfer success as measured by fall-to-fall persistence after one year and completion?

Theoretical Perspective

Tinto's Longitudinal Model of Institutional Departure

There are a variety of theoretical frameworks that apply to student persistence and completion of college students. One of the framework's used in executing this study on the persistence of community college transfer students is Tinto's (1988) Longitudinal Model of Institutional Departure theory. Tinto's (1975) model focusing on academic and social integration

of students has been widely utilized in studies assessing student attrition in higher education. In addition, there has been a significant amount of student retention and persistence research conducted utilizing Tinto's model and studies continue to provide evidence to support the validity of the model, or at least portions of the model (Kreysa, 2006).

The stages of Tinto's model largely speaks to transfer students as they are going through the phases of departure from one institution as they prepare for transition and integration to a new institution. The stages of a) separation, b) transition, and c) integration is longitudinal and reflective of both the personal and intellectual integration of students into their college communities (Tinto, 1988). Transfer students face many challenges as they transition to the new environment of a four-year institution and Tinto's model effectively introduces a framework for analyzing transfer students and their outcomes.

Tinto's theoretical framework focuses on the following elements: a) pre-entry characteristics, b) students' goals/commitment, c) institutional experiences, d) integration, e) students' intentions and external commitments, and f) students' outcome regarding decision to depart, graduate, transfer, or drop out (Metz, 2004). While this study is unable to conceptualize all of these elements, the study will be able to review pre-college characteristics, such as transfer GPA and number of credit hours transferred to the four-year institution, as well as demographic characteristics. Specifically, studying the demographic characteristics of students, in regards to socioeconomic status, race, and first-generation student status can inform possible trends in integration and institutional experiences of these specific student populations. These attributes will provide invaluable data regarding how these factors contribute to transfer students' experience with transfer shock, persistence, and departure from an institution.

Bean and Metzner's Nontraditional Undergraduate Student Attrition

A criticism of Tinto's Longitudinal Model of Institutional Departure theory is that it largely encompasses the student population of traditional, first-year, first-time students at four-year institutions. Bean and Metzner's (1985) Nontraditional Undergraduate Student Attrition model, unlike many familiar student engagement and persistence models that largely focus on a traditional first-year, first-time student, conceptualizes the many facets of a nontraditional student, from enrollment status and age to ethnicity and environmental factors. Characteristics of transfer students are more nontraditional; therefore, this framework appropriately aligns with this population.

This model exemplifies students' decision to leave an institution is determined under four sets of variables a) academic performance, b) psychological outcomes, c) background characteristics, d) environmental variables. Rather than focusing solely on the social and engagement influences on persistence, this model emphasizes environmental factors, such as employment, family responsibilities, and finances that relate more closely to nontraditional students' decision to stop-out or leave an institution. Furthermore, this model explains students experiencing high levels of academic success, accompanied by negative psychological outcomes or environmental factors, may lead to attrition (Bean & Metzner, 1985).

Laanan's Transfer Student Adjustment

Tinto's theoretical framework has historically been utilized to conceptualize the experience of traditional first-year, first-time students at four-year institutions. As higher education experiences an increase in transfer students across the nation, there has been a demand for amplified research and assessment as it pertains to this specific population. Therefore, Frankie Laanan's work in regards to the concept of Transfer Student Adjustment compliments

Tinto's model within the study's theoretical perspective in accounting for the important issues surrounding college adjustment in transfer students.

The theoretical framework behind Transfer Student Adjustment begins with the well-studied concept of transfer shock. Transfer shock is a way to conceptualize the phenomenon that transfer students experience a dip in GPA in the first or second semester at their receiving institution (Hills, 1965). Numerous studies have analyzed this trend of transfer shock and research has moved to studies that are more complex. Understanding transfer process, identifying other factors that explain transfer student success, and exploring issues beyond the academic adjustment of transfer students are pertinent to advancing research on transfer student success (Laanan, Starobin, & Eggleston, 2010; Diaz, 1992; Graham & Hughes, 1994; Ishitani, 2008). Specifically, Graham and Hughes (1994) identified value in personal, demographic, and environmental characteristics of community college transfer students and how these factors may influence performance at the four-year institution.

Frankie Laanan (2001) posits the necessity to move beyond studying effects of transfer shock through introducing three components of college adjustment that closely effect transfer students; psychological, educational environmental, and campus climate. The psychological adjustment of students has been studied through identifying and exploring the physiological distress in regards to the personal, social, and academic effects on students. The students' transition to the educational environment and campus climate also has a significant impact on student adjustment (Laanan, Transfer Student Adjustment, 2001). The educational and environmental differences between a 2-year and 4-year institution are vast, leading to likely adjustment issues among transfer students. This study will offer a thorough review of the personal and demographic characteristics of the community college transfer students and seek to

find signficance as it relates to students' experiences of transfer shock, persistence, and graduation.

Achieving the Dream: Lessons Learned

The final component of the theoretical perspective guiding this study is a review of pertinent issues facing higher education enrollment through the priorities outlined through the Achieving the Dream national initiative.

Achieving the Dream outlines a vital mission to improve equity across institutions of higher education through a commitment to appropriately serve low-income and minority students, as well as other students who are considered at-risk because of access, success, and campus climate (Achieving the Dream, 2017). The Achieving the Dream initiative focuses on the success of community college students, which aligns with the scope of this study. Achieving the Dream (2017) outlines 'capacity areas' that coincide with this mission through teaching and learning, engagement and communication, strategic planning, policies and practices, data and technology, and leadership and vision. Specifically, Achieving the Dream (2017) supports the use of adequate data systems and staffing to collect, analyze, and project the implications from disaggregated datasets that assess low-income and underrepresented students. This vital component within the theoretical perspective can inform practice and policy that is specific to the needs of student populations, rather than a 'one size fits all' approach to policy. The cornerstone of this study is analyzing the characteristics of community college students and identifying the predictors that enable, or prevent, transfer student success.

Significance of Study

The results of this study will contribute to the literature on transfer student persistence and completion. Nationally, there is a lack of literature that measures and assesses retention, persistence, and completion among this growing population. Better understanding of community college transfer students' characteristics, more specifically what factors influence their likelihood of experiencing transfer shock, persistence, and degree completion is warranted to increase the success of this student population. Moreover, increasing the success of transfer students to degree completion will bolster our nation's economy and contribute to closing the education and achievement gap among our nation's populations.

Definition of Terms, Acronyms, and Abbreviations

The following terms and abbreviations will be used throughout this study to describe the program.

GPA: grade point average

Dependent variable: community college transfer student persistence.

FAFSA: Free Application for Federal Student Aid.

Pell-grant: need-based funds granted to low-income undergraduate students through completion of the FASFA. Grant amounts are dependent on the student's expected family contribution, cost of attendance at the institution, and student's enrollment status of full-time or part-time.

Persistence: first year, semester-to-semester retention of students.

Scorecard: data tool utilized to measure progress towards goals. For the purpose of this study, a scorecard approach will be utilized to assess and monitor equity outcomes of students of color, first-generation, and low-income students for the study institution.

Socioeconomic status (SES): defined by student eligibility of the Pell-grant.

Transfer GPA: cumulative grade point average student achieved at the previous community college.

Transfer credit hours: number of credits the four-year institution transferred into the institution from previous college-level educational experiences.

Transfer shock: defined as the evidence of decline in grade point average in the first semester after transfer from a community college to a four-year institution.

Urban Transfer Institution: a four-year institution that resides in large, metropolitan areas and noted for a high number of transfer student enrollment.

Summary

This chapter set the foundation for the study through identifying the problem, significance of the study, and theoretical framework that will be utilized to conceptualize this study. The following chapter will present the research and literature on transfer student persistence and completion, including a descriptive overview of the community college student population. An elaboration on the theoretical framework will also be provided. Chapter 3 provides an explanation of the methodology and methods employed for data collection and analysis. The findings will be presented and analyzed in Chapter 4. Finally, Chapter 5 will provide a summary of the study, a discussion of the findings as they relate to the research questions, implications of the findings, and conclusion.

CHAPTER 2. REVIEW OF THE LITERATURE

Introduction

This chapter presents a review of the literature related to community college transfer student characteristics, transfer student adjustment, and predictors of community college transfer persistence and completion. The chapter is organized into four sections. The first section reviews the popular theoretical frameworks utilized to assess student persistence, specifically, Tinto's Student Departure Theory, Bean and Metzner's Nontraditional Undergraduate Student Attrition Theory, Laanan's Transfer Adjustment model and lessons learned from that national initiative, Achieving the Dream. The second section provides a historical overview of the role of community colleges and the characteristics of the student population they serve. The third section presents issues pertaining to transfer students' transition to the four-year institution, expanding on predictors of transfer shock, transfer student adjustment, and characteristics of community college transfer students that may influence persistence and completion. The final section will review the main dependent variables of this study in providing a history of literature related specifically to persistence and completion of transfer students.

Theories of College Student Persistence

Tinto's Student Departure Theory

The theoretical framework of Tinto's Student Departure Model has been revised over the last four decades and this model continues to be widely supported in research analyzing student attrition. Tinto (2007) provides an overview of the complexity of student retention, from understanding student backgrounds, institutional settings, importance of external events, and involvement in the classroom, to name a few. One key lesson as described by Tinto remains, 'It

is one thing to understand why students leave; it is another to know what institutions can do to help student stay and succeed' (Tinto, 2006, p.6).

Research using Tinto's model, or at least portions of it, has advanced knowledge to why students leave and provided implications to support student persistence and success. In a study reviewing early integration and outcomes of community college transfer students, Tinto's model was utilized and findings supported the signficance of integration. Specifically, identifying academic fit and integration to be more significant in positive transfer student outcomes than social fit (D'Amico, Dika, Elling, Algozzine, & Ginn, 2013). Townsend & Wilson (2008) also found support in Tinto's model through a qualititative study reviewing the academic and social integration of community college transfer students who persisted at the four-year institution. Findings support the academic persistence of the transfer students was due largely to students having a high number of transfer credits, resulting in enrollment in major-specific classes that were often smaller in class-size and the opportunities to work alongisde faculty on research within their major. Also noteworthy, these students were highly motivated academically and social integration was found to not be an important factor to persistence among the student population (Townsend & Wilson, 2008).

Criticism's of Tinto's model are suggested throughout studies that relate to the adaptability of the model to specific characteristics of community college students, such as age or ethnicity. Specifically, researchers argue the transitional element conceptualizing students need to move from one culture to another does not fully encompass minority students (Tierney, 1992). Because Tinto's model is reflective of 'traditional', Caucasian students attending four year institutions, Tinto posits these students are making intraculture transition. However, for minority students, this implicits a need for separation from their culture to be successful in

college (Rendon, Jalomo, & Nora, 2000). While these concerns have validity within this study reviewing community college tranfser students who are largely nontraditional by age and of minority student status, portions of Tinto's model, such as pre-entry characteristics, integration, and outcomes, continue to build the theoretical perspective for the study. Additionally, the aforementioned studies continued to find validity in the model application to community college students.

Bean and Metzner's Theory

The theoretical framework of Bean and Metzner builds on Tinto's model in challenging the complexity as it relates to student characteristics and external environment of students. As previously discussed, adult students make up a considerable number of the community college student population. Previous research has identified that adult learners persist at lower rates of the traditional-aged students (Justice & Dornan, 2001; Soares, 2013). Bean and Metzner's conceptual model of student persistence specifically considers this population, and has been widely utilized to further analyze this student population.

A study exploring the adult student population using Bean and Metzner's model to review effects of student entry characteristics, external environments, and campus environment on adult students identified significant factors that play a positive role in adult student persistence and graduation (Bergman, Gross, Berry, & Shuck, 2014). The campus environment was found to be a highly significant variable in the persistence of adult students, even more significant than student background characteristics and external factors. This is a pertinent finding for administrators in education, suggesting the cultivation of an environment that meets the needs of the adult student population could mitigate broader factors, such as socioeconomic

status or family commitments, to contribute to the persistence and graduation of this student population (Bergman, Gross, Berry, & Shuck, 2014).

Laanan's Transfer Adjustment Theory

Research over the last few decades has expanded from studying transfer shock and academic adjustment to reviewing social and psychological factors that may impede the successful integration of transfer students. The contributions of Laanan's Transfer Adjustment theory have provided framework in analyzing specific factors of student populations. Young and Litzler (2013), utilized items from the Laanan-Transfer Questionnaire to analyze whether the constructs differ by demographic groups. The findings of the study are significant in indicating the tool adequately measured the proposed constructs, social, psychological, and academic adjustment, for each of the demographic groups measured, such as men and women, ethnicity, and two and four-year transfer institutions (Young & Litzler, 2013). The significance of this tool in measuring transfer student adjustment offers administrators an option in effectively measuring transfer student persistence and completion.

Achieving the Dream: Lessons Learned

The Achieving the Dream initiative has proven to be fruitful for a variety of institutions that have employed its initiatives and reform to support efforts to close the educational achievement gaps for community college students. A myriad of these initiatives focuses specifically on equity within higher education. The Open Educational Resources (OER) Degree initiative aims to increase college access and completion of underserved students through the engagement with faculty in redesigning courses and degree programs. Specifically, this program establishes pathways to improve teaching and learning that is focused on student learning outcomes (Achieving the Dream, 2017).

Achieving the Dream utlizes tools to measure institutional capacity, track progress, find solutions to areas of weakness, and build on existing success of colleges. After applying the Achieving the Dream pillars over a four-year period, William H. Rainey Harper College increased graduation rates from 14 – 24% and increased Hispanic/Latino students' graduation rate from 11 to 15% (Achieving the Dream, 2017). Pierce College also reaped many benefits utilizing the Achieving the Dream framework to better undertand data in making college-wide changes to address retention, course completion, and graduation rates for all students. From 2009 – 2013, the institution's three-year graduation rate increased from 22 – 31%. In addition, the fall-to-fall retention rate improved by 9% (Achieving the Dream, 2017).

Community Colleges

Mission

Community colleges have a historical reputation for providing affordable, accessible education to students to serve the communities in which they reside. These institutions were created over 100 years ago with a foundation of teaching general liberal arts studies, but after the Depression and World War II, the community college foundation shifted to job-training programs and an economic need to train and serve the local communities (Phillippe & Sullivan, 2005). According to Phillippe and Sullivan (2005), in the 1960s, the roles and mission of the community college became more comprehensive, expanding on programs, transfer education, vocational training, remedial education, and training for businesses and industry. The diversity in programs and opportunities available to students at community colleges opens the door to serving a myriad of students. Whether its participating in dual enrollment while in high school, taking English as a second language courses, or saving money in the beginning of a path to the

bachelor degree, community colleges fulfill a comprehensive mission of service (Phillippe & Sullivan, 2005).

Role in Transfer

A large portion of student enrolling in community colleges indicate a goal of transfer to earn a bachelor's degree (Jenkins & Fink, 2015). Thus, a national emphasis on the focus of transfer pathway has contributed to the nation's college completion goals (Handel, 2011). As identified in Handel (2011), recent research identifies transfer students who make the transition to a four-year institution are often just as successful, if not more successful, than native students (Adelman, 2005; Melguizo & Dowd, 2009). This finding suggests, 'the problem, then, is not supply and demand, but the machinery that links the two' (Handel & Williams, 2012, p. 8). Three priorities are offered to advance the transfer process between community college and four-year institutions. The first suggested priority is to improve and utilize data analyses that relates to academic progress and performance of students at both institutions. The second priority is to address the need of increased bachelor holders in the country through identifying and developing transfer pathway opportunities. Lastly, identify the institutional characteristics at both institutions that support transfer student success (Handel, 2011).

Throughout the last couple of decades, transfer partnerships and pathways have peaked interest of community colleges and four-year institutions in an effort to increase enrollment and completion rates. The Edvance Foundation produced a detailed report outlining the transfer initiative and providing recommendations to develop programs to smooth the transfer process that will address access, inequality, and social mobility (Edvance Foundation, 2015).

Transition to Four-Year Institutions

Academic Transfer Shock

Students who migrate from one institution to another often experience a variety of challenges as they transition into their new environment. Specifically, community college transfer students transitioning to a four-year institution witness new psychological, academic and environmental challenges (Laanan, 2001). Whether it is the academic rigor, differences in size and location, or competition among students, many studies have found these factors result in transfer students' difficulty to adjust to the four-year institution (Holhahn, Green, & Kelley, 1983; Keeley & House, 1993; Laanan, 1996, Townsend, 1993, 1995).

Specifically, many studies have explored the phenomonon known as transfer shock that is defined as the temporary dip in transfer students' academic performance, as characterized by GPA, in the first or second semester after transferring (Hills, 1965). Prompted by the idea of transfer shock, Ishitani (2008) conducted a longitudinal study to explore how semester GPA's following the experience of transfer shock impact persistence rates of transfer students by entry level status of being a freshman, sophomore, or junior. The study identified greater success in persistence of sophomore and junior transfer students in comparison to freshman, as well as a finding that higher semester GPA's were postively associated with higher persistence rates of transfer students (Ishitani, 2008).

Another study in 1997 compared community college transfer GPA to native students' GPA after one semester in major coursework and found a significant discrepancy. Native students' mean GPA was quite higher (2.98) than community college transfer students (2.59) (Glass & Harrington, 2002). The study further identified students who were able to recover from this shock and make it to junior year were more than likely to graduate.

Diaz (1992) revealed 62 studies dealing with GPA change and 79% of those studies identify transfer shock of community college transfer students. Within the studies that exemplified transfer shock, 67% found the students recovered from transfer shock. While this is a fairly high number of student who were able to recover from transfer shock, there continues to be room for growth in ensuring all transfer students have the resources and tools to a successful academic adjustment to a four-year institution.

Transfer adjustment

As previously discussed, Laanan (1996; 2001) encourages researchers and student affairs personnel to move beyond transfer shock and study the academic, social, and psychological adjustment of the transfer student experience as they transition to a new institution. Flaga (2006) conducted a qualitative study exploring the transition of community college transfer students to a four-year institution and identified important findings at it relates to transfer student adjustment. Collaboration of academic advisors between the community college and four-year institution was found to be critical and findings suggested a need for increased communication to support the community college transfer student adjustment to the four-year institution. Transitional programming in the transfer student orientation and seminar courses to introduce transfer students to the academic, social, and physical environment was another vital finding from this study. Lastly, the study identified a need for increased learning connections through mentor programs, campus involvement, and living-learning options for transfer students (Flaga, 2006).

Transfer Student Characteristics

Understanding the demographic and background characteristics of transfer students is an effective initial step in serving this population. As identified in Bean and Metzner's (1985)

model, these background characteristics play a significant role in predicting persistence. Diversity of this population in regards to gender, ethnicity, socioeconomic status, and first-generation status are further defined. Because this study focuses on community college transfer students and the study institution's student population reflects that of a community college population, community college student characteristics were further examined.

Gender

According to the American Association of Community College's Fact Sheet (2016), 57% of credit-seeking students attending community colleges, nationwide, are woman and 43% of students are men. A report from the National Clearinghouse reviewing baccalaureate outcomes after six years of transfer students from 2-year institutions to four-year public institutions found minor differences between women and men. The study found 66.1% of women in comparison to 63.3% of men completed degrees, discovering only a 2.8% difference between the two groups (Shapiro, et al., 2013).

In reviewing the literature pertaining gender and retention, discrepancies in the significance of this characteristic has been identified. In a study reviewing overall student departure, gender was identified as being a significant indicator as men were more likely to withdraw than women (Caison, 2004). Wang (2009) also identified women were more likely to attain a bachelor's degree than men in a study identifying predictors of transfer student educational outcomes. On the other hand, a study identifying factors that contribute to student graduation and retention among transfer and native students found gender had little significance (Gao, Hughes, O'Rear, & Fendley Jr., 2002).

Race/Ethnicity

The demographics in regards to race and ethnicity of students attending a community college are diverse. The 2016 national breakdown of students by ethnicity identified 49% of

students were White, 22% were Hispanic, 14% were F-American, 6% were Asian/Pacific Islander, 1% were Native American, 3% identified being two or more races, 4% identified other/unknown and the final 1% were Non-resident Aliens (American Association of Community Colleges, 2016). Regardless of this large minority student enrollment at the community college, research supports the findings that racial and ethnic minority students are less likely to transfer to a four-year institution compared to White students (Chase, Dowd, Pazich, & Bensimon, 2014).

Previous studies have observed how the demographic variable of ethnicity effects student persistence and graduation (Hawley & Harris, 2005; Tinto, 1975). The Beginning Postsecondary Students Longitudinal Study identified approximately 25% of minority students who initially attended a two-year college intended to transfer. However, after 6 years, only an astounding 6% had earned a bachelor's degree (Hoachlander, Sikora, Horn, & Carroll, 2003). These numbers, alone, support the need for additional research to close the achievement gap among minority and non-minority students.

Crisp and Nunez (2014) identified inequities in transfer success and, through the study, revealed important descriptive differences and experiences of White and minority students. The national study supported the assertions that disaggregating data by racial/ethnic groups is vital when examining the dynamics of transfer and college outcomes (Chase, Dowd, Pazich, & Bensimon, 2014; Crisp, Nunez, 2015, Hagedorn, 2010). For example, the study identified academic integration, as described by study groups and engagement with faculty, to be a significant predictor for White students, but not minority students. Additionally, the study identified vocational programs had a negative relationship with transfer. Interestingly, there was

found to be a disproportionate number of minority students, in comparison to White students, who were encouraged towards a vocational degree program (Crisp & Nunez, 2014).

Socioeconomic Status

As tuition rates at institutions of higher education steadily increase across the nation, attending college can be a financial hardship for many college students. Socioeconomic status of students creates yet another limitation for students to access higher education. This limitation contributes to a socioeconomic gap and social inequalities in college enrollments are alarming within higher education. Dowd, Cheslock, & Melguizo (2008) conducted a study to analyze transfer access at elite higher education instiutuions and identified a need to reduce economic barriers to elite college enrollment, provide class-based affirmative action, and increase transfer access. The study further posits a lack of socioeconomic diversity within higher education is a loss to society in diverse perspecitves, as well as contributes to the low probability for poor, working-class students to enter positions of power in society (Dowd, Cheslock, & Melguizo, 2008). Another study found students students who identified to have a low-socioeconomic status were more likely to be part of a minority group, such as Farican American or Hispanic. Moreover, it was also identified students within the low-socioeconomic sector, in comparison to students in high-socioeconomic status, were less likely to earn a bachelor's degree (Titus, 2006).

Community colleges pride themselves in providing accessible and affordable education to students within the communities where they reside. While the tuition costs are relatively low, 36% of the community college student population qualified and received aid in the form of the Pell-grant to subsidied the cost of higher education (American Association of Community Colleges, 2016). The Pell-grant provides need-based funding to low-income undergraduate

students (U.S. Department of Education, 2017). This impactful initiative provides access to students who otherwise could not afford college.

However, there continues to be financial barriers for community college transfer students as they transition to a four-year institution and experience significant differences in costs. A descriptive, exploratory study reviewing student perceptions of factors contributing to community college to university success identifed declining financial aid and the anxiety it produced was a detrimental impediment to community college transfer success (Gard, Paton, & Gosselin, 2012). Another state-wide study found students experienced a culture-shock going from a more personal, close-knit setting where the institution was pro-active in providing important financial aid-related deadlines to a four-year institution that was more systematic and lacked flexibility with deadlines. Transfer students also often apply to institutions late, therfore forfeiting opportunities for scholarships and unprepared in taking out loans to fund their education (Miller, Erisman, Bermeo, & Smith, 2011). Providing support should accompany access to leverage the success of low-income students in higher education.

First-Generation Students

The American Association of Community College (2016) identified 36% of the community college student population were first-generation college students. This is a vital statistic for four-year institutions to be aware of when working with transfer students. Many studies have explored this specific population and identified disadvantages this population faces in accessing and persisting in higher education. First-generation students are reported as being four times more likely to leave higher education and also bear the title of being low-income. In addition, data from the National Center for Educational Statistics Postsecondary Study identified

that after six years, only 11% of the low-income, first-generation students earned a bachelor's degree, compared to 55% of their more advantaged peers (Engle & Tinto, 2008).

Stebleton and Soria (2012) conducted a comparison study of first-generation and non-first-generation students and their academic obstacles. First-generation students were significantly more likely to have job and family responsibilities, weak study skills, and experience feelings of being depressed, stressed, or upset. First-generation students already experience a number of obstacles to their persistence and completion and factoring in being a transfer student and adjusting to their new environment with a lack of social capital only impedes their success. A qualitative study reviewing social capital and academic motivation among first-generation community college students found these students were not forming relationships to support them throughout college, rather believing it was their own responsibility to succeed in college (Moschetti & Hudley, 2015).

Persistence and Graduation

Predictors of Transfer Student Success

Previous studies of enrollment trends of transfer students assist institutions with better understanding many variables of this population, from recruitment to retention and graduation. A review of the literature provides both qualitative and quantitative research analyses reviewing predictors of persistence, such as enrollment status, transfer credit hours, academic preparedness, and GPA.

Enrollment Status

Enrolling in college full-time is frequently advised by college personnel as its reaps many benefits financially and in regards to staying on track to earn your degree in a timely manner. Transfer students' decision to enroll full-time or part-time plays a significant role in their

likelihood to attain a degree. Students who are exclusively part-time during their academic career are more than likely to stop-out of college and are least likely to transfer (Shapiro D. , Dundar, Wakhungu, Yuan, & Harrell, 2015). While part-time enrollment allows students juggling work and family an opportunity to education, it has also proven to be a deterrence to degree completion. A study by the National Center for Education Statistics (2007) exemplified part-time students who were enrolled in postsecondary education in the span of six years had a 15% completion rate of a certificate or degree, with no completions of bachelor's degree among this population.

Academic Preparedness

Academic preparation at the community college has also proven to be a significant indicator to transfer student success. Transfer student GPA has been heavily researched and attributed to transfer student persistence (Pennington, 2006; Wang 2009). Pennington (2006) attributed community college transfer GPA to being the highest predictor of first-semester performance. Wang (2009) also found community college GPA to be a significant variable predicting baccalaureate achievement. A study reviewing the academic and social integration outcomes for community college transfers identified transfer GPA to contribute to the academic success of transfer students' academic performance as measured by college GPA and hours, however the transfer GPA did not affect the persistence of these students at the four-year institution (D'Amico, Dika, Elling, Algozzine, & Ginn, 2013).

Transfer Credit Hours

Along with transfer GPA, substantial research has compared likelihood of transfer in community college students and persistence to number of credit hours transferred to the four-year institution (Doyle, 2009; Fink, Jenkins; 2015). Doyle (2009) found students who completed greater number of credit hours were more likely to successfully transfer to a four-year institution. Additional research indicates that students who transfer from a community college with two-year degree, the more likely they are to graduate from the four-year institution. Jenkins and Fink (2015) reported in a descriptive study from the National Clearing House found students who transferred with a two-year degree or certificate were 16% points more likely to complete a bachelor's degree than students who transferred prior to degree completion at the community college.

Educational Achievement Gap

Higher education in the United States provides an array of opportunities to American citizens, from higher quality jobs to increased earning potential. Historically, individuals with higher incomes are more likely to go to college, and as a result, more likely to earn higher incomes that allow their children to go to college (Step Up and Lead for Equity: What Higher Education Can Do to Reverse Our Deepening Divides, 2017). In 2013, a study identified that students from families in the highest-income bracket were eight times more likely than students from families in the lowest-income bracket to complete a bachelor's degree by the age of twenty-four (The Pell Institute for the Study of Opportunity in Higher Education, 2017). Figure 2.1 provides a historical overview of bachelor degree attainment by income level.

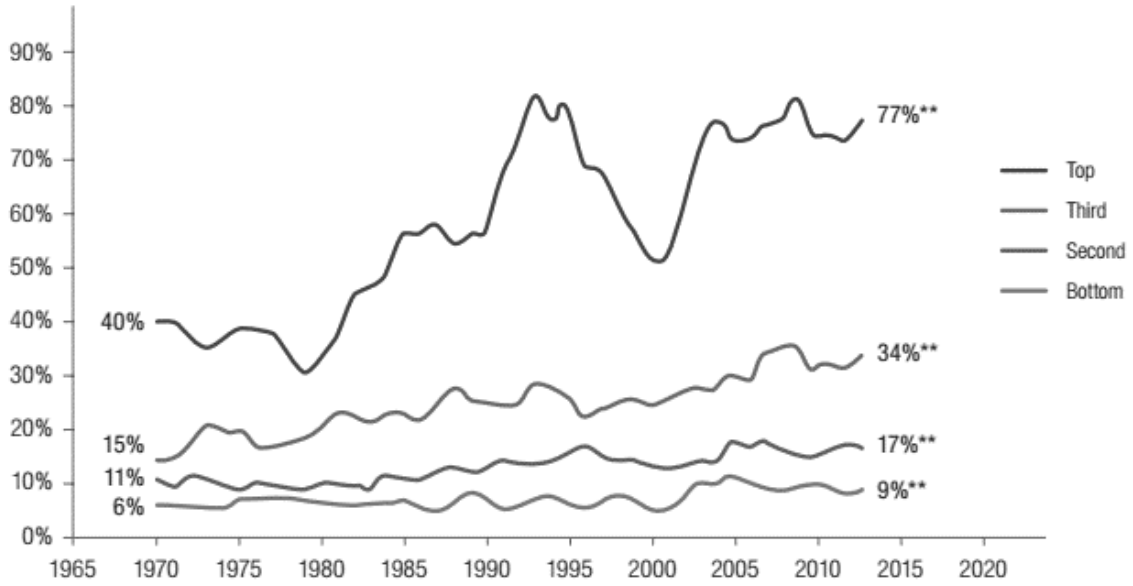

Figure 2.1 Bachelor Degree Attainment By Age 24 For Dependent Family Members By Family Income Quartile. Adapted from The Pell Institution for the Study of Opportunity in Higher Education, 2017, Retrieved from http://www.pellinstitute.org/downloads/publications-Indicators_of_Higher_Education_Equity_in_the_US_45_Year_Trend_Report.pdf, permission requested.

The American middle-class is also dwindling and disproportionate by ethnicity. According to the PEW Research Center (2015), Hispanic and Black adults are more likely to be part of the lower to middle-income tier. See Figure 2.2. This data exemplifies the nation's historically underrepresented continue to be at a disadvantage in access to higher education, resulting in the educational achievement gap of these populations.

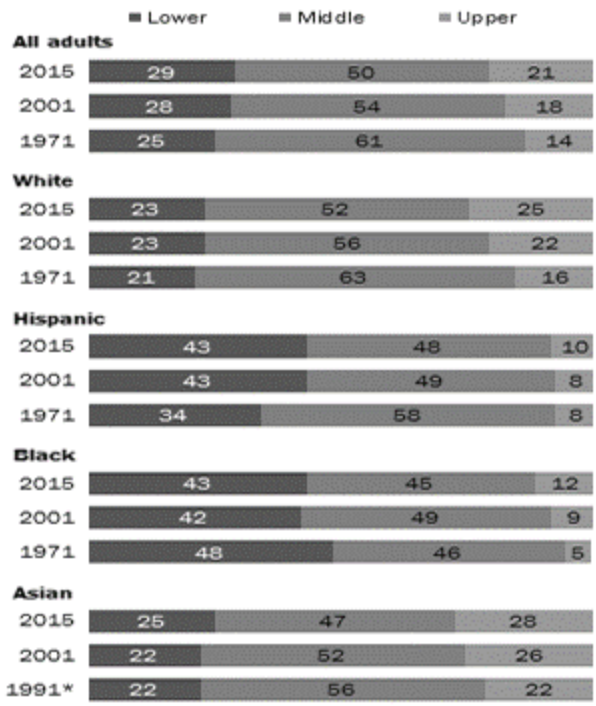

Figure 2.2 American Adults Income Status by Race and Ethnicity.

Adapted from "*The American Middle Class Is Losing Ground: No longer the majority and falling behind financially*." by the Pew Research Center, 2015. Adapted with permission.

Expanding educational opportunities through eliminating barriers, increasing access, and leveraging initiatives that result in higher degree attainment among minority and low-income students must be a commitment to attain national goals of increasing the number of higher education graduates.

As previously described, community college study bodies make up a large number of the nation's minority students. Community colleges are the gateway to a bachelor's degree for many of these students. Four-year institutions need to be race-conscious when developing, and administering services to support these specific populations. The Center for Urban Education

from the University of Southern California has developed a tool to assess for equitable outcomes of students of color through the Equity Scorecard (Center for Urban Education, 2017). This organizational learning process known as the Equity Scorecard, is designed to 'foster institutional change through the identification and elimination of racial disparities among college students' (Harris & Bensimon, 2007, p. 77). This approach attempts to close the opportunity gaps of historically disadvantaged racial and ethnic groups through 'reinterpreting inequity of educational outcomes from the perspective of those who experience them, taking into account the social, cultural, and historical context of exclusion, discrimination, and educational apartheid' (Bensimon, 2012, p. 29). Through utilizing institutions' historical retention and completion data of underrepresented student compared to white students, the tool provides a baseline or 'score' for the institution to review and begin important work to identify areas of opportunity to move the needle and increase graduation rates of underrepresented students.

As an example, a study conducted in Wisconsin utilized the Scorecard approach to assess the low transfer rate of students of color to create research-informed policies and practices. The study tracked the progression of community college transfer students by race moving from class levels to graduation at state four-year institutions in Wisconsin. Findings indicated students of color are less likely to transfer and those who do transfer to the four-year institution are less likely to graduate with a baccalaureate degree (Pazich & Bensimon, 2010). These findings confirm that an educational attainment gap exists among transfer students of color and the necessity to address this issue through further research, supported by data-driven policies and initiatives to address this pertinent issue within higher education.

CHAPTER 3. METHODOLOGY

Introduction

The purpose of this study is to explore the demographics and characteristics of community college transfer students and the significant relationships these variables may have on experience of transfer shock, student persistence, and graduation. Specifically, this study seeks to identify predictors of community college transfer student success, as described by fall-to-fall persistence and completion of baccalaureate degrees. Through the exploration of community college transfer persistence, this study will also identify equity gaps among student groups within the population as it pertains to student persistence and completion. The student groups that will be assessed for equity gaps includes underrepresented students, first-generation students, and low-income students, as defined by eligibility for the Pell-grant.

A transcript analysis, identified as a type of quantitative methodology, was chosen to conduct the data analysis for this longitudinal study to evaluate predictors of community college transfer student success to a four-year institution. Student transcripts has proven to be a valuable data source as it records the attendance, retention, completion, and transfer patterns of students (Bach, et al., 2000; Hagedorn & Kress, 2008; Hagedorn, 2005). Hagedorn (2005) utilized a transcript analyses approach to further investigate and understand student academic behaviors and enrollment patterns of community college students. Similarly, this study seeks to understand the enrollment patterns through observing persistence and completion of community college transfer students at a four-year institution. The identification of these patterns will support implications and policies to increase transfer student completion at four-year institutions through identifying specific needs for this student population.

Research Questions

The following research questions frame this study and analyze the data as it is related to the theoretical perspective.

1) What are the background characteristics and demographics of community college transfer students enrolled at a four-year, public, and Urban Transfer destination colleges?
    a. What are the background characteristics and demographics of community college transfer who persist from fall-to-fall?
    b. What are the background characteristics and demographics of community college transfer who persist to completion?
2) How does academic success, as described by GPA, transfer shock, first semester and fall-to-fall persistence rate, and graduation rate, at the four-year institution compare among minority/non-minority students, first-generation/non-first-generation students, and Pell-grant/non-Pell-grant eligible students?
3) Are there significant differences between students who experience and do not experience transfer shock as described by student background characteristics, such as race/ethnicity, gender, first-generation student status, socioeconomic status, and number of transfer credit hours?
4) What are predictors of community college student transfer success as measured by fall-to-fall persistence after one year and completion?

Hypotheses

The first research question is descriptive in nature; therefore, null hypothesis testing will not be presented. Research questions three and four are described below in a null hypothesis manner.

Ho^1: There is no significant relationship between students who experience or do not experience transfer shock and minority/non-minority student status.

Ho^2: There is no significant relationship between students who experience or do not experience transfer shock and gender.

Ho^3: There is no significant relationship between students who experience or do not experience transfer shock and first-generation student status.

Ho^4: There is no significant relationship between students who experience or do not experience transfer shock and socioeconomic status.

Ho^5: There is no significant relationship between students who experience or do not experience transfer shock and number of transfer credit hours.

Ho^6: There are no predictors of community college persistence that influence fall-to-fall persistence.

Ho^7: There are no predictors of community college persistence that influence completion.

Research Design

Setting

This study was administered a large, four-year, public, urban institution in the Midwest with a Baccalaureate College – Diverse Fields Carnegie Classification, enrolling just over 21,000 students (National Center for Education Statistic, 2016). Established in 1965, the institution is a relatively young institution with a unique foundation centered on access. The institution was originally founded as an urban vocational school with both two-year programs and general education. However, administrators quickly expanded the institution to provide anyone with a high school diploma or GED an opportunity to earn a four-year degree. In 2012, the institution officially became a university (Metropolitan State University - Denver, 2016). An advantage and

important factor in this research is the ability for the institution to recruit students due to its proximity to a large, community college. The lenient admissions standards, mission of the institution, and location of the institution aid in the recruitment and admissions of transfer students.

Transfer Admissions Policy

The admission requirements established at institutions provides details regarding the populations the institutions intend to serve. The study institution, in comparison to other four-year public institutions in the state, has lenient admissions requirements that are similar to community college admissions policies. For the purpose of this research, the transfer admissions requirements will be examined and are outline below:

a) Transfer applicant must transfer a minimum of 30 credit hours
b) If a transfer student is 19 or younger with 30 or less credit hours, students are required to submit high school/college transcripts and standardized test scores. Students will then be considered for first-year undergraduate admissions
c) Students age 20 or older will be admitted regardless of cumulative GPA with submission of an official college transcript with 30 or more transferrable credit hours
d) If a student has at least 30 transferrable credit hours from another college/university, they are guaranteed admission and not required to submit high school transcripts or GED scores for admission
e) Maximum number of credits hours that may be transferred from a two-year institution: 64
f) Maximum number of credit hours that may be transferred from a four-year institution: 90

Many four-year institutions practice admissions policies that include minimum cumulative grade point averages, personal statements, and/or statement of good standing from prior institution. The mission of the institution supporting access to serve a diversity of students aligns itself with similar missions of the community college, and in response, the population is reflective of that of a community college student body.

Population and Sample

The institution enrolls a diverse group of first-time, first-year and transfer students. For the purpose of this study, the fall 2012 enrollment was reported and analyzed. Total enrollment of students was 23,381 during fall 2012. The entering 2012 cohort consisted of 2,306 first-year, first-time students and 3,685 transfer students, exemplifying 61% of the cohort was transfer students (Office of Institutional Research, 2016). This transfer student to first-year, first-time student ratio remains consistent across the total enrollment of the student body.

The student population consisted of all degree-seeking transfer students who completed a mandatory orientation program to enter the university beginning the fall of 2012. Students under the age of 18 were removed from the population sample. The demographic characteristics of the population will be further explored and identified.

Data Collection

Permission was received to conduct the study with the institution. The researcher is employed with the institution, allowing access to necessary data for this study. The employment of the research with the study institution creates a bias that will be later discussed in the limitations of this study. The institution mandates all new students complete an orientation as part of the student services that support students' transition to the institution. The orientation program is facilitated either online or through an on-campus, face-to-face experience.

Specifically, transfer students have access to an online orientation and the majority of transfer students choose to complete the orientation requirement through this platform.

Data was collected through two registration programs that the institution purchased to assist with the registration and facilitation of orientation, Visual Zen Orientation and Comevo. The two software programs host institution-specific online orientation programs to support students' transition into higher education. The data files obtained from Visual Zen Orientation and Comevo provided the university student identification numbers, dates and types of orientation completion. Utilizing the student identification numbers, the institutional research team provided additional data as it related to student demographics, enrollment, registration, grade point average, retention, and completion. All university student identification numbers were removed from the file provided to the researcher to protect the privacy of the students. The data was collected in November of 2016.

Variables in the Study

The study sought to identify how specific variables are associated with the success of transfer students, as measured by the academic performance conceptualized through evidence of transfer shock, first-year persistence, and completion of community college transfer students. The variables are further defined below.

Endogenous/Dependent Variables

Transfer shock. This study intends to investigate the relationship between selected demographics and student characteristics and evidence of experience of a reduction in GPA. This variable is a continuous variable and identified as a reduction in grade point average during the first semester after transfer to the four-year institution.

First-year Persistence. This study intends to investigate variables that predict the fall-to-fall or first-year persistence of community college transfer students to the four-year, public institution. The variable coding exemplifies students who consistently enrolled in credits during their first year and student who did not consistently enroll in credits throughout the first year at the four-year institution.

Completion. This study sought to analyze variables that predict the completion of community college transfer students to the four-year, public institution. The variable coding exemplifies students who did and did not complete their degree at the four-year institution.

Exogenous/Independent Variables

The key independent variables selected for this study were identified as potential predictors of success as supported by the theoretical frameworks that influence this study. Key demographic information and transfer student characteristics are further described.

Age. Students enrolled at the institution are defined at time of the application as being 'nontraditional' by age if they are age 23 or older. Therefore, the variable was coded to identify students age 22 and younger as 'traditional' and students age 23 or older as 'nontraditional'.

Gender. The variable was coded to identify between female and male.

Race/Ethnicity. The student self-identified at time of admissions to the institution and this variable provides a detailed review of the students' race/ethnicity.

Minority/Non-minority. The variable identifying the race/ethnicity of students was recoded into a new variable identifying minority or non-minority. Non-minority students who identified as being 'White'. Minority students identified as being African-American/Black, American Indian/Native Alaskan, Asian, Hispanic, Native Hawaiian/Pacific Islander, Two or

More Races. Students identifying as International (n = 4) were removed from the variable coding.

Pell/Socioeconomic Status (SES). The variable conceptualizing socioeconomic status is identified according to the Pell-grant eligibility of students.

Father Education. The education attainment of the student's father at time of admissions to the four-year institution.

Mother Education. The education attainment of the student's mother at time of admissions to the four-year institution.

First-Generation Student. This variable is conceptualized through using the coding of 'Father Education' and 'Mother Education'. The variable identifies the highest level of a parent's education being a 2-year degree or above or the highest level of parent's education begin 'some college' or below.

Transfer Credit Hours. This variable is coded through reviewing the credit hours students transferred to the four-year institution. Students are coded either as transferring less than 59 credit hours or 60 or more credit hours.

Transfer Shock. The logistic regressions in the study utilizes transfer shock as a predictor of the dependent variables of first year persistence and completion. As previously discussed, this variable is a continuous variable and described by a reduction in GPA in the first semester after transfer to the four-year institution.

Table 3.1

Scales of the Variables in this Study

Variable	Description	Coding
Age	Age is 22 and younger Age is 23 and older	0 = Traditional 1 = Nontraditional
Gender	Gender of student	1 = Female 2 = Male
Race/Ethnicity	Student race/ethnicity	1 = African American/Black 2 = American Indian/Native Alaskan 3 = Asian 4 = Hispanic 5 = International 6 = Native Hawaiian/Pacific Islander 7 = Two or More Races 8 = White
Minority/Non-minority	Student race/ethnicity by minority status	0 = Non-minority 1 = Minority
Pell/SES	Student Pell eligibility or Not Pell eligible	0 = Not Pell-grant eligible 1 = Pell-grant eligible
First-generation Student	Highest education achieved by one parent	1 = Some college and below

Table 3.1 (continued)

		2 = Two-year degree and above
Transfer Credit Hours	Student number of transfer credit hours	0 = Student transfer 60 or more credit hours 1 = Student transfer 59 or less credit hours
Transfer Shock	Evidence of decrease in GPA first semester first semester after transfer	0 = No transfer shock 1 = Transfer shock
Fall-to-Fall Persistence	Student enrolled consistently during first year at four-year institution	0 = Did not persist 1 = Persisted
Completion	Student completed degree	0 = Student did not complete 1 = Student completed

Data Analysis

The study employed a transcript analyses, a form of quantitative research methodology. Data analysis was conducted utilizing SPSS 23.0 statistical software program. Descriptive and inferential statistics were utilized to answer the hypotheses in this study.

Descriptive Statistics

The first research question addresses the demographic and background characteristics of community college transfer students entering the four-year institution in Fall 2012. Utilizing descriptive statistics will provide an overview of the demographic characteristics such as gender, age, race/ethnicity, parental education, first-generation student status, socioeconomic status, transfer credit hours, transfer shock, first semester and fall-to-fall persistence, and completion. In addition, descriptive analyses were also conducted to provide an overview of the background characteristics and demographics of students who persisted from fall-to-fall and to completion at the institution.

Scorecard

In order to address the second research question identifying how academic success of students, described by GPA, transfer shock, first semester and fall-to-fall persistence and graduation rates compare among the student demographics of being minority/non-minority, first-generation/non-first-generation, and Pell-grant/non-Pell-grant eligible, frequencies were conducted and described. The results were presented through the creation of a scorecard to portray the differences in frequencies to assess equity gaps. This scorecard approach builds on the work conducted by the Center for Urban Education from the University of Southern California in regards to the Equity Scorecard (Center for Urban Education, 2017).

This development of the scorecard for this study will allow the institution to utilize this as a tool to closely monitor equity gaps that exist among transfer student populations in their quest to earn a bachelor's degree. Six goals were created and measured utilizing the data from this study.

1) First semester persistence and retention
2) Fall-to-fall persistence and retention
3) Transfer Grade Point Average (GPA)
4) First semester Grade Point Average (GPA)
5) Evidence of transfer shock
6) Percentage of graduates

For the purpose of this study, the target for each goal was the rate at which non-minority students reported achievement at the study institution. The frequencies were conducted for each goal by student population, non-minority students/minority students, non-first-generation/first-generation students, non-Pell-grant eligible/Pell-grant eligible students, and the populations were given a score. The difference between the target and the score provided an equity gap. In addition, a scale ranging from above target, at target, below target, and far below target was created to provide an overview of where the student populations falls on the equity spectrum. Far below target identified the gap being 5% or larger from the target.

Correlation

The third research question was designed to seek for any significant relationships between students who experience transfer shock following the first semester at the transfer institution and specific student characteristics. Correlations were conducted between student

groups to explore any significance relationships between students who experience a reduction in first semester GPA, also defined in this study as transfer shock, and the student characteristics.

Logistic Regression

Logistic regression was conducted to determine which independent variables were the predictors of community college transfer student persistence. The first analysis will review for the extent of demographic predictors, such as ethnicity, socioeconomic status, and first-generation status on first year persistence.

A second logistic regression analyses will be conducted to review the extent the independent variables predicted community college transfer student completion.

Missing Data

Missing data is a common occurrence in social science research and there are a variety of methods in managing this data (Mertler & Vannatta, 2013). In this study, some of the data was missing in the individual responses. For cross tabulations, chi-square and logistic regression analysis, list-wise deletion, which involves including only cases with complete records, was employed.

Limitations and Delimitations

The study was conducted with the following identified limitations. The intentions of this research was to contribute to the literature and knowledge base on how higher education systems can better assist community college transfer students to reach their goals of completion. The researcher had a considerable amount of full-time work experience alongside orientation programs for transfer students. While the investigator had significant interests in serving this population, effort was made to minimize investigator bias.

The geographical constraint of the research being conducted only at one institution provides another limitation to the study. The institution's setting in an urban environment also limits the generalizability due to the limited scope of the students. However, similar four-year, urban, transfer destination colleges could benefit from the findings of this study.

The data collected within this study was a combination of institutional data from the Registrar's data and self-disclosed information reported by students on the application for admissions to the institution. Specifically, questions identifying the highest educational level of mother and father were not always known or reported by students. This provides a limitation to the variable conceptualizing the first-generation status of students within the study.

A delimitation in the study was the variable identifying whether students were nontraditional or traditional by age. The study's institution labels all students who are 23 or older as nontraditional by age, therefore this definition was utilized to conceptualize age and nontraditional student status for the study.

While the study utilized community college transcript data to identify number of transfer credit hours, courses, and grade point average to conceptualize components of this study as it relates to transfer shock, persistence, and completion, it was not possible to identify whether the transfer credits applied towards the students' degree path at the four-year institution. This limitation can misconstrue the time to degree completion as some of these students may have changed degree paths and it is unknown how many credits may not have applied towards the four-year degree.

Another limitation to this study is utilizing the theoretical framework of Tinto's Longitudinal Model of Institutional Departure. This theory is focused on a traditional first-time, first-year students attending four-year institutions. The data collected for this study was

conducted on transfer students. Transfer students can have very different characteristics and experiences that are unique to this population in comparison to a 'traditional' first-time college student out of high school. However, coupling Tinto' model with Bean & Metzner's theory recognizing characteristics of nontraditional students reduces the limitation. In addition, components from Laanan's Transfer Adjustment model and lessons learned from Achieving the Dream contribute to gaps within Tinto's model.

In addition, components from Laanan's Transfer Adjustment model and lessons learned from Achieving the Dream contribute to gaps within Tinto's model. However, the scope of the data collected is limited in scope to fully conceptualize the academic and social adjustment of community college transfer students utilizing Laanan's Transfer Adjustment model. Recommendations for further research that explore the academic and social experience of community college students as they transition to a four-year institution will be discussed in Chapter 5.

Ethical Considerations

In accordance with ethical standards in conducting studies involving human subjects, an application to conduct research was approved by Iowa State University Institutional Review Board (IRB) on October 11th, 2016 (*Appendix A*).

The institution was provided a copy of the Iowa State University IRB approval letter and the research also completed a formal Research Request with the institution. The Academic and Student Affairs Senior Leadership team approved the research on October 24th, 2016.

CHAPTER 4. FINDINGS

This chapter presents the findings of the analysis conducted with the data for the community college transfer students at a Midwestern, four-year, public institution. The analysis focused on the progression of 1,589 community college transfer students who enrolled during the Fall 2012 semester.

The first research question in the study is posited to examine the characteristics of community college transfer students. The demographics of this population, along with variables identifying socioeconomic status, first-generation status, experience of transfer shock, and persistence to the institution. A critical component of the research included a comparison of key metrics, such as first-semester and fall-to-fall persistence, GPA, transfer shock, and graduation. Descriptive analyses were further used to explore inequities among these key metrics in comparison to specific student populations; minority, first-generation, and low-income students at the study institution. Utilizing correlations, the third research question examined significance relationships between transfer shock and key independent variables of gender, race/ethnicity, first-generation students, socioeconomic status, and transfer credit hours. Lastly, predictors of community college transfer success, as described in fall-to-fall persistence and completion, were analyzed through logistic regression analysis.

Descriptive Statistics

Total Sample

The descriptive characteristics include: gender, age, race/ethnicity, socioeconomic status, parental education, transfer credit hours, transfer shock, persistence of students from first semester and first year of enrollment at the four-year institution, and completion.

Woman comprised 54.2% (*n*= 862) of the community college transfer students in the 2012 cohort, while 45.8% (*n*= 727) were men. The institution defines nontraditional students as being age 23 or older. The majority of the students were nontraditional according to age, making up 95.3% (*n*= 1515) of the total population, while 74 (4.7%) were traditional by definition of age.

The race/ethnicity of the population is described in detail and then further broken into two variables: minority and non-minority. The largest majority of students (*n*= 962, 63%) indicated that they were White. Hispanic students (*n*= 316, 20.7%) made up the second largest majority, followed by African American/Black (*n*= 114, 7.5%), two or more races (*n*= 73, 4.8%), Asian (*n*= 43, 2.8%), American Indian/Native Alaskan (*n*= 13, 0.3%), International (*n*= 4, 0.3%), and Native Hawaiian/Pacific Islander (*n*= 2, 0.1%). This variable was re-coded to address the research questions comparing minority and non-minority student academic experiences. The minority variables comprised Hispanic, African-American/Black, Asian, American Indian/Native American, Native Hawaiian/Pacific Islander and two or more races. Students who identified White as their race/ethnicity were coded as non-minority students. International students were removed from the analysis. In addition, there were 66 students removed from this new variable as a result of missing data. The results indicate 36.8% (n= 561) were minority students, while the majority of the students identified being non-minority (n= 962, 63.2%).

Pell-grant eligibility is an important indicator of socioeconomic status. Specifically, 38.4% (*n*=610) were eligible for the Pell-grant, indicating a financial need and for the purpose of this study, considered as students with low socioeconomic status. The majority of the students (n=979, 61.6%) were non-Pell-grant eligible.

Another variable contributing to this study was first-generation college students and exploring this group and their academic experience and persistence to the four-year institution. In order to capture this variable, the parental education of the father and mother were described and then re-coded into a new a new variable identifying first-generation status as defined of parents earning no college degree or non-first-generation student status as at least one parent earning a 2-year degree or higher. In reviewing the father's education, the majority of students (*n*=313, 34.5%) were high-school graduates. Four-year degree (*n*= 226, 24.9%) made up the second majority, followed by some college (*n* = 142, 15.6%), graduate school (n= 98, 10.8%), some high-school (*n* = 51, 5.6%), two-year degree (*n* = 46, 5.1%), and no high-school (*n* =32, 3.5%). Missing data for father's education comprised of 681 students within the cohort. The students' mother's educational path was similar. The majority of students (*n*=306, 32.1%) were high-school graduates. Four-year degree (*n*= 222, 23.3%) made up the second majority, followed by some college (*n* = 179, 18.8%), two-year degree (*n* = 88, 9.2%), graduate school (n= 70, 7.3%), some high-school (*n* = 59, 6.2%), and no high-school (*n* =29, 3.0%).

The two parent education variables, mother and father's highest education, were conceptualized as the highest degree of the student's parent. The variable was identified as being first-generation if the highest level of a parent's education was 'some college' or below. The analysis identified first-generation college students comprising 478 students (48.7%) and non-first-generation college students comprising 503 students (51.3%). The data analysis identified 608 students with missing data for parental education.

For the purpose of this study, the variables describing transfer credit hours were conceptualized according to transferring 60 credits hours, which is the standard number of credit hours necessary for completion of a two-year degree. The analysis identified 68.4% (*n* = 1039)

students transferred less than 60 credit hours from the community college to the four-year institution and 480 students (31.6%) transferred 60 or more credit hours to the four-year institution. The data analysis identified 70 students with missing data for transfer credit hours.

The transfer shock variables were measured by students experiencing a reduction in GPA following their first semester at the four-year institution, in comparison to their cumulative GPA at departure from the community college. Students experiencing transfer shock accounted for 49.4% (*n*=642) of the students in the study. Meanwhile, 657 students (50.6%) of the students did not experience a reduction in GPA during the first semester or the semester GPA had no change. Missing data accounting for this variable was reported for 290 students.

Persistence of students to the four-year institution was analyzed after completion of the first-semester and the first year (fall-to-fall). The majority of students (*n*=1104, 69.5%) persisted through the first semester. Students who did not persist through the first semester accounted for 30.5% (*n*=485) of the population. The analysis reviewing persistence of students from fall-to-fall identified 809 students (54.8%) persisted, while 666 students (45.2%) did not persist at the four-year institution. The analysis identified missing data for 114 students within the dataset.

The final descriptive analyses conducted on the data set was identifying completion of the students in the 2012 community college transfer cohort. A large percentage of the student population did not attain a four-year degree within four years of attendance at the institution. The study identified 1088 students (68.5%) did not complete, while 31.5% (*n*= 501) of the students completed a four-year degree.

Table 4.1

Key Characteristics of Community College Transfer Students to a Four-Year Public Institution

Variable	Total (n=1589) *n*	*%*
Gender		
Female	862	54.2
Male	727	45.8
Age		
Non-Traditional (Age is 23 or older)	1515	95.3
Traditional (Age is 22 or younger)	74	4.7
Ethnicity/Race		
African American/Black	114	7.5
American Indian/Native Alaskan	13	0.9
Asian	43	2.8
Hispanic	316	20.7
International	4	0.3
Native Hawaiian/Pacific Islander	2	0.1
Two or More Races	73	4.8
White	962	63.0
Missing data	62	
Ethnicity/Race		
Non-Minority	962	63.2
Minority	561	36.8
Missing data	66	
Socioeconomic Status		
Non-Pell grant eligible	979	61.6
Pell grant eligible	610	38.4
Father Education		
No high school	32	3.5
Some high school	51	5.6
High school graduate	313	34.5

Table 4.1 (continued)

Some college	142	15.6
Two-year degree	46	5.1
Four-year degree	226	24.9
Graduate school	98	10.8
Missing data	681	
Mother Education		
No high school	29	3.0
Some high school	59	6.2
High school graduate	306	32.1
Some college	179	18.8
Two-year degree	88	9.2
Four-year degree	222	23.3
Graduate school	70	7.3
Missing data	953	
First Generation Student		
Highest level of parent 2-year degree or above	503	51.3
Highest level of parent education 'some college' or below	478	48.7
Missing data	608	
Transfer Credit Hours		
Less than 60 transfer credit hours	862	56.7
60 transfer credit hours or more	657	43.3
Missing data	70	
GPA Reduction		
Student experience a GPA reduction	642	48.1
Student experience GPA reduction 0.01 - 1	517	39.8
Student experience GPA reduction 1.01 - 2	108	8.3
Student experience GPA reduction 2.01 - 3	17	1.3
Did not experience GPA reduction	657	50.6
Student experience GPA reduction -1 - - 0.00	530	40.8
Student experience GPA reduction -2 - -1.01	101	7.8
Student experience GPA reduction -3 - - 2.01	22	1.7
Student experience GPA reduction > -3.01	4	0.3
Missing data	290	

Table 4.1 (continued)

First Semester Persistence		
Did not persist	485	30.5
Persisted	1104	69.5
Fall-to-Fall Persistence		
Did not persist	666	45.2
Persisted	809	54.8
Table 4.1 (continued)		
Missing data	114	
Completion		
Student did not complete	1088	68.5
Student did complete	501	31.5

Students who Persisted

A descriptive analysis of the characteristics of the community college student who persisted through the first year at the study institution was provided in Table 4.2. As previously described, 809 students persisted through the first year. Within the population of students who persisted, woman comprised 54.3% (*n*= 439) of the community college transfer students who achieved degree completion, while 45.7% (*n*= 370) were men. The majority of the students were nontraditional according to age, making up 94.7% (*n*= 766) of the total population, while 43 (5.3%) were traditional by definition of age.

Similar to Table 4.1, the race/ethnicity of the population is described in detail and then further broken into two variables: minority and non-minority. The largest majority of students (*n*= 509, 62.9%) persisting from fall-to-fall were White. Hispanic students (*n*= 165, 20.4%) made up the second largest majority, followed by African American/Black (*n*= 45, 5.6%), two or more races (*n*= 34, 4.2%), Asian (*n*= 23, 2.8%), American Indian/Native Alaskan (*n*= 4. 0.5%), International (*n*= 2, 0.2%), and Native Hawaiian/Pacific Islander (*n*= 1 0.1%). Similar re-coding

was conducted to compute the minority and non-minority variables. The minority variable comprised Hispanic, African-American/Black, Asian, American Indian/Native American, Native Hawaiian/Pacific Islander and two or more races. Students who identified White as their race/ethnicity were coded as non-minority students. International students were removed from the analysis. In addition, there were 26 students removed from this new variable as a result of missing data. The results indicate the majority of the students persisting were non-minority (n= 509, 65.2%), while 34.8% (n= 272) were minority students.

Two descriptive characteristics that were pertinent to the study's student population was socioeconomic status and first-generation student status. The population of students persisting through the first year were 40.2% (*n*= 325) Pell-grant-eligible. While the majority of the students (n= 484, 59.8%) were not eligible for the Pell-grant. First-generation students who persisted through the first year made up 49% (n= 242) of the student population, while non-first-generation college students comprising 252 students (51%). The data analysis identified 34 students with missing data for parental education.

The variables describing transfer credit hours and transfer shock were also analyzed for the student population who persisted through the first year. The analysis identified 68.8% (*n* = 551) students transferred less than 60 credit hours from the community college to the four-year institution and 250 students (31.2%) transferred 60 or more credit hours to the four-year institution. The data analysis identified no students with missing data for transfer credit hours. Students experiencing a reduction in GPA, as defined in this study as transfer shock, accounted for 51.4% (*n*= 416) of the students in the study. Meanwhile, 361 students (44.6%) of the students did not experience a reduction in first semester GPA. Missing data accounting for this variable was reported for 32 students.

Table 4.2

Key Characteristics of Community College Transfer Students who Persisted from Fall-to-Fall at the Four-Year Institution.

	Total (n=809)	
Variable	*n*	*%*
Gender		
Female	439	54.3
Male	370	45.7
Age		
Non-Traditional (Age is 23 or older)	766	94.7
Traditional (Age is 22 or younger)	43	5.3
Ethnicity/Race		
African American/Black	45	5.6
American Indian/Native Alaskan	4	0.5
Asian	23	2.8
Hispanic	165	20.4
International	2	0.2
Native Hawaiian/Pacific Islander	1	0.1
Two or More Races	34	4.2
White	509	62.9
Missing data	26	
Ethnicity/Race		
Non-Minority	509	65.2
Minority	272	34.8
Missing data	28	
Socioeconomic Status		
Non-Pell grant eligible	484	59.8
Pell grant eligible	325	40.2
First Generation Student		
Highest level of parent 2-year degree or above	252	51
Highest level of parent education 'some college' or below	242	49
Missing data	34	

Table 4.2 (continued)

Transfer Credit Hours		
Less than 60 transfer credit hours	551	68.8
60 transfer credit hours or more	250	31.2
GPA Reduction		
Student experience GPA reduction	416	51.4
Student experience GPA reduction 0.01 - 1	338	41.8
Student experience GPA reduction 1.01 - 2	69	8.5
Student experience GPA reduction 2.01 - 3	9	1.1
Did not experience GPA reduction	361	44.6
Student experience GPA reduction -1 - - 0.00	320	39.6
Student experience GPA reduction -2 - -1.01	36	4.4
Student experience GPA reduction -3 - - 2.01	5	0.6
Student experience GPA reduction > -3.01	0	0
Missing data	32	

Students who Completed

A descriptive analysis of the characteristics of the community college student who did complete a bachelor's degree during the duration of the study was provided in Table 4.3. As previously described, 501 students obtained degree completion during the duration of the study. Within the population of graduates, woman comprised 63.5% (*n*= 318) of the community college transfer students who achieved degree completion, while 36.5% (*n*= 183) were men. The majority of the students were nontraditional according to age, making up 95% (*n*= 476) of the total population, while 25 (5%) were traditional by definition of age.

Similar to Table 4.1, the race/ethnicity of the population is described in detail and then further broken into two variables: minority and non-minority. The largest majority of students (*n*= 315, 62.9%) completing a degree were White. Hispanic students (*n*= 94, 18.8%) made up the second largest majority, followed by African American/Black (*n*= 25, 5%), two or more races

(*n*= 24, 4.8%), Asian (*n*= 16, 3.2%), American Indian/Native Alaskan (*n*= 3, 0.6%), International (*n*= 3, 0.6%), and Native Hawaiian/Pacific Islander (*n*= 0 0.0%). Similar re-coding was conducted to compute the minority and non-minority variables. The minority variable comprised Hispanic, African-American/Black, Asian, American Indian/Native American, Native Hawaiian/Pacific Islander and two or more races. Students who identified White as their race/ethnicity were coded as non-minority students. International students were removed from the analysis. In addition, there were 21 students removed from this new variable as a result of missing data. The results indicate 34% (n= 162) were minority students, while the majority of the students who completed a bachelor's degree identified being non-minority (n= 315, 66%).

Two descriptive characteristics that were pertinent to the study's student population was socioeconomic status and first-generation student status. The population of graduates consisted of 37.7% (*n*= 189) who were Pell-grant-eligible. While the majority of the students (n= 312, 62.3%) were non-Pell-grant eligible. The analysis identified first-generation college students who completed a bachelor's degree comprised 155 students (49.8%) and non-first-generation college students comprising 156 students (50.2%). The data analysis identified 190 students with missing data for parental education.

The variables describing transfer credit hours and transfer shock were also analyzed for the student population who obtained degrees. The analysis identified 58.5% (*n* = 293) students transferred less than 60 credit hours from the community college to the four-year institution and 208 students (41.5%) transferred 60 or more credit hours to the four-year institution. The data analysis identified no students with missing data for transfer credit hours. Students experiencing transfer shock, or a reduction in first semester GPA, accounted for 55.1% (*n* = 276) of the

students in the study. Meanwhile, 217 students (43.3%) of the students did not experience transfer shock. Missing data accounting for transfer shock was reported for 8 students.

Table 4.3

Key Characteristics of Community College Transfer Students who Completed a Bachelor's Degree at the Four-Year Institution.

	Total (n=501)	
Variable	*n*	*%*
Gender		
Female	318	63.5
Male	183	36.5
Age		
Non-Traditional (Age is 23 or older)	476	95.0
Traditional (Age is 22 or younger)	25	5.0
Ethnicity/Race		
African American/Black	25	5.0
American Indian/Native Alaskan	3	0.6
Asian	16	3.2
Hispanic	94	18.8
International	3	0.6
Native Hawaiian/Pacific Islander	0	0.0
Two or More Races	24	4.8
White	315	62.9
Missing data	21	
Ethnicity/Race		
Non-Minority	315	66.0
Minority	162	34.0
Missing data	24	
Socioeconomic Status		
Non-Pell grant eligible	312	62.3
Pell grant eligible	189	37.7

Table 4.3 (continued)

First Generation Student		
Highest level of parent 2-year degree or above	155	49.8
Highest level of parent education 'some college' or below	156	50.2
Missing data	190	
Transfer Credit Hours		
Less than 60 transfer credit hours	293	58.5
60 transfer credit hours or more	208	41.5
GPA Reduction		
Student experience GPA reduction	276	55.1
Student experience GPA reduction 0.01 - 1	235	46.9
Student experience GPA reduction 1.01 - 2	38	7.6
Student experience GPA reduction 2.01 - 3	3	0.6
Did not experience GPA reduction	217	43.3
Student experience GPA reduction -1 - - 0.00	207	41.3
Student experience GPA reduction -2 - -1.01	9	1.8
Student experience GPA reduction -3 - - 2.01	1	0.2
Student experience GPA reduction > -3.01	0	0
Missing data	8	

Scorecard

Descriptive analyses was conducted to address the second research question identifying gaps in academic success, as described by transfer GPA, first semester persistence, fall-to-fall persistence, transfer shock, and completion by the following comparison groups: minority and non-minority, first-generation and non-first-generation, and Pell-grant eligible and non-Pell-grant illegible. The frequencies for each of the student groups were identified in Table 4.4 and further explained. Furthermore, the results were described utilizing a scorecard to appropriately identify the equity gaps among the student populations.

The analysis of first-semester persistence of the populations compared to non-minority students exemplified the non-minority students had the highest average first-semester retention

rate at 71.4%. Non-first generation students followed with 70.6%, followed by first-generation students at 70.3%, Pell-grant eligible students at 69.8%, non-Pell-grant eligible students at 69.3%, and minority students identified having a 65.8% average retention rate after their first semester at the four-year institution. A gap of 5.6% was identified between non-minority and minority students who persisted through their first semester.

Persistence from fall-to-fall was described and similar differences were found between non-minority and minority students. There was a 5.2% gap between non-minority and minority students who persisted throughout the first year. Non-minority students had an average of a 57% persistence rate, which was the highest of all the student groups. Pell-grant eligible students followed non-minority students with a 56.8% persistence rate, followed by first-generation students at 56.3%, non-Pell-grant eligible students at 53.6%, non-first-generation students at 53.2%, and minority students persisted at an average rate of 51.8%.

The transfer grade point average (GPA) was analyzed and non-first generation students were identified as having the highest average GPA (M = 3.00). Non-minority students followed with an average GPA of 2.00, followed by first-generation students (M = 2.99). Non-Pell-grant eligible students obtained a 2.95 GPA, Pell-grant eligible students earned a 2.94 GPA, and the lowest average transfer GPA was that of minority students (M = 2.87). The average GPA gap between non-minority and minority students is 0.12 points.

First-semester GPA following transfer was analyzed for the specific student populations. Non-minority and non-first-generation students had the highest of the average GPA's, (M = 3.03). Non-Pell-grant eligible students followed with an average first-semester GPA of 2.97, followed by Pell-grant eligible students earning an average of 2.92 GPA, minority students exemplified an average GPA of 2.85, and the first-generation students earned the lowest average

GPA of a 2.57. While the gap between non-minority and minority students was not the largest between the student groups, the analysis revealed an average GPA gap of 0.18 points. The largest gap was that of non-minority and first-generation students, identifying a 0.46 GPA gap.

Evidence of transfer shock, or a reduction in first semester GPA, was analyzed among the student groups and the frequencies identified a gap between minority and non-minority students. On average, 44.2% of non-minority students experienced transfer shock, while 65.8% of transfer students, on average, experienced transfer shock. This is a gap of 21.6% between the two student groups. Meanwhile, 49.5% of Pell-grant-eligible students experienced transfer shock, 47.6% of first-generation students, 44.8% of non-Pell-grant-eligible, and 44.4% of non-first generation students, on average, experienced transfer shock. These numbers exemplify a gap of 4.7% when comparing Pell-grant-eligible to non-Pell-grant-eligible students and 3.2% equity gap when comparing first-generation students to non-first generation students.

The final frequencies conducted identified the average percentage rate of graduates among the student groups. The student group making up non-minority students identified 32.7% of the students, on average, completed a degree. This was the highest average for all student groups. On the other hand, 28.9% of minority students, on average, persisted through earning a bachelor's degree. The gap between the two groups was 3.8%. First-generation students followed non-minority students with an average 32.4% graduation rate, followed by non-Pell-grant-eligible students at 31.9%, and Pell-grant-eligible student and non-first-generation students at 31%.

Table 4.4

Scorecard Analysis Measuring Equity Gaps Among Community College Transfer Students and Key Variables of Academic Success, Fall 2012 - Fall 2016

Goal	Index Title	Above Target	At Target	Below Target	Far Below Target (5% or lower)	Score	Equity Gap	Target -Comparison to Non-Minority Students
1	**Persistence and Retention Rate-First Semester**							
	Non-Minority Students		X			*71.4%*	*0.0%*	*71.4%*
	Non-First-Generation Students			X		70.6%	-0.8%	71.4%
	First-Generation Students			X		70.3%	-1.1%	71.4%
	Pell-Eligible Students			X		69.8%	-1.6%	71.4%
	Non-Pell-Eligible Students			X		69.3%	-2.1%	71.4%
	Minority Students				X	65.8%	-5.6%	71.4%
2	**Persistence and Retention Rate - Fall-to-Fall**							
	Non-Minority Students		X			*57.0%*	*0.0%*	*57.0%*
	Pell-Eligible Students			X		56.8%	-0.2%	57.0%
	First-Generation Students			X		56.3%	-0.7%	57.0%
	Non-Pell Eligible Students			X		53.6%	-3.4%	57.0%
	Non-First-Generation Students			X		53.2%	-3.8%	57.0%
	Minority Students				X	51.8%	-5.2%	57.0%
3	**Grade Point Average - Transfer GPA**							
	Non-First Generation	X				3.00	0.01	2.99
	Non-Minority Students		X			*2.99*	*0.00*	*2.99*
	First-Generation Students			X		2.98	-0.01	2.99
	Non-Pell-Grant Eligible			X		2.95	-0.04	2.99
	Pell-Grant Eligible			X		2.94	-0.05	2.99
	Minority Students			X		2.87	-0.12	2.99
4	**Grade Point Average - First Semester**							
	Non-minority Students		X			*3.03*	*0.00*	*3.03*
	Non-First Generation		X			3.03	0.00	3.03
	Non-Pell-grant Eligible			X		2.97	-0.06	3.03
	Pell-grant Eligible			X		2.92	-0.11	3.03

Table 4.4 (continued)

	Minority Students			x		2.85	-0.18	3.03
	First-Generation Students			x		2.57	-0.46	3.03
5	**Evidence of Transfer Shock**							
	Minority Students				x	65.8%	21.6%	44.2%
	Pell-grant Eligible				x	49.5%	5.3%	44.2%
	First-Generation Students			x		47.6%	3.4%	44.2%
	Non-Pell-grant Eligible			x		44.8%	0.6%	44.2%
	Non-First Generation			x		44.4%	0.2%	44.2%
	Non-Minority Students		x			*44.2%*	*0.0%*	*44.2%*
6	**Percentage of Graduates**							
	Non-minority Students		x			*32.7%*	*0.0%*	*32.7%*
	First-Generation Students			x		32.4%	-0.3%	32.7%
	Non-Pell-Grant Eligible			x		31.9%	-0.8%	32.7%
	Pell-grant Eligible			x		31.0%	-1.7%	32.7%
	Non-First Generation			x		31.0%	-1.7%	32.7%
	Minority Students			x		28.9%	-3.8%	32.7%

Correlation Analyses

Point-Biserial Correlations were conducted to answer the third research question identifying significant relationships between students who experience a reduction in GPA, defined as transfer shock for purpose of this study, and specific demographic and student characteristics. The student characteristics compared were gender, minority/non-minority, first-generation student status, socioeconomic status, and transfer credit hours. Table 4.5 provides the results from these aforementioned correlations.

Table 4.5 exemplifies the relationship between a reduction in GPA during the first semester and gender. The correlation was performed to examine for a significance relationship between transfer shock and gender. The relation between these variables was not significant, $p = 0.493$. The null hypothesis failed to be rejected. There was no significant relationships between gender and transfer shock.

The correlation was next performed to examine for a significance relationship between transfer shock and minority/non-minority status. The relation between these variables was not significant, $p = 0.366$ The null hypothesis failed to be rejected. There was no significant association between minority and non-minority students and students' reduction in GPA. Table 4.5 exemplifies the relationship between the two variables.

Table 4.5 also exemplifies the correlation between first generation student status and transfer shock. The relation between these variables was not significant, $p = 0.300$ The null hypothesis failed to be rejected. There was no significant association between first-generation and non-first-generation students and students' reduction in GPA.

As shown in Table 4.5 the correlation between Pell-grant/non-Pell-gran eligible students and transfer shock was not significant. The relation between these variables was not significant, $p = 0.153$. The null hypothesis failed to be rejected. There was no significant relationships between Pell-grant eligible and non-Pell-grant eligible students and students' reduction in GPA.

Lastly, table 4.5 exemplifies there was no significant relationships between students who transferred 59 or less credit hours and students who experience transfer shock. The relation between these variables was not significant, $p = 0.056$. The null hypothesis failed to be rejected.

Table 4.5

Correlation between reduction in first semester GPA (transfer shock) and transfer student characteristics

	Gender	Minority/Non-minority	First-generation Status	Socioeconomic Status	Transfer Credit Hours
Pearson Correlation	0.019	-0.025	0.037	-0.040	-0.053
p	0.493	0.366	0.300	0.153	0.056
N of Valid Cases	1299	1295	807	1299	1299

*$p > 05$. **$p < .001$.

Logistic Regression

A logistic regression analysis was conducted to determine if there was a statistically significant effect of ethnicity (minority or non-minority), the credits attempted to completed ratio, socioeconomic status, gender, first-generation student status, reduction in first semester GPA, and transfer credit hours on the dependent variable of fall-to-fall persistence. The analyses revealed three of the variables were statistically significant predictors of persistence.

The logistic regression results indicated that the overall model fit was (-2 Log likelihood = 872.609) and was statistically reliable in distinguishing between fall-to-fall persistence [$X^2(1) = 70.793$, $p<.000$]. The model correctly classified 69.9% of the cases. The regression coefficients are presented in Table 4.6. Wald statistics indicated that students' attempted credits, socioeconomic status, and first semester GPA reduction significantly predicted fall-to-fall persistence.

The higher the ratio of credits completed of students' attempted credits was statistically significant. The odds of students who completed a higher percentage of attempted credits is 5.289 times more likely to persist from fall-to-fall than students who completed a lower percentage of attempted credits. The socioeconomic status of students, as described by being Pell-Grant eligibility was found to be significant. Compared with students who are Pell-Grant eligible, students who are not Pell-Grant eligible are 1.222 times more likely to persist. Lastly, students with a one-unit increase in first semester GPA were, on average, 1.456 times more likely to persist through the first year.

Table 4.6

Logistic Regression: Predictors of Community College Transfer Fall-to-Fall Persistence

Variable	*B*	SE	Wald	*df*	*p*	Exp(*B*)
Minority/Non-Minority	0.216	0.177	1.495	1	0.222	1.242
Credits Attempted/Completed	1.666	0.396	17.663	1	<0.000**	5.289
Socioeconomic Status (Pell-Grant eligible)	-0.655	0.175	13.968	1	<0.000**	0.519
Gender (male)	-0.285	0.169	2.860	1	0.091	0.752
First-Generation (non-first-generation)	0.180	0.172	1.096	1	0.295	1.198
Reduction in GPA	0.376	0.104	12.940	1	<0.000**	1.456
Transfer Credit Hours	0.003	0.003	1.175	1	0.278	1.003

*p > 05. **p < .001.

Table 4.7

Classification Table

			Predicted		
			Persistence		Percentage
	Observed		0.00	1.00	correct
Step 1	Fall-to-Fall Persistence	0.00	71	183	28
		1.00	37	439	92.2
	Overall Percentage				69.9

A second logistic regression analysis was conducted to determine which independent variables were predictors of community college transfer student completion. Among the variables analyzed, three were identified as being statistically significant.

The logistic regression results indicated that the overall model fit was (-2 Log likelihood = 976.412) and was statistically reliable in distinguishing between student completion [$X^2(1)$ = 93.748, p<.000]. The model correctly classified 63.2% of the cases. The regression coefficients

are presented in table 4.8. Wald statistics indicated that students' attempted credits, reduction in first semester GPA, and transfer credit hours significantly predicted completion.

The variable for credits attempted/completed was a statistically significant predictor of completion. Similar to fall-to-fall persistence, students who completed a higher percentage of attempted credits were 10.214 times more likely to complete than students who completed less of their attempted credits. The variables of a reduction in first semester GPA and transfer credits hours significantly predicted completion, however with a lower odds ratio. On average, students with a one-unit increase in first semester GPA were on average 1.344 times more likely to complete. Similarly, on average, for every credit hour unit increase of transfer credits, students were 1.012 times more likely to complete.

Table 4.8

Logistic Regression: Predictors of Community College Transfer Degree Completion

Variable	*B*	SE	Wald	df	*p*	Exp(*B*)
Minority/Non-Minority	0.099	0.166	0.356	1	0.551	1.104
Credits Attempted/Completed	2.324	0.480	23.482	1	<0.000**	10.214
Socioeconomic Status (Pell-Grant eligible)	-0.201	0.160	1.577	1	0.209	0.818
Gender (male)	0.248	0.158	2.473	1	0.116	1.281
First-Generation (non-first generation)	0.115	0.160	0.518	1	0.472	1.122
GPA Reduction	0.296	0.107	7.672	1	0.006*	1.344
Transfer Credit Hours	0.012	0.002	24.911	1	<0.000**	1.012

*$p > 05$. **$p < .001$.

Table 4.9

Classification Table

			Predicted		
			Completion		Percentage
	Observed		0.00	1.00	correct
Step 1	Completion	0.00	423	79	84.3
		1.00	218	87	28.5
	Overall Percentage				63.2

Summary

This chapter provided statistical analyses to explore the posited research questions identifying demographic and descriptive characteristics of community college transfer students, as well as inquiring for significance in relationships to discover predictors of transfer shock, student persistence, and graduation. Overall, there were no statistical significance found in the relationships between the selected variables (gender, race, socioeconomic status, first-generation student status, and transfer credit hours) and evidence of transfer shock. However, specific variables were identified to be significant predictors as it related to community college transfer student persistence and completion. The variables of credits attempted/completed, grade point average, and number of transfer credits all deemed to be significant predictors of completion for the community college transfer student population in this study. Further discussion will be elaborated in the following chapter.

CHAPTER 5. FINDINGS, IMPLICATIONS, AND CONCLUSIONS

This chapter provides an interpretation and discussion of the findings identified in the previous chapter. The research questions are answered and the results are compared to previous research. Specifically, the significant findings related to the variables found to be predictors of community college transfer student persistence and graduation are further discussed. Based on the findings of this study, implications were made for administrators, educators, and policymakers in implementing effective policy and practices to best support this student population. Recommendations were also presented for future research, data collection and analyses, and limitations. Concluding the chapter is a summary of the study.

Discussion of the Findings

Descriptive Analyses Discussion

Research has found community college students tend to be older, more likely to be members of a minority population, more likely to be first-generation, and more likely to come from a low-income household (Sorey & Duggan, 2008). The participants in this study composed of community college transfer students and the results of the demographic breakdown of this student population are further described. The population consisted of 54.2% females and 45.8 % males and the majority of students (95.3%) were identified as being nontraditional as conceptualized by being 23 years of age or older. It is likely for transfer students to be nontraditional in age as the students began their education at another institution.

Three additional variables, minority status, first-generation student status, and socio-economic status were used throughout this study as several previous studies associated these variables with persistence and graduation (Ishitani, 2008; Stebleton & Soria, 2012; Moschetti & Hudley, 2015; Dowd, Cheslock, & Melguizo, 2008; Miller, Erisman, Bermeo, & Smith, 2011;

Gard, Paton, & Gosselin, 2012; Hoachlander, Sikora, Horn, & Carroll, 2003; Chase, Dowd, Pazich, & Bensimon, 2014). As an Urban Transfer destination college, it is likely the student population would be diverse in regards to race. The study found 36.8% of the students were from a minority group. In addition, nearly half of the student population (48.7%) identified being first-generation college students. This was actually higher in comparison to the national data identifying 36% of the community college student population consists of first-generation students (American Association of Community Colleges, 2016). Lastly, 38.4% of the students identified being eligible for the Pell-grant, identifying a fair amount of the students being of low-income and having a financial need. According to Tinto's Student Departure Model (1975) and Bean and Metzner's Theory on Student Attrition (1985), these significant background characteristics could be barriers and negatively influence the students' success ratio.

The literature review provided a historical overview of transfer credit hours and its impact on academic success following transfer to the four-year institution. The majority of students (68.4%) in this study transferred 59 or less credits to the four-year institution. Previous research indicates students who complete more transfer credits, more specifically those who complete an associate's degree, are more likely to complete at the four-year institution (Jenkins & Fink, 2015; Doyle, 2009). This particular study identified 58.5% of the students who completed their college degree actually transferred 59 or less credits to the institution.

Transfer shock was a pertinent variable within the study. While transfer shock was limited to conceptualization by evidence of a drop in grade point average following transfer from the community college to the four-year institution, it was found to be significant in predicting student persistence and graduation. In addition, a little over half of the students in the study experienced transfer shock. The descriptive analyses reviewing characteristics of the students who did complete

found 60.9% experienced transfer shock. This supports the literature that transfer student often recover from transfer shock and are able to be academically successful (Diaz, 1992). However, has to be denoted that missing data accounted for 290 students and was a limitation in this study.

Persistence and graduation of the community college transfer students over the four years was initially described by the entirety of the population. The persistence rate for students through the first semester was 69.5% and this percentage dropped to 54.8% of students persisting through the first year. At the end of the duration of this study, only 31.5% of the community college transfer students completed their bachelor's degree with the institution. This alarming percentage is reason, alone, to support research to explore and identify predictors of transfer student success.

Interestingly, the ratios of the variables in the study measuring minority and non-minority status, socioeconomic, and first-generation student status remained consistent from entrance to persistence and completion. The minority students consisted of 36.8% of the population at the beginning of the study, 34.8% of the students who persisted were minority students, and, finally, the ratio of minority students who completed at the institution was 34%. Similar trends were found for student ratio patterns of socioeconomic status as 38.4% of the student population were Pell-grant-eligible, followed by a slight increase of 40.2% of the students after one year, and 37.7% of the population who completed were Pell-grant eligible. At the beginning of this study, 48.7% of the student body was first-generation. After one year with the institution, 49% of the students who persisted were first-generation and 50.2% of the students who completed a degree at the study institution identified as being first-generation college students.

Equity Gaps

The second question of this study sought to explore key predictors of student success by subgroups of the community college transfer student population. The subgroups were identified

from historical research that support the necessity to better understand the differences among student populations and how these groups experience college (Step Up and Lead for Equity: What Higher Education Can Do to Reverse Our Deepening Divides, 2017). Due to the dearth of national transfer student numbers recording important milestones, such as persistence, retention, and completion, the study compared the subgroups within the student population to non-minority students. The scorecard tool utilized to analyze the data exemplifies the transfer pathways for minority students is not as robust, in comparison with their non-minority peers. Specifically, the findings suggest, on almost all levels, minority students continue to lag behind other subgroups of students, particularly non-minority students.

The two variables measuring persistence, first-semester and fall-to-fall, found over a 5% gap between non-minority and minority students. The study found 71.4% of non-minority students persisted through the first semester, while only 65.8% of minority students completed the first semester at the four-year institution. This difference gravitated through the first year as 57% of minority students enrolled through the first year of college and only 51.8% of minority students persisted through the first year.

In comparing the academic success of students by GPA, minority students also fell well below non-minority students. The transfer GPA of non-minority students was 2.99, while minority students earned a GPA of 2.87. While non-minority students witnessed a rise in GPA to a 3.03 after the first semester at the four-year institution, minority students' GPA at the four-year institution dropped to a 2.85. This significant gap in academic success can be detrimental for students and result in a loss to the institution. Furthermore, findings indicated 65.8% of the minority student population experienced transfer shock, while only 44.2% of non-minority students experienced this phenomenon.

Correlation Analyses Discussion

The correlation analyses explore for any significant relationships between students who experience a reduction in first semester GPA, defined as transfer shock for the purpose of this study, and key student characteristics. In order to answer the third research question: "*1) Are there significant differences between students who experience and do not experience transfer shock as described by student background characteristics, such as race/ethnicity, gender, first-generation student status, socioeconomic status, and number of transfer credit hours?"*, several null hypotheses were proposed: *"there is no statistically significant relationships between students who experience transfer shock and student background characteristics, such as race/ethnicity, gender, first-generation student status, socioeconomic status, and number of transfer credit hours*." The findings of the correlation analyses failed to reject the null hypotheses. There were no significant relationships identified between the variables measured in the study.

This suggests a reduction in first semester GPA does not discriminate between gender, race, college knowledge, socioeconomic status, and number of transfer credit hours. Implications for policy and practice for addressing transfer shock across all community college transfer students will be discussed later in this section.

Logistic Regression Discussion

The logistic regression comprised of seven variables including gender, minority/non-minority, credits attempted/completed, socioeconomic status, first-generation student status, transfer shock, and transfer credit hours. The results from the regression analysis in this study were somewhat consistent with previous studies. The findings indicated credits attempted/completed, socioeconomic status, and transfer shock were significant predictors of fall-to-fall persistence. In

addition, credits attempted/completed, transfer shock, and transfer credit hours were significant predictors of degree completion.

Credits Attempted/Completed

The findings in chapter 4 identified students who completed more of the credits they attempted were 10.21 times more likely to persist through one year and 5.28 times to complete when compared to students who completed less of the attempted credits. While this significant finding is not astonishing as the more credits a student completes, the closer they are to graduation, it does inform policy and practice in ensuring sound academic advising, student-friendly guided pathways, and necessary academic support services to keep student enrolled in the courses they attempt each semester.

Socioeconomic Status

The socioeconomic status was measured by the Pell-grant eligibility of the community college transfer students. The logistic regression indicated a significant association between Pell-grant eligible and non-Pell-grant eligible students on predicting fall-to-fall persistence. Pell-grant eligible students were less likely to persist than student who were not Pell-grant eligible. The results support studies identifying students of low-income status are at a disadvantage in persistence and completion of bachelor's degrees (Titus, 2006).

Transfer Shock

Evidence of transfer shock was found to be a significant predictor in both fall-to-fall persistence and completion. The logistic regression indicated students GPA reduction who did not experience transfer shock were more likely to persist and graduate when compared to students who did experience transfer shock. Research regarding the academic effects of transfer shock vary in regards to positive and negative outcomes (Townsend, 1993; Laanan, 1996; Holhahn, Green, &

Kelley, 1983; Keeley & House, 1993; Ishitani, 2008; Diaz, 1992; Glass & Harrington, 2002). This finding contributes to the research on transfer shock and supports the necessity to further investigate factors that result in transfer shock and solutions to appropriate address transfer student adjustment to four-year institutions.

Transfer Credit Hours

Finally, the logistic regression for predictors of community college transfer degree completion indicated students who transferred a higher number of credits hours, compared to those who transferred less credit hours, were more likely to earn a bachelor's degree. This finding supports previous research findings indicating the higher number of credits hours transferred from community colleges, the more likely students will complete a bachelors' degree (Doyle, 2009; Jenkins & Fink, 2015).

Implications for Policy and Practice

A number of implications for policy and practice can be deployed from this study. First of all, the study institution placed a high priority on data analyses of the transfer student population, specifically tracking enrollment, persistence, and graduation rates. However, nationally, this information is not calculated. A first recommendation is to encourage states to begin tracking the transfer mobility, persistence, and completion of students who begin their degree at community colleges and transfer to four-year institutions with goals of achieving a bachelor's degree. This data is necessary to establish performance metrics for institutions, and as a result, enforce accountability at the institutional level for enforcing appropriate transfer-friendly policies and programs to aid in community college students' attainment of bachelor degrees.

Specifically, it is recommended the study institution track the semester-to-semester persistence and progression of transfer students toward their four-year degree. Through tracking the completion of attempted and completed credit hours and important milestones, such as completion of core classes that ensure efficient time to degree, the institution can identify current persistence rates and begin to establish goals to increase student persistence and completion. Following the establishment of these goals, the institution should build in objectives to meet these goals, such as mandatory advising to educate and outline degree requirements, regular communications with transfer students to create awareness of important registration deadlines and support degree progression. Early alert systems in the classrooms can help faculty identify students who may be at-risk to depart the institution and provide a structured system in communicating and providing alternatives for these students.

Educating the institution on the priority to transfer student persistence and completion has to be an ‘all-campus’ approach in setting administration and academic priorities to achieve this goal. The semester-to-semester data collection of transfer student persistence and completion will allow administration to begin to identify policies, tools, and communications that meet completion goals and make effective decisions that are informed by this valuable data.

The scorecard proved to be a valuable tool in assessing for equity and educational achievement gaps among the transfer student population. This tool not only exhibits the reality of student success, as described by persistence, GPA, transfer shock, and completion, but also provides administrators a mechanism to make data-informed decisions for the institution based on these results. In addition, the scorecard outlines goals and projections to influence positive change to work towards closing the educational achievement gap that exists among student populations.

It is recommended that the study institution continue to update the scorecard on an annual basis moving forward and use this tool as a powerful instrument to contribute to national change in serving and graduating diverse student populations. The institution is encouraged to utilize the scorecard as a tool to measure the progress or change that occurs within student populations as it pertains to student persistence and completion. This data-driven tool can lay the foundation in holding faculty and administration accountable in reducing the educational attainment gap for specific student populations.

Beyond updating the tool, the institution is advised to develop a task force consisting of a diverse group of administrators and faculty to develop effective initiatives to address the equity gap and utilize the scorecard to guide decision-making processes. As an example, providing professional development to faculty, staff, and administrators in best practices in working with first-generation, low-income, and minority students can equip staff and faculty with tools and resources to support these historically disadvantaged groups of students towards achieving educational equity. The institution is also encouraged to develop a communication plan to create awareness to the priority of serving this population to the campus community. This all-encompassing approach exemplifies to students who identify as being first-generation, low-income, or of a minority group a strong sense of support that can help them establish their sense of belonging and community with the institution to ultimately lead to higher levels of engagement, leading to persistence and completion.

A significant finding from this study supported previous research that transfer students who transfer higher numbers of credit hours are more likely to complete a degree in comparison to students who transferred a lower number of credit hours (Doyle, 2009; Jenkins & Fink, 2015). There are a number of opportunities to support community college degree completion prior to

transfer to earn a bachelor's degree and they all tie closely to collaboration and partnerships between universities and community colleges.

Statewide common course numbering is the first recommendation in reducing a barrier for transfer students. This process eliminates confusion and increases consistency across the state community colleges, contributing to a seamless transition to a public university. In addition to incorporating statewide common course numbering, policies accepting Associate in Arts or Associate in Science degrees to grant junior status at the four-year institution promotes the transfer mobility of students who selected to begin their academic journey to a bachelor degree at a community college. A policy that ensures junior status following completion of an Associate in Arts or Sciences degree could be a recruitment tool for community colleges to encourage students to save money and begin their degree at a community college. Furthermore, this could increase enrollment and graduation rates at community colleges, while also academically preparing students to enter four-year institutions without the burden of having to take additional credits and extend time to degree.

Recent literature encourages both two and four-year institutions to begin to place transfer at the community college at a high institutional priority, ultimately shifting the community college culture to infuse that of a transfer-going culture (Handel & Herrera, 2006). In addition, partnerships between the community colleges and four-year institutions that encourage and support the completion of Associate in Arts or Associate in Science degrees prior to transfer should be formalized and marketed to students through pathways and 2+2 programs. Complete College America (2017) outlined effective priorities in a report on Guided Pathways to Success that would be effective at this study institution. The Guided Pathways approach outlines benefits, such as a the incorporation of 'meta-majors' to allow major exploration within broad areas of

programs with common courses to reduce enrolling in wasteful credits, clear pathway to graduation for students by semester, monitored progress through early alert systems and intrusive academic advising (Complete College America, 2017). The re-design of curriculum in the form of pathways encourages partnerships with community colleges that could lead to positive cost-savings and time-savings for transfer students who are working toward bachelor-degree achievement.

The development of important milestones for students by class status could also compliment the incorporation of Guided Pathways. The institution should identify indicators that support persistence at the study institution, such as completion of introductory English courses, major declaration, and credit-hour completion, and educate students regularly of their college status and progress towards degree. These regular communications can empower students in making informed decisions towards degree completion.

In addition, recruitment events and programs that acclimate a community college student to the environment of the four-year institution are suggested to support students beyond the academic realm of success. Popular partnership programs at four-year institutions should be transfer-receptive in incorporating access to buildings, such as libraries and recreation centers, academic advising from program or major advisors at the four-year institution, and housing to begin the seamless transition for community college students. This early connection with community college transfer students can assist with the environmental and social transition to the four-year institution and build a sense of belonging before transfer students before these students arrive to campus.

Policies and practices that guide institutions in reaching goals of high persistence and completion rates is a national challenge and practitioners are encouraged to think differently in

incorporating data-driven initiatives that go beyond the scope of serving a 'traditional' student. Institutions are encouraged to review data analysis aimed at not only identifying subgroups of populations by demographic characteristics to create support programs, but also to explore other factors that influence the persistence of these students. Specifically, psychological, self-efficacy, stereotypes, social integration, and environmental variables that may weigh heavily on the persistence of students. The utilization of a campus climate survey could help the institution identify any opportunities of improvement in assisting transfer students with the social and academic integration to the institution. The outcomes of these surveys could contribute to more intentional programming that unveils the many layers of a student's experience as they complete their academic journey and goals of bachelor degree attainment.

Increasing the persistence and graduation rates of students begins with effectively preparing transfer students for the academic, social, financial, and personal transitions they may experience as they shift to the four-year institution. Appropriate transitional services, such as on-campus orientation programs and support programs throughout the first semester are warranted for this population. While many transfer students believe they have the college knowledge and skillset to do well at their transferring institution because of their previous collegiate experience, it is important for transfer students to learn the policies, programs, and resources available at their new institution. As an example, hosting an orientation that is specific to transfer students allows the institution to personalize the experience for this specific population. Incorporating time to discuss transfer credit and its application towards a four-year degree, discussion of financial aid eligibility and time towards degree, and introducing students to the transfer programs and resources that exist on campus to support acclimation to the institution and degree completion are specific variables of a transfer-friendly program.

A popular transitional support for traditional first-year, first-time students is the mandated participation in ‘Introduction to College’ courses. These courses often are offered as one or two-credit elective courses that first-time, first-year student enroll in as an extended orientation to college where they learn in a small-classroom setting with other students similar to themselves in student level status. A similar transfer student success course could be a viable option for transfer students who identify wanting additional supports during their first year after transfer. Offering this course as an optional online experience could also provide flexibility in accessing the resources.

In addition, an increasingly popular initiative to cater to the needs of transfer students and contribute to building a sustainable transfer student community is the creation of transfer student centers or spaces on campus. These transfer student centers are staffed with professionals and peer mentors to provide intentional academic and social supports to transfer students. These spaces create a welcoming space for this body of students as they transition to the academic and cultural landscape of their new institution. Moreover, these spaces build community among transfer students and provide opportunities for students to engage and get involved through transfer-specific programs. The University of Arizona has a fully staffed Transfer Student Center and provides the transfer student population with information and guidance on transfer credit and articulation, programs for students to engage with other students and get involved, monthly newsletters, and faculty involvement (The University of Arizona, 2017). A similar space dedicated to this specific population is warranted and would present to the campus community a high priority in serving the transfer student population.

The findings in this study of the equity gap between minority and non-minority student persistence and academic achievement aligns with research on a national level identifying a need

to address this current issue (Achieving the Dream, 2017;The Pell Institute for the Study of Opportunity in Higher Education, 2017). While many institutions across the nation review admissions requirements and recruitment opportunities to increase the ethnic diversity of the student body, access for this student population was not a barrier in the study. Instead, the study's findings demand development of programs that support student achievement once they step foot on campus. Multicultural centers and mentorship programs are two initiatives to be considered as these efforts create a sense of belonging to the new environment.

Specifically, multicultural centers provide an inclusive, safe space for students to learn and create awareness of the diversity in the world. Providing a supportive platform that celebrates diversity contributes to preparing students for global citizenship. Multicultural centers, in addition, hire professional staff and faculty to promote diversity programming throughout the institution. This campus-wide programming exemplifies the commitment to educating the community on diversity issues and support of minority and underrepresented populations. Connecting minority students to faculty or upperclassmen peers can also be a positive contribution to assist these students with developing engaging relationships as these students transition to the four-year environment. Connecting community college transfer students who are more at-risk to attrition, such as minority students, to additional supports in the form of mentorship can be a valuable relationship that results in student persistence and completion.

The descriptive findings of this study reviewing equity gaps also identified Pell-grant-eligible and first-generation students were more likely to experience transfer shock. Furthermore, students experiencing transfer shock were less likely to persist and complete compared to students who did not experience transfer shock. Identifying the subgroups of students experiencing transfer shock can allow student affairs practitioners to provide appropriate

resources to these students as they transition to the four-year institution. TRIO programs, which cater to low-income, first-generation, and students from disadvantaged backgrounds, can proactively outreach to community college transfer students to provide necessary supports throughout their transition to the institution.

The findings in this study identify, to no surprise, that students who complete more of the credit hours they attempt, the more likely they are to persist and graduate from college. The fact that students are not successfully completing the credits they register for each semester begs further investigation. A historical review identifying similarities among courses with high drop rates and student demographics and characteristics is a first step to further explore for significant indicators that lead to course completion. Following an investigation to learn more about why students are not completing the attempted credit, appropriate policy or recommendation could be provided. An example of one support to address this issue is to incorporate intrusive advising to provide a developmental approach to advising that considers appropriate course loads of a student through analyzing the realistic aptitudes of the student. In addition, transitioning from the academic rigor of a community college to a four-year institution can be vastly different. Intrusive advising allows opportunities for intentional conversations between an advisor and student to ensure course enrollment is realistic based on the student's academic abilities. Incorporation of intrusive advising would be fruitful with appropriate technology for advisors, faculty, and staff to track pertinent interactions and conversations with these students to equip advisors with knowledge to appropriately advise students each semester.

An additional support that often couples with the framework of intrusive advising is the incorporation of early alert systems. The rise of educational technology has provided a platform for introducing mechanisms to connect faculty to academic advisors, as well as communicate

pertinent reminders, deadlines, and notices to students. These retention efforts support the communication of faculty, academic advisors, and student support services to setup alerts to notify necessary stakeholders when a student becomes at-risk for attrition. Professional development in the form of trainings to faculty and staff can equip educators with the tools to coach, counsel, and mentor at-risk students back to pathway to academic success.

Implications for Future Studies

This study examined how demographics and student characteristics of community college transfer students predict transfer shock, persistence, and completion. The study produced descriptive statistics and significant associations among transfer students in regards to persistence and completion that are valuable to the literature on transfer students. Specifically the study identified equity gaps between subgroups of the community college transfer student population (see Table 4.4). This product contributes to the literature in the field addressing equity and educational attainment gaps. Equity in higher education is a growing research interest and further quantitative and qualitative studies can help inform policy and practice to close the educational attainment gap for minority, low-income, and first-generation students.

Nationally, enrollment reports within higher education account for up to six and eight years, or 150% - 200% of the time, completion outcomes for students. The data utilized for this longitudinal study offered a four-year projection of enrollment and completion. The characteristics of community college students, such as working full-time or taking care of dependents, presents obstacles to enrolling full-time to complete a degree in the ‘traditional’ four to six-year time span. Furthermore, it is not unusual for nontraditional students to attend college on a part-time basis. It would be beneficial for future studies to track student progression for six

to eight years as the results may tell a different story in comparison to the low number of completion found in this study.

The quantitative nature of this study prevented an in-depth analysis of the academic and social transitions the students experienced, or did not experience, that led to the experience of transfer shock and outcomes of persistence and completion. Psychological factors were also unable to be conceptualized through this study. Future studies should focus on the theoretical framework posited by Laanan's Transfer Adjustment Theory to assess the differences in social and academic integration experienced between community college students who did and did not persist at the transferring four-year institution.

One key finding of this study identified no significance in regards to the identified subgroups of the student population and evidence of transfer shock. This finding suggests the phenomenon of transfer shock does not discriminate between gender, ethnicity, first-generation, socioeconomic status, or number of transfer credits. Future studies would benefit from exploring how institutional practices, such as community college partnership programs, transfer-specific orientation, mandatory intrusive advising, and transfer student centers support the academic transition of transfer students and prevent transfer shock.

A significant finding in this study found students who did not experience transfer shock were more likely to persist and complete at the institution. It is recommended to explore the magnitude of strength for each unit of reduction in transfer GPA and its significance on transfer student persistence and completion. This research could provide higher education administrators at the study institution with key data in regards to significant GPA reductions that could identify students who are at-risk for departure from the institution. Appropriate communications and

resources, such as intrusive advising, on-campus orientation, and early alert tracking systems, can then be integrated to support this population.

The data for this study was collected from one institution. More efforts should be made to identify the enrollment patterns of community college transfer students and explore predictors that enable the academic success of these students after transfer to four-year institutions. A larger dataset exploring pertinent predictors and comparing student transition at different institution types would also contribute to the literature on transfer students.

Finally and as previously discussed, the gap in national data that tracks the enrollment patterns of transfer students from transfer to persistence and completion limits the depth of this study. The lack in national persistence and completion rates for this specific population prevents higher education, as a whole, in setting performance metrics. There should be a priority for institutions to have accountable reporting mechanisms to disaggregate data by the transfer student population and develop internal persistence and completion goals specific to this population. As a result, researchers can perform higher quality studies and provide implications that provide institutions with enrollment, persistence, and completion goals of these students, just as prescribed for first-year, first-time students.

Conclusion

The purpose of this study is to examine the predictors of community college transfer student success, as measured by evidence of transfer shock, persistence, and completion. This study also focused on the equity and educational achievement gaps among community college transfer student populations at a four-year, public Transfer Urban institution. The research goals in this study were accomplished by analyzing descriptive and comparative statistics, as well as logistic regressions to identify significant predictors in persistence and degree completion.

Lastly, a scorecard was developed as a mechanism for assessing equity among student populations at the institution.

The findings of this study contributes to the research on community college transfer students, persistence, and completion. Utilizing historic data and tracking patterns for significance leverages this study and provides opportunities for the study institution to make data-driven decisions through analyzing the persistence and completion numbers specific to the community college transfer population. Identifying predictors, such as pre-transfer characteristics and demographics, of student persistence and completion allows education practitioners and administration to be forward thinking in providing appropriate wrap-around services to support a diverse group of students in their transition to a new educational environment.

This study also significantly contributes to the literature addressing the equity gaps in educational attainment of minority student populations. The development of the scorecard provides the institution a valuable tool in assessing how transfer students of various demographic backgrounds compare to their non-minority counterparts. This tool provides the institution direction in implementing goals to reduce the educational achievement gap for minority, first-generation, and students of low-socioeconomic status.

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APPENDIX. INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL LETTER

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
2420 Lincoln Way, Suite 202
Ames, Iowa 50014
515 294-4566

Date: 10/11/2016

To: Megan Baker
2005 SW 35th St, Unit 403
Ankeny, IA 50023

CC: Dr. Linda Serra Hagedorn
E262 Lagomarcino Hall

From: Office for Responsible Research

Project Title: On-line verse On-campus Orientation: A Comparison Study of Student Persistence

The Co-Chair of the ISU Institutional Review Board (IRB) has reviewed the project noted above and determined that the project:

☐ Does not meet the definition of research according to federal regulations.

☒ Is research that does not involve human subjects according to federal regulations.

Accordingly, this project does not need IRB approval and you may proceed at any time. We do, however, urge you to protect the rights of your participants in the same ways you would if IRB approval were required. For example, best practices include informing participants that involvement in the project is voluntary and maintaining confidentiality as appropriate.

If you modify the project, we recommend communicating with the IRB staff to ensure that the modifications do not change this determination such that IRB approval is required.