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HARDING
UNIVERSITY

PREDICTIVE EFFECTS ON TRANSFER STUDENT SUCCESS BY PRIOR
ACADEMIC INTEGRATION AND BY SOCIAL INTEGRATION

by

Jacob Brownfield

Dissertation

Submitted to the Faculty of

Harding University

Cannon-Clary College of Education

in Partial Fulfillment of the Requirements for

the Degree of

Doctor of Education

in

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PREDICTIVE EFFECTS ON TRANSFER STUDENT SUCCESS BY PRIOR
ACADEMIC INTEGRATION AND BY SOCIAL INTEGRATION

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Dissertation

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ABSTRACT

by
Jacob Brownfield
Harding University
December 2020

Title: Predictive Effects on Transfer Student Success by Prior Academic Integration and by Social Integration (Under the direction of Dr. Clay Beason)

The purpose of this dissertation was to determine predictive effects among the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, the transferred completion percentage, the use of on-campus housing, participation in collegiate athletics, and participation in social clubs on transfer student success as measured by the post-transfer first semester GPA and graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. The post-transfer number of semesters until graduation was included as a predictor variable for the fourth Hypothesis. Tinto's longitudinal model of student departure served as the theoretical framework, and the sample for this quantitative, regression analysis were the GPAs from 178 transfer students who graduated with a bachelor's degree. Data were stored in the university's SIS system, Banner 9, and were retrieved using *Argos Report Generator Version 5.4.1*. Hypotheses 1-4 were analyzed using a multiple regression, and the transfer GPA and participation in social clubs variables were removed from their models due to multicollinearity.

The results revealed that the predictive models for Hypotheses 1, 2, and 4 were statistically significant. The number of hours transferred and transferred completion percentage were significant positive predictors of both criterion variables, and a remedial course taken pretransfer was a significant negative predictor of both criterion variables. Participation in collegiate athletics and the post-transfer number of semesters until graduation were significant negative predictors of the graduating GPA. Results may assist administrators with transfer enrollment decisions or placement into preventative academic success programs.

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CHAPTER I

INTRODUCTION

Transfer students make up a significant portion of students enrolled in higher education institutions. According to Shapiro, Dundar, Wakhungu, Yuan, and Harrell (2015), approximately 40% of college students in Arkansas had transferred from other institutions, which was slightly higher than the United States average of 37%. This percentage was expected to increase due to changes in state legislation. For example, through Act 747 of 2011, Arkansas legislators attempted to increase bachelor's degree completion in the state by simplifying the transfer process from community colleges to state 4-year institutions and encouraging the increase of articulation agreements between institutions. Other states have also encouraged an improved transfer process while expanding the number of articulation agreements (Townsend & Wilson 2009; Wang, Wickersham, & Sun, 2017). These efforts should lead to an increase in transfer student enrollment. Even though the transfer student population is large and will possibly grow, a category of note, transfer student status is not included in most institutional reports to the state and regional accrediting agencies (Li, 2010; Shapiro et al., 2015). Therefore, Wang et al. (2017) recommended that institutions denote transfer status within data sets, to improve their observations of transfer student academic performance and social adjustment measures. Stakeholders should heed this advice, considering the population of transfer students is substantial and expected to augment.

Transfer students should not only be monitored because of their population size but also because of the unique challenges they experience. For decades, the phenomenon known as *transfer shock* has been examined, which is when students' first-semester GPAs decrease after transferring to a new institution (Fauria & Fuller, 2015; Ishitani, 2008; Laanan, 2007). However, not all research results reflected a decrease in transfer students' GPA when comparing pre- and post-transfer GPAs (Solomon, 2001; Ishitani & McKittrick, 2010). Even though not all transfer students experience transfer shock, the phenomenon has occurred for many students. Ishitani (2008) claimed that most transfer students recover from transfer shock after a year; however, students whose GPAs remain low are more likely to depart from college. Laanan (2007) acknowledged that many factors could contribute to transfer shock, but one key factor which could have contributed to the phenomenon was that transfer students typically struggled to adjust with their new institution academically and socially. Transfer students who struggle to adjust are generally less engaged with academic and social activities when compared to native students (Ghusson, 2016). The lack of engagement could potentially contribute to transfer students struggling to complete their degrees. Li (2010) reported that students who transfer from one 4-year school to another were 32% less likely to graduate than native students. Also, if transfer students delay enrollment when moving from one institution to another, then they are 70% less likely to complete their degree. The challenges transfer students face plus the potential negative consequences that may follow warrants study of this large population of students.

Statement of the Problem

The purposes of this study were four-fold. First, the purpose of this study was to determine predictive effects among the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage on transfer student success as measured by the post-transfer first semester GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Second, the purpose of this study was to determine predictive effects among the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage on transfer student success as measured by the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Third, the purpose of this study was to determine predictive effects among the use of on-campus housing, participation in collegiate athletics, and participation in social clubs on transfer student success as measured by the post-transfer first semester GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Fourth, the purpose of this study was to determine predictive effects among the use of on-campus housing, participation in collegiate athletics, participation in social clubs, and post-transfer number of semesters until graduation on transfer student success as measured by the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas.

Background

Theoretical Framework

The theoretical foundation of this study was based on Tinto's longitudinal model of student departure. Tinto (1993) explained that student attributes and circumstances,

along with both formal and informal academic and social interactions with the higher education institution, influence student persistence towards a degree as they integrate with the institution academically and socially. The theoretical model is longitudinal because the academic and social interactions within the institution take place over time after enrollment (Tinto, 1993). Tinto's theoretical model is logical since both academic and social factors heavily influence the traditional college experience, which transpires over several years. Hence, several individuals have used the theoretical model while studying student persistence, retention, and graduation.

Pretransfer Academic Integration Factors

Academic integration is believed to be a key influencer of student persistence and degree completion. Tinto (1993) claimed that how well students performed academically, along with formal and informal activities that revolve around academics (e.g., interacting with faculty, academic advising, and tutoring) influence how students academically integrate with their institution, which affects their chances of success. Since previous academic performance and students' abilities also contribute toward students' capabilities to academically integrate with their schools (Tinto, 1993), the pretransfer academic integration factors for college transfer students theoretically affect their post-transfer academic performance. Wang (2012) professed that various pre- and post-transfer academic integration factors could predict the academic performance of transfer students. There are multiple academic integration measures on a student transcript. Therefore, some have attempted to discern which pretransfer indicators are most effective in predicting student success.

Research on pretransfer academic integration factors contained inconsistent results. D'Amico, Dika, Elling, Algozzine, and Ginn (2013) discerned that the transfer GPA was a significant predictor of the post-transfer first and second semester GPAs, even though the transfer GPA was not a significant predictor of persistence. These results yielded an unexpected phenomenon since academic performance was accepted as a strong predictor of student persistence (Pascarella & Terenzini, 2005, as cited in Wang, 2009, 2012). Using a descriptive study, Smith-Moore (2013) shared that approximately 70% of transfer students had 61 or more hours of transfer credit, and the average graduating GPA of transfer students was a 3.56 GPA. The possibility existed that the number of transferred hours positively affected the GPA, but a statistical analysis was needed to understand the data. Mourad and Hong (2011) disclosed that the number of hours transferred was a small positive predictor for degree-completion with a small effect size. While the number of hours transferred may influence retention and degree completion, further exploration is needed to understand the effect on students' GPA. The purpose of remedial courses is to prepare students who lack knowledge or skills deemed necessary for completing college courses (Chen, 2016). However, Whinnery and Pompelia (2019) believed remedial course enrollment is a deterrent to student success because most students who enrolled in a remedial course did not complete their degree. Chen (2016) reported no significant difference with degree attainment among students who took remedial classes and those who did not take remedial classes, but students who completed all of their required remedial courses had a significantly higher degree completion rate compared to students who did not complete their remedial courses. Thus, conclusions regarding the usefulness of remedial courses were inconsistent. Concerning

completion percentage, Luo, Williams, and Vieweg (2007) reported that students with a 100% post-transfer completion percentage were 18% more likely to return the following year than students with less than a 100% completion percentage post-transfer. However, the influence of the pretransfer completion percentage on the post-transfer GPA and other success measures is yet to be determined. More research is needed to explore the effect of all of these pretransfer academic integration variables on transfer student success.

Post-Transfer Social Integration Factors

A key component of what is thought of as the *college experience* is comprised of social interactions while enrolled in school. Tinto (1993) stated that interactions with institutional employees and other students shape the level of social integration with the institution, and both academic and social integration at the institution increase students' commitment to the institution, which increases the likelihood of persistence towards a degree. Braxton, Hirschy, and McLendon (2004) emphasized the importance of social integration beyond Tinto and believed social integration was the most substantial influence on student commitment to a school. Social encounters through various methods furnished students with a sense of community that enhanced their college experiences and helped socially integrate students into the institution. Transfer students may benefit from socially integrating with their institutions, as do native students. However, social integration was commonly a more significant challenge for transfer students than native students since transfer students have less time and fewer opportunities to build relationships and engage in social communities when compared to native students (Townsend & Wilson, 2009). Despite these challenges, many transfer students do have both formal and informal opportunities to interact and engage socially with other

students. The social engagement of transfer students could affect their academic performance, which in turn, would also affect their academic integration with their schools. Thus, social integration activities could be imperative to the college experience of transfer students in different ways.

In general, social integration factors are commonly believed to be valuable for students. De Araujo and Murray (2010a) stated, "Students that live on campus are more likely to engage in extra-curricular activities and are more likely to stay engaged in extra-curricular activities in subsequent semesters" (p. 62). Living on campus generally helped students adjust socially to their time in college. Therefore, Zeller (2008) believed that on-campus housing provided transfer students with opportunities to connect with their university outside of the classroom through various programs with both faculty and fellow students. Zeller's claim assumed that many of the interventions that benefited freshmen retention would also benefit transfer students; however, Zeller did not include a research study on transfer students. Denhart, Villwock, and Vedder (2009) believed the friendships that student-athletes developed with each other positively influenced higher retention and graduation rates. Social integration was regarded as a significant contributor towards student persistence (Braxton et al., 2004; Tinto, 1993). However, how the social benefits of athletic participation affected transfer students were seldom studied. Chatriand (2012) noticed no significant correlation between Greek social clubs and GPA for native students, even though there was a positive correlation with retention. The results reflected some benefits of social club participation even though there was no apparent influence on the GPA. While social integration factors may be beneficial for transfer students, more research is needed to explore this possibility.

Hypotheses

1. No significant predictive effects will exist among the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage on transfer student success as measured by the post-transfer first semester GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas.
2. No significant predictive effects will exist among the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage on transfer student success as measured by the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas.
3. No significant predictive effects will exist among the use of on-campus housing, participation in collegiate athletics, and participation in social clubs on transfer student success as measured by the post-transfer first semester GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas.
4. No significant predictive effects will exist among the use of on-campus housing, participation in collegiate athletics, participation in social clubs, and post-transfer number of semesters until graduation on transfer student success as measured by the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas

Description of Terms

Completion percentage. Nadasen and List (2016) defined course efficiency, also known as completion percentage, as the ratio of credit hours earned to credit hours attempted. This study will use the completion percentage obtained before transferring to a new institution.

Degree completion. Tinto (1993) defined degree completion as finishing the intended degree within the established time. For this study, degree completion is the attainment of a bachelor's degree within 7 years.

First semester GPA. Nadasen and List (2016) define first semester GPA as the GPA earned in the first semester after a student transfers to a new institution.

Graduating GPA. Solomon (2001) defined the graduating GPA as a student's final GPA upon acquiring a bachelor's degree.

Native students. Ishitani (2008) defined native students as students who return to their original college or university and never transferred. These students are also known as nontransfer students (Fauria & Fuller, 2015)

Persistence. Tinto (1985) defined persistence as the continuation of enrollment in a higher education institution from one semester to the next. For this study, persistence is defined as the immediate re-enrollment of a transfer student for the second semester (Nadasen & List, 2016).

Remedial courses. Chen (2016) noted that institutions define this term in different ways, but these courses typically are not recognized as college-level courses. For this study, remedial courses are defined as courses taken at an institution of higher

education to prepare students for college-level courses but are not specifically required for a degree.

Retention. Luo et al. (2007) regarded retention as the continuous enrollment of a student from one school year to the next.

Social Clubs. Chatriand (2012) used membership in Greek organizations for his study, but not all institutions contain societies that are sanctioned by the Office of Greek Affairs. For this study, social clubs are defined as non-academic organizations that are formally recognized by the institution.

Transfer GPA. Wang (2009) defined the transfer GPA as the GPA earned before transferring to a new institution.

Transfer student. Fauria and Fuller (2015) defined transfer students as students who leave a college or university and transfer to a different higher education institution. This study includes transfer students who previously earned hours from 2-year schools or 4-year schools.

Significance

Research Gaps

Specific populations of transfer students and institution types vary among the literature. Most focus specifically on transfer students from 2-year institutions (Wang et al., 2017), and very few studies include transfer students from other 4-year institutions (Ishitani & Flood, 2018). The need exists for more studies that include transfer students from 4-year institutions because those students face some of the same challenges as 2-year students, which includes how well transfer students academically and socially integrate with the new institution (Tinto, 1993). Bradburn, Hurst, and Peng (2001)

recommended avoiding being overly restrictive on the pretransfer definition or else transfer students who meet the criteria of the research design may be unintentionally removed. However, Braxton et al. (2004) observed that many types of transfer students' needs varied depending on their life circumstances and the type of institution they attended. Thus, too many types of transfer students could unintentionally include students who do not meet the criteria of the design. For example, nontraditional students over the age of 25 could have very different needs or life circumstances compared to traditional students who are younger students. Braxton et al. believed that there is a need for more single-institution studies at different types of institutions, and they also stated that Tinto's theoretical model, in general, should be tested in more liberal arts institutions, many of which are private institutions. Mitchell (2011) noticed that very few have studied transfer students at private institutions, so more studies of transfer students at private institutions would be useful. The existence of different populations of transfer students and varying types of institutions contributes to research gaps.

The measurement of transfer student success also varies, which produces further gaps. Some have measured student success by persistence (Ishitani, 2008; Nadasan & List, 2016; Ng, 2018; Pillar, 2016), while others have measured success as retention (Chatriand, 2012; Luo et al., 2007; Zhai & Newcomb, 2000). Nadasan and List (2016) remarked that much research had been dedicated to student success as measured by the GPA; however, very few specified the graduating GPA as a dependent or criterion variable (Fauria & Fuller, 2015). All these student success measures are worthy of research, but more research is required to learn how these measures adequately affect different variables. Some have examined variables that might affect transfer student

success through degree completion (Chen, 2016; Fauria & Fuller, 2015; Mourad & Hong, 2011; Wang, 2009, 2012), which better coincides with Tinto's longitudinal model; however, the number of longitudinal studies where researchers study transfer students until degree completion is insufficient. More research is needed to fill the gaps caused by the different student success measures.

Additionally, research results regarding transfer students are also conflicting or scarce, which contributes to more gaps. For example, Ishitani (2008), Wang (2009), and Zhai and Newcomb (2000) declared that the transfer GPA was a strong predictor of student persistence, but D'Amico et al. (2013) could not support those findings. Gerhardt and Masakure (2016) discovered the number of hours transferred was a significant predictor of the post-transfer GPA, but Schwehm (2017) did not find a significant relationship between the number of hours transferred and the post-transfer GPA. Nadasen and List (2016) sighted that remediation pretransfer was a predictor of persistence, but Wang (2009) noted that remediation pretransfer had no influence, positively or negatively, on degree completion. Wang collected data from 1992 through 2000, and a replication of this study with updated data could be useful. The inconclusive and sometimes dated research findings on various transfer student success studies confirm the need for further research. Also, a distinct shortage of literature, related to transfer student success existed based on the effect of completion percentage, use of on-campus housing, athletic participation, social club participation, and the post-transfer number of semesters until graduation. An extensive research gap was present due to the lack of studies on these variables.

Possible Implications for Practice

Upon completion of this study, key stakeholders, administrators, admissions counselors, faculty, and academic advisors at 4-year institutions may use these results toward the intentional recruitment, assessment, and support of transfer students to promote their success. Tinto (1985) professed that institutions should only admit students that they are willing to invest in to be successful. Therefore, admissions counselors could use the results of this study to determine the transfer students in which their institutions should invest and admit. The results could also inform administrators and academic advisors which transfer students should be closely monitored, based on their academic histories, so that additional support might be provided. Supplemental attention might be provided by intentionally increasing direct contact with faculty and requiring specific academic intervention programs. Key stakeholders and administrators might review the results and decide to develop programs and policies to improve integrating transfer students within the institution. For instance, some institutions may implement a policy that would increase the number of transfer students living on campus, or admissions counselors and academic advisors might intentionally exert additional effort to encourage transfer students to participate in student clubs or other social activities. In summary, this research could potentially contribute toward the implementation or modification of policies, procedures, and programs that influence transfer student success.

Process to Accomplish

Design

A quantitative, multiple regression strategy was used in this study. The predictor variables for Hypotheses 1 and 2 were the transfer GPA, the number of hours transferred

to an institution, a remedial course taken pretransfer, and the transferred completion percentage of hours earned and hours attempted. The predictor variables for Hypotheses 3 and 4 were the use of on-campus housing, participation in collegiate athletics, and participation in social clubs. Hypotheses 4 used the post-transfer number of semesters until graduation as an additional predictor variable. The criterion variable for Hypotheses 1 and 3 was the post-transfer first semester GPA. The criterion variable for Hypotheses 2 and 4 was the graduating GPA.

Sample

The sample in this study was the post-transfer first semester GPA and cumulative GPA from undergraduate transfer students at a private liberal arts university in Central Arkansas. Approximately 13% of new undergraduate students at this university in each fall semester were transfer students. Regarding race, the transfer student population used in this study consisted of Caucasian (88.76%), African American (3.93%), Multiple Races (2.81%), Asian (2.25%), and Hispanic (2.25%). The transfer student population was 47% male and 53% female.

The sample was from a population of 178 transfer students who graduated from the university with a bachelor's degree between the years 2017 and 2019. The sample only included GPAs from students who attended classes on the university's main campus. GPAs from students who completed their degrees long-distance or at one of the university's satellite locations were not included in the study. The included population of transfer students completed their degree by the age of 25 or younger.

Instrumentation

In the summer of 2020, I used *Argos Report Generator Version 5.4.1* software program to create a report that contained the necessary data for Hypotheses 1 through 4. Argos is owned by the company Evisions and integrates with the Banner 9 student information system owned by the company Ellucian. Banner 9 is a database that contains the majority of student records for the institution. After a report for the research was coded into Argos, the Argos software retrieved the desired data from Banner 9 and converted this data into a Microsoft Excel CSV file. The Argos report retrieved the following information: the transfer GPA, the number of completed hours transferred, the number of pretransfer attempted hours (used to calculate completion percentage), a remedial course taken pretransfer, whether the student was ever coded with an on-campus student attribute, whether the student was ever coded with a student-athlete attribute, whether the student was ever coded with a social club attribute, the first semester the student entered the university, the semester the student graduated from the university, the first semester GPA post-transfer, and the graduating cumulative GPA. After completion of the Excel document, all of the data were copied and pasted into IBM SPSS Statistics Version 26 for analysis.

Data Analysis

Hypotheses 1 through 4 were analyzed using a multiple regression. The predictor variables for Hypothesis 1 were the transfer GPA, number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage. The criterion variable for Hypothesis 1 was transfer student success as measured by the post-transfer first semester GPA. The predictor variables for Hypothesis 2 were the transfer

GPA, number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage. The criterion variable for Hypothesis 2 was transfer student success as measured by the graduating GPA. The predictor variables for Hypothesis 3 were the use of on-campus housing, participation in collegiate athletics, and participation in social clubs. The criterion variable for Hypothesis 3 was transfer student success as measured by the post-transfer first semester GPA. The predictor variables for Hypothesis 4 were the use of on-campus housing, participation in collegiate athletics, participation in social clubs, and the post-transfer number of semesters until graduation. The criterion variable for Hypothesis 4 was transfer student success as measured by the graduating GPA. The analysis of each hypothesis examined the significance of the models as a whole and then examined the predictor variables within each model to determine how much these contributed to the overall formula. To test the null hypotheses, I used a two-tailed test with a .05 level of significance.

Summary

According to the statistics in Shapiro et al.'s (2015) report, approximately 14% of transfer students in the Fall 2008 cohort in the United States attended a private 4-year institution. Therefore, most transfer students attended a public institution. Likewise, most of the research on the transfer population consisted of samples from public institutions. While the population size of transfer students at private institutions was not large, these students likely faced many of the same challenges as transfer students at public institutions (Mitchell, 2011). Tinto (1993) emphasized that institutions are obligated to helping their students succeed. Thus, transfer students at private institutions also warrant attention through research.

This researcher aimed to discover the predictive effects of various pretransfer academic integration factors and post-transfer social integration factors on the first-semester and graduating GPAs of transfer students at a private liberal arts institution in Central Arkansas. After a description of the theoretical background, the following chapter contains a review of literature that incorporated research on the transfer GPA, the number of hours transferred, remedial courses taken pretransfer, transferred completion percentage, on-campus housing, collegiate athletics, social clubs, and the post-transfer number of semesters until graduation. The subsequent chapters then describe the methods and results of the study, followed by a discussion on the implications and recommendations of the study based on the results.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

This literature review provided an examination of relevant literature related to transfer student success and the predictor variables of interest. Three key sections encompass this review. The first section, Theoretical Framework: Tinto's Longitudinal Model of Student Departure, describes the theoretical framework of this study. The second section, Pretransfer Academic Integration Factors, was separated into four parts: Transfer GPA, Hours Transferred, Remedial Courses Transferred, and Transfer Completion Percentage. The third section, Post-Transfer Social Integration Factors, was also separated into four parts: On-Campus Housing, College Athletics, Social Clubs, and Post-Transfer Number of Semesters Until Graduation. To conclude the review, the second and third sections were briefly summarized into a depiction of the literature overall.

Theoretical Framework: Tinto's Longitudinal Model of Student Departure

Tinto's (1993) longitudinal model of student departure was heavily inspired by the works of Durkheim's theory of suicide. Durkheim (1897/1951) observed key reasons why people choose suicide. The reasons include suicide is morally attractive, a significant absence of a reasonably standard condition exists, people believe no other options exist, or people are unable to integrate within a community system. Tinto (1993) noticed that the reasons people commit suicide paralleled the reasons students withdrew from college, especially with failure to integrate within a community system. Even though suicide is

certainly more consequential than a student withdrawing from college, comparing these two actions was astute. For example, students might withdraw from college because withdrawal is an attractive option due to life's circumstances (morally attractive, no other options), or the stress of college is overbearing (absence of a standard condition). Traditional colleges and universities, especially residential schools, are communities that provide students with a sense of belonging, which was why Tinto stressed that academic and social integration was vital for preventing student attrition (Nadasen & List, 2016). While Durkheim did not consider higher education when developing the theory of suicide, his was one of two theories that aided Tinto in his pursuit to understand the reasons behind student departure from colleges.

A second theory that influenced Tinto's model was Arnold Van Gennep's *The Rites of Passage*. Van Gennep (as cited in Tinto, 1993) stated that people progress through subsequent groups in life, followed by a special ritual or ceremony to move towards maturity, enabling younger people to assume responsibility from the older. This assumption of responsibility happens in three stages: separation, transition, and incorporation. Tinto (1993) also noticed how these stages, including ceremonial rituals, occurred during the time that students pursued a degree. For example, students must separate themselves in some capacity from their families to attend school. Then, they have to transition to life on their own with new experiences. Finally, they incorporate their experiences and newfound knowledge into completing their degrees, which is celebrated at a graduation ritual. Tinto used both Durkheim and Van Gennep's theories to identify why students withdrew (committed suicide) so that institutions could intentionally assist students with their degree completions (rites of passage).

A critical theme that Tinto emphasized in his theory was *commitment*. For students to complete their degrees, they needed to be committed to their academic goals and the institution. Students not committed to the institution were more likely to withdraw, and students with a strong commitment were more likely to persist (Tinto, 1985). Tinto (1993) claimed that students' attributes like family backgrounds, academic and social skills, previous academic histories, financial security, motivation, and values influenced students' goals and commitment to the institution. These attributes could either strengthen or weaken a student's commitment to an institution, and these attributes may create competing commitments against the institution. Tinto (1985) proclaimed that students' experiences in college usually influenced their level of commitment while enrolled. Experiences that contributed towards academic and social integration with the institution improved commitment to the institution, which ideally results in degree completion (Tinto, 1993). As with most consumer relationships, positive experiences strengthen the level of commitment, while negative experiences damage commitment levels. Although the role of students in commitment is vital, Tinto (1993) explained that institutions must also commit to the efforts of academically and socially developing students. Institutions share the responsibility of degree completion with students and, therefore, should proactively attempt to integrate students into academic and social communities, to strengthen student commitment, and to increase the likelihood of persistence and completion. According to Tinto (1993), the most influential experiences likely to strengthen the commitment to an institution were interactions between the faculty and students in and outside of class. Therefore, based on Tinto's model, institutions should commit to intentionally finding methods to connect students with the

faculty and with other students, which in turn strengthens students' commitment to the school. Tinto's theme of commitment illuminates the importance of students' and institutions' commitments to each other.

Many researchers have tested the validity of Tinto's theory, and not all studies have fully supported Tinto's theory since the theory's inception in 1975. For example, Terenzini and Pascarella (1978) mostly affirmed Tinto's theory; however, as a result of their study, they suggested students' academic and social integration with an institution were more influential than background attributes towards attrition. Yet, their study was limited to only one elite institution and was not generalizable to the typical first-year college student, nor was it associated with transfer students. After continued research, Tinto also supported their conclusion that student attributes combined with the student's academic and social interactions with an institution influenced the level of academic and social integration with the institution, which eventually leads to the decision to either persist or depart (Tinto, 1993). Further studies over the years have supported that student background attributes, especially prior academic performance, were effective for predicting student persistence and graduation (Braxton et al., 2004; Mitchell, 2011; Ng, 2018; Pascarella & Terenzini, 2005 as cited in Wang, 2009, 2012). The importance of student background attributes is now a widely accepted component of Tinto's model; however, other researchers have not entirely supported Tinto's model for other reasons.

Researchers' conclusions are mixed concerning Tinto's theory and the amount of influence academic and social integration has on student success. Tinto (1985) emphasized the importance of academic integration over social integration, but later, Tinto (1993) stressed that academic and social integration were of equal importance in

student persistence. Several studies affirmed Tinto's claim about the value of academic integration for student success (D'Amico et al., 2013; Fauria & Fuller, 2015; Lopez & Jones, 2016; Savona, 2010), and numerous studies substantiate the importance of social integration (Ishitani & Flood, 2018; Laanan, 2007; Nutting, 2011). Numerous research studies supported the validity of Tinto's theory. However, Braxton et al. (2004) claimed that social integration was more valuable for student persistence than academic integration, and therefore, declared that Tinto's theory needed revisions. The revisions included a description of which factors influence of social integration and how social integration influences student persistence. Mitchell's (2011) qualitative study supported Braxton et al.'s revisions. Since studies have recognized the value of social integration for decades, a predication might be made that many research studies would likely support Braxton et al.'s revisions. However, academic integration components, such as academic performance and interaction with faculty, have repeatedly been a stronger predictor of retention and completion (Lopez & Jones, 2010; Luo et al., 2007). More research is needed to test Braxton et al.'s claim that social integration is a more significant influencer than academic integration for student persistence. Even though determining which mode of integration has more influence on student success was inconclusive, most would agree that both forms of integration were valuable in helping students persist and graduate.

While early research by Terenzini and Pascarella in 1978 on Tinto's theory mostly focused on traditional first-year students in college, the theory can still be generalizable to college transfer students, but the type of transfer student and institution fit the model's attributes in different ways. Even though transfer students do not integrate socially in the same ways as traditional native students (Tinto, 1993), all college students,

whether native or transfer, have background attributes that influence commitments to institutions. In the end, all students' college retentions and completions are influenced by academic and social integration with their institutions. Therefore, many have successfully applied Tinto's theory in studying transfer students (D'Amico et al., 2013; Ishitani, 2008; Lopez & Jones, 2016; Luo et al., 2007; Nadasen & List, 2016; Savona, 2010; Zhai & Newcomb, 2000). Yet, not all researcher findings were consistent. Ng's (2018) study supported Tinto's theory for first-year college students but not transfer students. The college freshmen were of traditional college age (18-22), and the majority of the freshmen lived on campus; however, the transfer students were mostly nontraditional in age (23-29) and mostly commuted to school. The age difference between the native and transfer students could have profoundly influenced the results because nontraditional students do not socially engage with an institution in the same ways as traditionally aged students. Also, the institution used in the study has been predominantly a commuter school and had only recently added first-year students along with residential options. Ng (2018) bolstered Braxton et al.'s (2004) previous claim that Tinto's theory was not fully adequate when applied to commuter colleges, and substantial revisions were needed to explain student success at these types of institutions. The revisions emphasized the importance of social integration. However, according to Braxton et al., "As a consequence of the absence of well-defined social structures in commuter colleges and universities, the academic dimensions of the commuter institution play a consequential role in the student departure process" (p. 48). While the research was ongoing, the level of influence academic and social integration had on students appeared to depend on

student and institution type. Regardless, Tinto's theory appropriately applies to the study of transfer students.

Pretransfer Academic Integration Factors

Transfer GPA

The transfer GPA has been one of the critical variables examined as a predictor of transfer student success. Transfer student success has been commonly measured by four means, student persistence (D'Amico et al., 2013; Ng, 2018; Wang, 2009), retention (Luo et al., 2007; Zhai & Newcomb, 2000), degree completion (Mourad & Hong, 2011; Wang, 2009), and GPA (D'Amico et al., 2013; Lopez & Jones, 2016; Reyes, 2010; Schwehm, 2017; Wang, 2012). The GPA is perhaps the most common measure to determine a student's level of academic success, which was why many explored the predictive nature of the transfer GPA on student success. While many have investigated the predictive nature of the transfer GPA, results were not always consistent.

The effect of transfer GPAs on transfer student persistence is inconsistent across studies. Wang (2009) discovered that transfer GPA was a robust predictor of student persistence. However, his data set, while very large, was collected from students who first began their college careers in the early 1990s, several years before he conducted the study. The students all began at a single community college and later transferred to different institutions. D'Amico et al. (2013), on the other hand, examined transfer students enrolled more contemporary to the time of his study. Their findings contradicted Wang's (2009) results by not finding the transfer GPA to be a significant predictor of persistence. However, the transfer students in his study began at different institutions and eventually transferred to the institution used for the study. Ng (2018) also reported that transfer GPA was not a significant predictor for transfer student persistence at an

institution where 87.5% of students were transfer students, which was a very high percentage of transfer students compared to most universities. The differences among institutional attributes within these studies likely contributed to the inconsistent results.

A few researchers suggested that the transfer GPA may influence student retention, at least for some groups. Zhai and Newcomb (2000) reported a consistent positive correlation between transfer GPA and student retention, and thus, recommended for institutions to implement intervention strategies for transfer students with low GPAs. While a correlation between transfer GPA and retention existed, Luo et al. (2007) determined that the predictive ability of the transfer GPA was dependent on student classification. The transfer GPA was not a significant predictor for first-year retention, but the transfer GPA was a significant predictor for juniors with a small effect size. These findings suggested that the transfer GPA was only a predictor for students who transferred to an institution with an extensive number of hours (Luo et al., 2007). The dependency of the predictive value on student classification could explain why the studies that compared transfer GPA with persistence were inconsistent since those studies did not differentiate students by classification. The evidence that transfer-GPA predicted transfer student-retention was not significant, but other factors such as student and institution background could have influenced these findings.

Even though research results were mixed on the effect of transfer GPA on transfer student persistence and retention, the predictive influence on bachelor's degree completion was much stronger, as one might expect. Wang (2009) stated that transfer GPA was a significant predictor of degree completion and the most influential predictor variable within the regression model with the odds of obtaining a bachelor's degree by a factor of 3.03 for every point increase in the GPA. Mourad and Hong (2011) also reported that transfer GPA was a significant predictor

on bachelor's degree attainment at multiple institutions with the odds of obtaining a bachelor's degree increasing by 73% for every point increase with the transfer GPA. The transfer GPA did not have a significant effect on degree completion at one of the universities in the study, but the results may have been influenced by the small sample size (Mourad & Hong, 2011). Findings from both studies suggested that the transfer GPA was a heavy predictor for degree attainment, which was consistent with claims that academic achievement was the strongest predictor of degree completion (Wang, 2009). Both persistence and retention ultimately lead to degree completion. Therefore, it was an unanticipated phenomenon that the transfer GPA displayed as a stronger predictor for degree completion than both persistence and retention.

Past behaviors are predictors of future behaviors. Several studies demonstrated the strong influence the transfer GPA has on the post-transfer GPA. Lopez and Jones (2016) indicated that the transfer GPA was a significant predictor of the cumulative GPA of transfer students who transferred to 4-year STEM programs. The cumulative GPA was a combination of the pre- and post-transfer GPAs, so higher transfer GPAs would influence cumulative GPA. When looking only at the GPA from individual courses taken at the university, Schwehm (2017) observed that the transfer GPA had a positive, significant relationship to the university GPA, and others also reported that the transfer GPA was a significant predictor of the post-transfer university GPA (Reyes, 2010; Wang, 2012). Reyes (2010) stated that the r^2 effect size was quite large at 30.9%, and Wang (2012) noted that the transfer GPA was the most robust predictor variable used to predict post-transfer GPA. The research supported the conclusion that transfer GPA affected university GPA despite not being calculated into that GPA. The university GPA was not specific to a semester. All studies explored pointed to the predictive influence of the transfer GPA on post-transfer GPA. However, these studies varied by student attributes, institution type, and GPA

application. Further research is needed to determine if the transfer student GPA is a consistently strong predictor of the post-transfer GPA, particularly in private universities.

Hours Transferred

Researcher findings are inconsistent regarding how the number of hours transferred affects persistence and retention. Zhai and Newcomb (2000) reported that the number of hours transferred did not have a significant correlation with student retention, but the sample size was minimal and was only from one college within a university. Others with larger sample sizes determined different results. Ishitani (2008) observed at a single institution that freshmen transfer students persisted at lower rates than native students, but sophomore and junior transfer students persisted at significantly higher rates than native students. These results were consistent with another study that compared the number of hours transferred and retention. Luo et al. (2007) revealed that the number of hours transferred was a significant predictor of sophomore and junior student retention and was not a significant predictor of freshmen retention. Both studies were longitudinal, and researchers examined large samples from two separate public institutions. The consistency of both studies yielded similar results concerning persistence and retention. Using a study that compared transfer students who graduated with a bachelor's to transfer students who did not graduate with a bachelor's, Mourad and Hong (2011) built upon Ishitani's (2008) work on persistence and Luo et al.'s (2007) work on retention by examining degree completion; however, research gaps remained. None of these studies distinguished between student ages, so determining a difference between traditionally-aged and older students was not possible. Also, these studies used samples from public institutions and may not be generalizable to private institutions. Furthermore, Ishitani and McKittrick (2010) declared that an increase in the number of hours transferred correlated with an increased difficulty in student

social and academic engagement with their new institutions. Freshman transfer students engaged with their institutions more than sophomore transfer students, and sophomore transfer students were more engaged than junior transfer students. Therefore, the students in the previously mentioned studies were not negatively affected by a lack of engagement, which seemingly contradicted Tinto's (1993) theory and Braxton et al.'s (2004) revisions. Like Luo et al. (2007), Ishitani and McKittrick (2010) did not differentiate between traditional and nontraditional students, so the possibility remained that student age may have influenced the results since nontraditional students do not typically engage with an institution in the same ways as traditionally aged students do. While the number of hours transferred appeared to positively influence student persistence, retention, and degree-completion, continued research on this topic may fill research gaps, such as distinguishing between student age and identifying possible differences between public and private institutions.

Some researchers have attempted to fill research gaps regarding the number of hours transferred and the post-transfer GPA. Zhai and Newcomb (2000) reported a significant correlation with a small effect size between the number of hours transferred and the cumulative GPA, but Schwehm (2017) did not find a significant correlation between the number of hours transferred and the cumulative GPA. The generalizability of both studies was very low. As distinguished earlier, Zhai and Newcomb (2000) had a nominal sample size, and Schwehm (2017) only studied nontraditionally aged transfer students 25 or older. Others found that the number of hours transferred significantly predicted the cumulative GPA (Gerhardt & Masakure, 2016; Lopez & Jones, 2016) and never distinguished between student types, so both traditional and nontraditional students were likely included. The generalizability of these studies was also low. Gerhardt and Masakure's (2016) study was conducted at a Canadian institution and may not

be generalizable to U. S. institutions. Lopez and Jones (2016) only included transfer students to a STEM program from multiple public institutions. While some indications exist that the number of hours transferred affected student GPA, more research is needed to explore how this variable affects traditionally aged college transfer students.

Remedial Course(s) Transferred

Many students have needed to take one or more remedial courses, but few of those students went on to finish their bachelor's degree. Ganga, Mazzariello, and Edgecombe (2018) reported that more than 66% of community college students took at least one remedial course, and approximately 40% of students at 4-year institutions took at least one remedial course. Chen (2016) discovered that only 26% of students who completed one or more remedial courses at public community colleges completed their associate's degree, and only 17% of those community college students transferred to a 4-year institution and completed their bachelor's degree within 6 years. Ganga et al. (2018) stated that 34% of community college students who took a remedial course graduated with their associate's degree in 4 years, which was an improvement when compared to Chen's findings. While the statistics did not always match, the percentage of students who took a remedial course and completed a degree was meager. Comparatively, when surveyed, about 84% of community college students who took at least one remedial course planned to transfer and to complete their bachelor's degrees, but less than 50% of these students transferred to a 4-year institution (Chen, 2016). The number of students who intended to graduate with a bachelor's degree and the actual percentage of transfer students who succeeded in that goal were widely disproportionate. Descriptive statistics revealed that a high percentage of students took remedial courses, but a low percentage of

students, especially community college transfer students, reached their goal of earning a degree.

Several indicators may explain why the need for remedial coursework appeared to negatively affect transfer student success. Wang (2009) stated the weak influence of remediation could have existed because remediation caused students to take more classes. Ganga et al. (2018) claimed that requiring remedial courses, especially for multiple semesters, increased the chances that students would withdraw from college since additional remedial courses typically extended the length of time students completed their degrees. Attending college for most students already required a significant investment of time and money, so the additional time and money invested in remedial courses may not have been perceived as worthwhile for many students. Students having a negative self-perception due to a lack of skills could also have made remedial courses ineffective (Wang, 2009). In general, people who did not believe in their capabilities of accomplishing some goals would not be successful in achieving that goal. Thus, students with a low self-perception would likely withdraw from school since they did not believe they could succeed. Friedl, Pittenger, and Sherman (2012) disclosed that students who took remedial mathematics at a particular community college, on average, had better grades than students who took remedial mathematics at a 4-year institution; however, students who took remedial mathematics at a 4-year institution, on average, had higher grades on college-level mathematics than the students who did remedial mathematics at a community college. Therefore, students who took remedial coursework at a community college were more at risk in not performing well academically after transferring to a 4-year school, which implied that remedial courses at the community college were of poor quality compared to the remedial courses of the 4-year institution (Friedl et al., 2012). The researchers only sampled students from one institution and

did not examine the GPA beyond grades for individual courses, so the study was not generalizable to all community colleges. Nevertheless, the study substantiated the concept that community colleges offered lower quality courses compared to 4-year institutions, which if true, could explain why remediation for community college transfer students has not appeared to be as effective.

Using statistical analyses revealed different results when studying the effects of remedial courses. Nadasen and List (2016) observed that community college student enrollment in a remedial course was positively associated with second-semester persistence post-transfer. However, Wang (2009) discovered that taking remedial reading courses was not a significant predictor of transfer student degree completion and that taking remedial mathematics courses was a negative predictor of degree completion. These studies were vastly different and did not help explain the effectiveness of remediation. Wang (2009) only included students enrolled in community colleges during the 1990s, while Nadasen and List's (2016) sample only included students from an online institution. Another critical difference between the two studies was that Wang (2009) examined degree completion, and Nadasen and List (2016) only examined second-semester persistence. The possibility remained that if Nadasen and List used degree completion as a criterion variable for regression analysis, then their results could have been more consistent with Wang's. Chen (2016) claimed community college students who completed remedial courses were more likely to transfer to a 4-year school and finish their degree than students who only partially completed or did not complete their required remedial courses, and "[remedial completers] even outperformed nonremedial students in some areas" (Chen, 2016, p. 55). The results of Chen's (2016) comparisons suggested that taking remedial courses may have benefited students as long as the students completed the courses. Also, Chen's results may have differed

from Wang's results because Chen's sample was more recent, and remedial courses at community colleges have possibly improved since the 1990s. Mourad and Hong (2011) also reported that they did not find a significant effect of enrolling in at least one remedial course at a community college and bachelor's degree completion, which was somewhat consistent with Wang's (2009) results. Students included in Mourad and Hong's (2011) study only took a remedial course from one institution, and the sample in Wang's (2009) study represented students from several community colleges. Mourad and Hong's (2011) results could have differed if they examined students who completed a remedial course instead of those who enrolled in a remedial class. When exploring the predictive effect of remedial courses on GPA instead of degree completion, Wang (2012) indicated that taking remedial reading courses was not a significant predictor of the post-transfer GPA and that taking remedial mathematics courses was a negative predictor of the post-transfer GPA. These results unsurprisingly paralleled Wang's (2009) study on the predictive effects of remedial courses on degree completion since the results from both studies were from the same outdated sample. A more recent sample of transfer students could improve the understanding of how modern-day transfer students are affected by remedial experiences. Also, the possibility exists that remedial courses have significantly improved over the last 20 years, which could certainly yield different results. More research would be useful to explore the effects of remedial courses on transfer student success since researchers have delivered varying conclusions.

Transferred Completion Percentage

An essential but rarely researched measure of academic progress was the course completion percentage. The United States Department of Education (2019) mandated institutions to use the GPA and completion percentage to determine student eligibility for federal financial

aid. Failure to maintain a particular completion-percentage after two consecutive semesters would result in students' inability to use federal aid to pay for college. If the Department of Education did not require institutions to monitor the completion percentage, then most institutions would perhaps ignore this essential measure of academic progress. Because the completion percentage has such a significant role in determining federal aid eligibility, institutions could compare the completion percentage with various student success variables. Nadasan and List (2016) noted that students' ability to receive financial aid influenced student persistence and retention; therefore, the completion percentage could correspondingly affect student degree completion as well. While the research in this area has been limited, Nadasan and List's perception could be supported. Savona (2010) identified that approximately 75% of students at a community college graduated with their associate's degree when they completed 90% or more of the courses taken in the first semester. Still, the associate's degree graduation rate for students who completed less than 90% was approximately 10% or less. The second-semester completion percentage was also a significant positive predictor of associate's degree completion. The completion percentage used by most institutions to determine federal aid eligibility was typically much lower than 90%, so other factors were likely involved as to why students who completed less than 90% of their work had such a low graduation rate. The completion percentage as an academic progress measurement warrants more research since the completion percentage could have a substantial influence on student success.

Research on the effect of the pretransfer completion percentage on post-transfer student success was scarce. Nadasan and List (2016) indicated that the transfer completion percentage was a significant positive predictor of second-semester persistence at an online 4-year university. Additional research could be used to determine if these findings would be consistent with other

institutions, if a difference existed among transfer student type by various demographics, and if transfer completion percentage had a predictive effect on degree attainment. Studying the predictive effect among the transfer completion percentage and a post-transfer GPA could yield different results. Students often withdrew from at least one course to salvage their GPAs. On the other hand, students who need to withdraw from courses may not be strong students and would not have a high GPA in their other courses. Students have withdrawn from courses for a variety of reasons, many of which were not academically related, so the completion percentage may not influence the GPA. More research would be useful to determine how the transfer completion percentage affects post-transfer student success, relative to multiple areas.

Post-Transfer Social Integration Factors

On-Campus Housing

Living on campus is a key method for college students to socially integrate with their institutions because living on campus provides multiple opportunities for students to make friends with other students and be involved in other campus activities. Benjamin and Chatriand (2008) believed students who invested in their college experiences through living on campus had increased opportunities for social integration, which typically helped with student retention and completion. However, poor experiences in the dorm might also persuade students to withdraw. Therefore, they argued institutions should invest in their residence life facilities and programs to increase the chances that students have positive experiences that encourage them to remain enrolled. Many institutions reported having success using on-campus housing for retention purposes. Approximately 40% of the private universities in the U. S. reported in a survey that 83% of residence life programs contributed to their students' retentions, and living on campus was identified as the ninth most effective retention practice out of 94 listed items in the survey

(ACT, 2010). Institutions credit on-campus housing with increased retention, but reports may have been based on assumptions and not data. In summarizing results from other studies, Benjamin and Chatriand (2008) reported that data analysis has previously attributed on-campus housing to positively influencing student persistence and retention. For decades, on-campus housing has been commonly accepted as a consistent retention contributor. On-campus housing positively influenced student retention likely because living on campus helps students socially integrate with their schools.

Encouraging on-campus residence has also been used to academically integrate students with their institutions. How strongly on-campus housing influences academic integration, including academic performance, is not clear. De Araujo and Murray (2010a) shared that students who lived on campus invested more time towards their academics than those who commuted to campus, even though there was no significant difference between on-campus students and commuter students in using tutoring or other campus resources outside of the dormitories. Roughly 15% of 363 students in the sample lived on campus at some point, so there may not have been enough participants in the study to represent the population. The additional time on-campus students used towards their schoolwork seemingly benefited them, as discovered through examining GPA data. Using the same data for a different study, Araujo and Murray (2010b) discovered that on-campus residence positively affected students' GPAs even for students who temporarily lived on campus and moved off campus in a later semester. Furthermore, the students who lived on campus attained grades ranging from half a letter grade to a full letter grade higher than those living off campus, yet larger samples yielded mixed results. Chatriand (2012) recognized that living on campus had a significant correlation to the first-year GPA at a public 4-year institution, but a significant correlation did not continue in

subsequent years. Turley and Wodtke (2010) realized on-campus students at liberal arts colleges had significantly higher first year GPAs than commuter students at liberal arts schools. They also found that Black students who lived on campus had significantly higher GPAs than Black commuter students. On-campus housing did not have a significant effect on GPA for other types of institutions or student groups. This study had a substantial sample of 2,011 first-year students from 372 schools. Students at liberal arts colleges, many of which are private institutions, benefited more academically from living on campus than students from public institutions. Since the study was not longitudinal, student performance beyond the first-year was unknown. More research is needed to determine how academic integration and performance are influenced by on-campus housing throughout the college years.

Research on how transfer students are affected by on-campus housing is scarce. Mitchell (2011) noticed through a qualitative study that transfer students who lived on campus were more socially involved than the commuter students, but none of the students interviewed attributed their social involvement with on-campus residence. Transfer students in a different qualitative study, most of which commuted to school, said that if they had lived on campus, then they would have met more people and felt more connected to their university (Townsend & Wilson, 2009). Both qualitative studies supported Zeller's (2008) assumption that on-campus housing can be used to help students integrate socially; however, neither study reported if social integration through on-campus housing resulted in improved retention or academic performance for transfer students who lived on campus. The effect of on-campus housing on transfer student success has received sparse attention. Research is needed to examine if living on campus benefits transfer student academic performance, retention, and degree-completion.

Collegiate Athletics

College student-athletes, which typically include at least some transfer students, are a unique population. These students do not socially integrate with institutions like other students. Often, the primary method for student-athletes to socially integrate with their institutions was through participation in sports and developing relationships with other student-athletes (Denhart et al., 2009; Gilmour, 2013; Mitchell, 2011). Through a qualitative study of minority transfer students, Mitchell (2011) revealed that athletes rarely participated in other social events on campus due to the substantial amount of time students spent practicing and competing in their sports. For many athletes, playing a college sport was similar to having to work a demanding job while in college, considering the time student-athletes trained, practiced, traveled to events, and competed. Gilmour (2013) surveyed several Division III athletes and reported that student-athletes' friends consisted mainly of other student-athletes on campus, but the survey did not indicate if the athletes' friends played the same sport or a different sport. Most of the student-athletes' friends likely participated in the same sport because students spend most of their time with their teammates. Athletes from differing sports may have formed bonds with each other because they related to the unique challenges of being a student-athlete. Transfer students, in general, have had difficulty integrating with their institutions (Ghusson, 2016), so transfer student-athletes had an advantage over other transfer students by having a natural means to connect with other students and the institution. Because of the substantial amount of time spent together, student-athletes have a unique way to socially integrate with their institutions. The advantage student-athletes had in having a direct means to socially integrate with their schools may have contributed to academic success.

The theory that social integration positively affects student-athletes' retention and graduation is supported with some evidence. Citing a National Collegiate Athletic Association (NCAA) report from 2010, Gilmour (2013) reported that Division II student-athletes had significantly higher 6-year graduation rates (56%) compared to the 6-year rate of nonathletes (47%). Denhart et al. (2015) shared that student-athletes at Division I institutions graduated at a slightly higher rate than nonathletes but with only a 1% difference. While overall reports on the graduation rates of student-athletes are positive, these reports did not distinguish between native and transfer students. The possibility existed that many transfer students may not have been included in these descriptive statistics. Pillar (2016) acknowledged that sophomore student-athletes at a private institution had a 98% persistence rate compared to an 89% persistence rate of nonathletes, and Pillar also contributed these results to how well these sophomores socially integrated with their school due to participation in athletics. Since the persistence rate for student-athletes was higher than nonathletes, the graduation rate for student-athletes in that cohort was likely higher than the nonathletes. Unfortunately, transfer students may not have been included in Pillar's study, so whether transfer student-athletes have similar success rates as native student-athletes was unknown. While student-athletes, in general, may benefit from their social integration through athletic participation, very little research exists to determine if social integration through athletics has specifically benefited transfer student-athletes.

Despite the benefit obtained from direct means to socially integrate with their institutions, student-athletes still have several challenges to overcome to be successful academically. Hodes, James, Martin, and Milliner (2015) stated that student-athletes' time devoted to coursework was decreased compared to other students, and therefore, student-athletes needed additional assistance to perform well academically. Sometimes, the amount of time

required for playing the sport was so great that student-athletes could be faced with the burden of having to either switch majors or sacrifice the sport, which could also result in a lost scholarship (Denhart et al., 2015). Participating in a college sport has restricted time and energy that students otherwise could have invested in their academic goals. Because of the challenges that came with being a student-athlete, many institutions offered a variety of student support services specifically for student-athletes. These services included having academic advisors and mentors specialized in assisting student-athletes with their needs, specific tutoring programs that operated during student-athletes' availability, and a course specific to student-athletes that taught them how to be successful in college while playing their sports (Hodes et al., 2015). The academic support offered by institutions provides student-athletes modes to academically integrate with the institutions during times that fit into their restrictive schedules. Academic integration with an institution was also considered as a strong positive influence on student success (Tinto, 1993), so social integration alone was not the sole reason student-athletes typically have had higher persistence and graduation rates than nonathletes. Baticchon (2018) shared through a qualitative study that student-athletes reported that regular students did not use the support services compared to athletes and that they received increased motivation through their coaches and peers to perform well in courses. So, for the student-athletes, both academic and social integration factors positively contributed to successes. While student-athletes faced many unique challenges, institutions that provided means to help student-athletes integrate academically, along with their natural social integrations, could assist students with improved outcomes.

How well student-athletes, especially transfer students, overcome academic challenges is yet to be determined. Baker (2008) claimed that participation with athletics had no significant influence on GPA; however, this study combined both college and intramural athletics and only

included Black and Latino students. Intramural sports participants are not official student-athletes and may include anyone from the student body. Pillar (2016) discovered that participation with athletics had a positive influence on the GPA, but the study was only generalizable to sophomore student-athletes at a specific private institution. Neither study focused explicitly on transfer student-athletes. Research concerning the academic performance of transfer student-athletes is blatantly lacking. Several years ago, Knapp and Raney (1988) noticed that transfer Division I athletes at a single institution in football, basketball, and baseball had higher GPAs at their community colleges than at their 4-year schools. Many of the student-athletes' course schedules consisted mostly of physical-education courses, and grades in other types of courses were noticeably lower than the grades in physical education. This study contained many limitations including a low sample size from one institution, the sample only contained males, and the researchers did not run any statistical analysis. Much research is needed to explore how college athletic participation affects academic performance for transfer students.

Social Clubs

Student involvement in college organizations, such as social clubs or other similar student groups, is known to be beneficial for students overall. Bakoban and Aljarallah (2015) claimed participation with college extra-curricular activities, including social involvement, contributes towards the holistic development of all students. Institutions should desire for their students to mature holistically, and participating in organizations like social clubs should contribute towards improved social development as well as social integration with the institution. Social integration was theorized to enhance students' commitment to their institutions, which contributes to increasing the chances of student retention (Braxton et al., 2004; Tinto, 1993). Research supports the theory that social club participation positively affects retention. Chatriand

(2012) reported that social club involvement through Greek organizations positively influenced student retention through the sophomore and junior years, and Pillar (2016) noticed that college organizations, which included Greek social clubs, significantly predicted sophomore student persistence. Both included only traditionally-aged students in their sample, and neither distinguished native students from transfer students. Social club participation has assisted transfer students in integrating with their institutions socially (Castillo, 2011; Laanan, 2007; Townsend & Wilson 2009), and a lack of social integration significantly contributed towards transfer students' decisions about whether to remain enrolled or depart from college (Ishitani & Flood, 2018). One could infer that social club participation positively influences transfer student retention; however, direct research studies examining the effect of social clubs on persistence and retention are sparse. Even though research is needed to investigate further if social club participation directly influences persistence and retention, social club participation does appear to have been constructive for transfer students in some capacity.

Even though social clubs have social benefits and positively influence persistence and retention for students, social clubs may not positively affect the GPA. Baker (2008) discovered that Greek social club participation negatively affected the GPA of Black and Latino students in a study that only included native minority students. The limited sample may have contributed towards the results, which were not generalizable to a larger population. Pillar (2016) also reported a negative effect of social organization participation on sophomore student GPA, but other social activities were included with social clubs. Results may have differed if social club participation was isolated as a sole variable or if more than students in the sophomore year were included. More research is needed to investigate if participating in social clubs negatively influences student GPAs.

Research on social club participation of transfer students on academic performance was minimal. Castillo (2011) declared that transfer student participation in social activities, including social clubs, was positively correlated with participation in academic activities, but social activity participation was not significantly correlated with GPA. Nonetheless, Castillo did find a positive correlation between participation in academic activities and GPA. The small sample within the study was derived from a selective private school, so a larger sample of transfer students from a nonselective institution may yield different results. Also, social clubs were included with other social activities as a variable, so results may have deviated if social club participation had been exclusively studied as a variable. Further research will assist in determining if social clubs influence academic performance in any way.

Post-Transfer Number of Semesters Until Graduation

The post-transfer number of semesters until graduation has been minimally researched. Mourad and Hong (2011) found that the post-transfer number of semesters until graduation was a significant predictor of degree completion. “As one would expect, each additional semester enrolled at a four-year institution increased the odds of bachelor degree attainment by 21%” (Mourad & Hong, 2011, p. 15). The findings, however, may not be generalizable to other institutions. Mourad and Hong (2011) analyzed transfer students from one community college to either one of two 4-year universities. They also noticed that the number of semesters at the community college had a negative effect on degree completion even though the number of transfer hours taken was a significant positive predictor. Therefore, the eventually successful transfer students who were not enrolled at a community college for very long would need to be enrolled for several semesters to graduate with their bachelor's degree. Also, about 24% of the sample in Mourad and Hong's study remained enrolled by the time the data were collected, and

whether they graduated was unknown. Had either examined the cohorts in their study for a more extended period or only included transfer students who graduated, then the results may have been different. More research is needed to understand if and how the post-transfer number of semesters until graduation influences degree completion.

How the post-transfer number of semesters until graduation affects academic performance remains a mystery. Ishitani and McKitrick (2010) noticed that full-time enrolled native and transfer students were more engaged with their university than part-time enrolled students. Furthermore, they reported in the same study a significant positive correlation between student engagement and GPA. One could indirectly speculate with these results that the post-transfer number of semesters until graduation may influence GPA since part-time enrollment takes longer than full-time enrollment to graduate; however, a different study conflicted with Ishitani and McKitrick's results. Gerhardt and Masakure (2016) did not find a difference in GPA between full-time and part-time students at a Canadian institution. Therefore, the post-transfer number of semesters until graduation may not have been a factor for the population intended for this study. Direct research is needed to investigate if the post-transfer number of semesters until graduation has any influence on the academic performance of transfer students.

Summary

The literature overall revealed inconclusive results when comparing the research for each academic and social integration factor of interest in this study. Studies on the transfer GPA seemed to suggest that this variable would most likely have a positive effect on the post-transfer cumulative GPA; however, the results may not be generalizable to private institutions or specific GPAs. The issue of low generalizability was also prevalent in research examining the number of hours transferred, and the results among these

studies conflicted with each other. When looking at overall statistics on remediation, remedial courses appear to hinder transfer students' degree completion rates (Whinnery & Pompelia, 2019). Nonetheless, research results at individual institutions were inconsistent with this assumption. The completion percentage is an underutilized measurement of academic progress and warrants more research on the effect on transfer student success regardless of the form of measurement. The literature on the social integration factors when participating with on-campus housing, college athletics, and social clubs consistently revealed that these variables contributed to the positive social integration of transfer students to their new institution. However, there was a lack of research that compared the influence of these factors on transfer students' GPAs. Research on the post-transfer number of hours until graduation was sparse, so the effect of this variable on the graduating GPA is unknown.

CHAPTER III

METHODOLOGY

Since transfer students are a unique and growing population at higher education institutions, research on transfer students has been on the rise over the last decade. However, many variables still require additional research to determine if they influence or predict transfer student success. For instance, the transfer GPA appeared to predict the cumulative GPA (Lopez & Jones, 2016; Reyes, 2010; Schwehm, 2017; Wang, 2012), and the number of hours transferred appeared to predict the cumulative GPA as well (Gerhardt & Masakure, 2016; Lopez & Jones, 2016). However, these studies did not determine if the transfer GPA predicted the GPA at graduation. Several studies existed with conflicting results on if remedial courses significantly affected transfer student success (Chen 2016; Friedl et al., 2012; Nadasan & List, 2016; Wang, 2009, 2012). The transfer completion percentage appeared to predict persistence (Nadasan & List, 2016) and retention (Luo et al., 2007), but the effect of the transfer completion percentage on a post-transfer GPA was unknown.

Studies were minimal concerning the use of on-campus housing, student-athlete participation, social club participation, and the number of semesters until graduation on transfer student success, especially when that success was measured by their academic performance determined by the GPA. De Araujo and Murray (2010b) found that living on campus had a positive effect on the GPA, and Turley and Wodtke (2010) revealed that

first-year students living on campus had significantly higher GPA's than commuter students at liberal arts institutions. However, both studies only examined native students, and other researchers looking at native students could not consistently find a significant effect of on-campus housing on the GPA (Chatriand, 2012; Pillar, 2016). Pillar (2016) did discover that participating as a student-athlete did have a positive effect on the GPA of native students at private institutions, but Baker's (2008) results differed. Social Club participation helped transfer students socially integrate with their new institution (Castillo, 2011; Laanan, 2007; Townsend & Wilson, 2009), but the effect of social clubs on transfer student academic performance is unknown. Social Clubs involving Greek organizations negatively affected the GPA of native students (Baker, 2008; Pillar, 2016). The number of semesters until graduation appeared to positively influence transfer students' persistence (Ishitani, 2008) and degree-completion (Mourad & Hong, 2011). More research is needed to investigate the effect of the number of semesters until graduation on the GPA.

This chapter described this study's research design, population of the sample, and the instrumentation used to collect and organize the data. The data collection procedure was conveyed in detail for those who may wish to replicate the study. The analytical methods used and the limitations of the study were discussed. Last, a summary was provided to close the chapter.

Research Design

The design of this study was a quantitative, regression analysis that was non-experimental. Mills and Gay (2019) stated, "Quantitative research is the collection and analysis of numerical data to describe, explain, predict, or control phenomena of interest"

(p. 6). Since all the study's variables were either already numerical or could be assigned a numerical value, a quantitative study was used. Regression analyses, also known as prediction studies, are used to discover predictive effects between multiple predictor variables and a criterion variable, which could predict a portion of the outcome of the criterion variable (Mills & Gay, 2019). Mills and Gay (2019) advised using multiple predictor variables to increase the chances of finding a more legitimate prediction. The study's sample was the post-transfer first semester GPA and graduating GPA. The post-transfer first semester GPA was the criterion variable for Hypotheses 1 and 3, and the graduating GPA was the criterion variable for Hypotheses 2 and 4. The predictor variables for Hypotheses 1 and 2 were the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage. The predictor variables for Hypotheses 3 and 4 were the use of on-campus housing, participation in collegiate athletics, and participation in social clubs. The post-transfer number of semesters until graduation was added as a predictor variable to Hypothesis 4. Thus, the purpose of this study was to determine the predictive effects among these predictor variables for each hypothesis on the criterion variable for each hypothesis.

Sample

The sample of the study was the post-transfer first semester GPA and cumulative GPA from undergraduate transfer students at a private liberal arts university in Central Arkansas. The sample was from a population of 178 transfer students who graduated from the university with a bachelor's degree within the years 2017 through 2019. There were 93 females (53.37%) and 83 males (46.63%) in the population. The race of the population was 158 Caucasian (88.76%), 7 African American (3.93%), 5 Multiple Races

(2.81%), 4 Asian, (2.25%), and 4 Hispanic (2.25%). The age of the population at the time of graduation contained one student at the age of 20 (0.56%), 17 students at the age of 21 (9.55%), 60 students at the age of 22 (33.71%), 63 students at the age of 23 (35.40%), 25 students at the age of 24 (14.04%), and 12 students at the age of 25 (6.74%). Only 43 students (24.86%) were from Arkansas, meaning 135 students (75.14%) were from out-of-state.

Instrumentation

All the data used in this study resided in the institution's student information system, Banner 9, which is owned by the company Ellucian. *Argos Report Generator Version 5.4.1* is owned by the company Evisions and seamlessly integrates with Banner 9. When a datablock designer from the institution creates a datablock, then the designer can create a report that extracts any relevant information from Banner 9. After a report is generated, the data are exported from Banner 9 onto a Microsoft Excel CSV file. Thus, the Argos software was used to collect all essential data at the institution from Banner 9.

Data Collection Procedures

After receiving approval from the institution's Provost and Institutional Review Board, an administrator at the institution who is also an Argos datablock designer, created a datablock specifically for this research. The administrator was given several variables to include and was instructed only to include transfer students from the United States who graduated from this institution. Using the datablock, he created a report that contained the following student information: identification number, gender, race, date of birth, college graduation date, age, whether the student was from Arkansas, the state of origin, graduation term, graduation GPA, first-term GPA, cumulative transfer GPA,

cumulative institutional GPA, cumulative overall GPA, transfer hours, transfer hours attempted, transfer hours completed, campus housing, athletics, social clubs, terms at [institution], and site code. All students over the age of 25 and those who attended a different campus according to the site code were removed. This reduced the list from 240 to 178 students.

A request was made to include whether a remedial course was taken and the students' high school graduation year; however, these data were either too burdensome to retrieve from Banner 9 or the data did not exist. Therefore, I was given access to examine each student's transcript to determine which students took a remedial course prior to transferring and added that information to the Excel sheet as yes or no. For the sake of consistency, the course Intermediate Algebra was considered remedial. Typically, remedial courses do not count as credit towards graduation; however, schools were inconsistent as to whether this course earned college credit. Since Intermediate Algebra was a prerequisite for College Algebra, only required for students classified as having low test scores, and not a degree requirement, the students who attempted Intermediate Algebra pretransfer were noted as having transfer remediation.

The data were copied from the Excel file and pasted into *IBM SPSS Statistics Version 26*. The students' race was then coded as (0 = Caucasian, 1 = African American, 2 = Multiple Races, 3 = Asian, 4 = Hispanic). The following dichotomous variables were coded as 0 or 1: gender (0 = Female, 1 = Male), remedial course transferred (0 = No, 1 = Yes), from Arkansas (0 = No, 1 = Yes), campus housing (0 = No, 1 = Yes), athletics (0 = No, 1 = Yes), and social clubs (0 = No, 1 = Yes). A new variable representing the transfer

completion percentage was added to the spreadsheet by taking the transfer hours completed and dividing it by the transfer hours attempted.

Analytical Methods

I used *IBM SPSS Statistics Version 26* to run the statistical analysis for each hypothesis. Leech, Barrett, and Morgan (2015) recommended using the multiple regression statistical analysis when the predictor variables are either dichotomous or scale, and the criterion variable is scale. Multiple regression statistical analyses are more accurate when the correlation between the predictor variables and criterion variable is linear and when the predictor variables are not associated closely with each other (Leech et al., 2015). Therefore, I analyzed Hypothesis 1 with a multiple regression using the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage as the predictor variables and the post-transfer first semester GPA as the criterion variable. I analyzed Hypothesis 2 with a multiple regression using the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage as the predictor variables and the graduating GPA as the criterion variable. I analyzed Hypothesis 3 with a multiple regression using the use of on-campus housing, participation in collegiate athletics, and participation in social clubs as the predictor variables and the post-transfer first semester GPA as the criterion variable. I analyzed Hypothesis 4 with a multiple regression using the use of on-campus housing, participation in collegiate athletics, participation in social clubs, and the post-transfer number of semesters until graduation as predictor variables and the graduating GPA as the criterion variable. I used a two-tailed test with a .05 level of significance to test the four null hypotheses.

Limitations

Knowing a study's limitations will aid readers in interpreting the results and adjusting future studies with a similar purpose. Therefore, this study contained the following limitations. First, only students from a private liberal arts university in Central Arkansas with approximately 4,000 undergraduate students were included. The study may not be generalizable to public institutions or institutions of a significantly different size. The university is a member of NCAA Division II, and results about student-athletes may vary for institutions in different athletic divisions. In addition, the university is a faith-based institution. Thus, the results may not be generalizable to secular institutions.

Second, several factors may have influenced students' academic success that was not accounted for in this study. These factors included students' previous education before college, aptitude, income-level, parents' education, health-related issues to self or family members, job schedules, and the academic rigor of the declared major. Seeking academic assistance from either a tutor or teacher also was not factored in the study. Significant life events, or lack thereof, were not considered. All these variables could in some way influence student success.

Third, there was a lack of specificity to four of the predictor variables. The data only described if a student took a remedial course pretransfer, but the number of remedial courses and the subject of the courses was not included. These factors could have influenced the predictive outcome of whether a remedial course was taken pretransfer. Likewise, whether students lived on campus, participated as a student-athlete, and participated in social clubs did not specify the number of semesters students were involved with these activities. The focus of this study was to compare any participation

with no participation. Still, the possibility exists that a difference could have existed between students based on the amount of time students were involved with each of these variables.

Fourth, three of the dichotomous predictor variables were largely disproportionate, which could influence the statistical results. Approximately 28% of students had transferred in remedial work, and 72% did not attempt a remedial course pretransfer. Only about 20% of the student population participated in athletics compared to 80% who were not student-athletes. The most substantial gap revolved around the use of on-campus housing. Approximately 85% of students had used on-campus housing at least one semester, and 15% lived off campus for the entirety of their enrollment at this institution.

Fifth, transfer students were not differentiated based on their prior institution or number of previous institutions. The transfer students may have previously attended one or more 2-year public or private institutions and 4-year public or private institutions. The possibility exists that the previous institution type or the number of institutions may have somehow influenced students' academic performance. For example, Friedl et al. (2012) suggested that there might be a difference in education quality between 2-year and 4-year institutions. So, the previous institution type may have influenced student academic performance, both pre- and post-transfer. The number of transfer institutions could have influenced student performance as well.

Sixth, multicollinearity was a hindrance to the regression models used in each hypothesis. The correlation between the transfer GPA and transferred completion percentage, as well as the correlation between participation in collegiate athletics and

participation in social clubs, significantly weakened the regression models' tolerance levels. A decision was made to remove the transfer GPA from the regression models used for Hypotheses 1-2, and participation in social clubs was removed from the regression models used in for Hypotheses 3-4. The removal of these two variables removed the multicollinearity impediment.

Last, the non-experimental design of this regression study was a limitation since I could not influence the variables and then compare outcomes. Even though regression analyses are, by nature, a limitation, they are convenient for researchers who do not have direct access to their sample to use. Regression analyses also still serve a purpose by helping researchers predict outcomes to a certain extent. While this study's design and unpreventable factors influencing the variables existed, the limitations of this study were not unique to many regression studies at a single-institution. This study still contributed to an improved understanding of variables that may or may not predict transfer student success.

Summary

In 2015, approximately 37% of the nation's college students had transferred from a different institution (Shapiro et al., 2015). This percentage is likely higher today since many states have attempted to improve the transfer process through the creation of articulation agreements between 2-year and 4-year schools (Townsend & Wilson 2009; Wang et al., 2017). The last decade experienced the largest increase in research on transfer students. However, more studies are needed to have a better understanding of what influences transfer student success and to improve predicting transfer student success outcomes.

Several researchers applied Tinto's longitudinal model of student departure to investigate different variables related to transfer students' academic or social integration on student success (Castillo, 2011; D'Amico et al., 2013; Ishitani & Flood, 2018; Luo et al., 2007; Nadasen & List, 2016; Ng, 2018; Pillar, 2016; Savona, 2010; Townsend & Wilson, 2009; Zhai & Newcomb, 2000). Using Tinto's model, this study examined both academic and social integration factors that may predict transfer student success as measured by the GPA. Tinto (1993) professed that college students' academic background, like prior academic performance, will affect academic integration with their institution. Thus, students' pretransfer academic integration could have a predictive effect on post-transfer academic integration like academic performance. Likewise, social integration factors post-transfer could have a predictive effect on transfer student success as measured by the GPA.

In Chapter III, the research design was a quantitative, regression analysis used to determine the predictive effects of the predictor variables on the criterion variable for each hypothesis. Chapter IV applies the methods of Chapter III and provides the results of the four hypotheses.

CHAPTER IV

RESULTS

The purposes of this study were four-fold. The first purpose was to determine predictive effects among the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage on transfer student success as measured by the post-transfer first semester GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. The second purpose was to determine predictive effects among the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage on transfer student success as measured by the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. The third purpose was to determine predictive effects among the use of on-campus housing, participation in collegiate athletics, and participation in social clubs on transfer student success as measured by the post-transfer first semester GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Last, the fourth purpose was to determine predictive effects among the use of on-campus housing, participation in collegiate athletics, participation in social clubs, and post-transfer number of semesters until graduation on transfer student success as measured by the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. This chapter details the regression analysis results for each hypothesis.

Hypothesis 1

Hypothesis 1 stated that no significant predictive effects will exist among the transfer GPA, number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage on transfer student success as measured by the post-transfer first semester GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Before conducting a regression analysis, the data were examined to determine that the assumptions for multiple regression were met. An examination of the intercorrelation table indicated that two of the variables in the model, transfer GPA and transferred completion percentage ($r = .752$), had a strong correlation with each other. Because these two variables had a high correlation, R^2 was examined, resulting in a tolerance lower than $1 - R^2$ (Leech et al., 2015). Therefore, multicollinearity was considered problematic for the model. Furthermore, the choice was made to remove the variable of transfer GPA from the model. The data were then examined again to determine that assumptions for multiple regression were met. Scatterplots of the correlation between the predictor variables and the outcome variable did not reveal a clear violation of linear relationship. An examination of the intercorrelation table indicated no variables in the new model had a strong correlation with each other, and no tolerance was lower than $1 - R^2$. Therefore, multicollinearity was not considered a problem with the adjusted model. Table 1 shows the means, standard deviations, and intercorrelations for post-transfer first semester GPA.

Table 1

Means, Standard Deviations, and Intercorrelations for Post-Transfer First Semester GPA and Predictor Variables (N = 178)

Variable	<i>M</i>	<i>SD</i>	1	2	3
1st Sem GPA	3.05	0.67	.305***	-.344***	.366***
Pred Variable					
1. Trans Hours	51.86	22.80	1.000	-.092	.124*
2. Remediation	0.28	0.45	-.092	1.000	-.253***
3. Comp Perc	0.96	0.72	.124*	-.253***	1.000

Note. 1st Sem GPA = Post-Transfer First Semester GPA; Pred Variable = Predictor Variable; Trans Hours = Number of Hours Transferred; Remediation = Remedial Course Taken Pretransfer; Comp Perc = Transferred Completion Percentage.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Since the original model was hindered by multicollinearity, an analysis was run without the transfer GPA predictor variable. To test the assumptions of normally distributed residuals as well as homoscedasticity of residuals, a residual plot was generated. An examination of this plot revealed no obvious violations of either assumption. Finally, to examine the fit of the regression model for predicting post-transfer first semester GPA, casewise diagnostics as well as Cook's Distance test for influential cases were conducted. These diagnostics revealed no significant outliers, and no cases identified as exerting significant influence in the model. After testing all the relevant assumptions and model fit diagnostics, a standard multiple regression analysis was conducted to determine the degree to which the number of transferred hours, a remedial course taken pretransfer, and transferred completion percentage predicted post-transfer first semester GPA. These results are displayed in Table 2.

Table 2

Simultaneous Multiple Regression Analysis for Predicting Post-Transfer First Semester GPA

Model	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Regression	21.02	3	7.01	20.56	.000
Residual	59.28	174	0.34		
Total	80.30	177			

Regression results indicated that the overall model significantly predicted post-transfer first semester GPA, $R^2 = .262$, $R^2_{adj} = .249$, $F(3, 174) = 20.56$, $p < .001$. Since the model is a better predictor of post-transfer first semester GPA than the mean, the rejection of the null hypothesis was supported. The model also accounted for approximately 24.9% of the variance in post-transfer first semester GPA, which is a large effect size (Cohen, 1988). A summary of the unstandardized and standardized regression coefficients for this model (Table 3).

Table 3

Unstandardized and Standardized Coefficients for Predictors of Post-Transfer First Semester GPA

Model	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	Collinearity Statistics	
1(Constant)	0.33	0.62		0.53	.595	Tolerance	VIF
Trans Hours	0.01	0.00	0.25	3.77	.000	.981	1.020
Remediation	-0.38	0.10	-0.25	-3.74	.000	.932	1.073
Comp Perc	2.55	0.64	0.27	4.00	.000	.925	1.081

Note. Trans Hours = Number of Hours Transferred; Remediation = Remedial Course Taken Pretransfer; Comp Perc = Transferred Completion Percentage.

Results from the coefficient table indicates that number of hours transferred ($p < .001$), a remedial course taken pretransfer ($p < .001$), and transferred completion percentage ($p < .001$) all significantly predicted post-transfer first semester GPA with the transferred completion percentage being the most important predictor. An examination of the beta weights for number of transferred hours indicates that the more hours transferred the higher the post-transfer first semester GPA. Similarly, the higher the transferred completion percentage the higher the post-transfer first semester GPA. Conversely, taking a remedial course pretransfer negatively affects post-transfer first semester GPA. Results revealed the equation for predicting the first semester post-transfer GPA as the following: Post-Transfer First Semester GPA (predicted) = 0.33 + (0.01)(number of hours transferred) – (0.38)(remedial course taken pretransfer) + (2.55)(transferred completion percentage).

Hypothesis 2

Hypothesis 2 stated that no significant predictive effects will exist among the transfer GPA, number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage on transfer student success as measured by the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Before conducting a regression analysis, the data were examined to determine that the assumptions for multiple regression were met. An examination of the intercorrelation table indicated that two of the variables in the model, transfer GPA and transferred completion percentage ($r = .752$), had a strong correlation with each other. Because these two variables had a high correlation, R^2 was examined, resulting in a tolerance lower than $1 - R^2$ (Leech et al., 2015). Therefore, multicollinearity was considered problematic for the model. Furthermore, the choice was made to remove the variable of transfer GPA from the model. The data were then examined again to determine that assumptions for multiple regression were met. Scatterplots of the correlation between the predictor variables and the outcome variable did not reveal a clear violation of linear relationship. An examination of the intercorrelation table indicated no variables in the new model had a strong correlation with each other, and no tolerance was lower than $1 - R^2$. Therefore, multicollinearity was not considered a problem with the adjusted model. Table 4 shows the means, standard deviations, and intercorrelations for graduating GPA.

Table 4

Means, Standard Deviations, and Intercorrelations for Graduating GPA and Predictor Variables (N = 178)

Variable	<i>M</i>	<i>SD</i>	1	2	3
Grad GPA	3.21	0.45	.251***	-.337***	.583***
Pred Variable					
1. Trans Hours	51.86	22.80	1.000	-.092	.124*
2. Remediation	0.28	0.45	-.092	1.000	-.253***
3. Comp Perc	0.96	0.72	.124*	-.253***	1.000

Note. Grad GPA = Graduating GPA; Pred Variable = Predictor Variable; Trans Hours = Number of Hours Transferred; Remediation = Remedial Course Taken Pretransfer; Comp Perc = Transferred Completion Percentage.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Since the original model was hindered by multicollinearity, an analysis was run without the transfer GPA predictor variable. To test the assumptions of normally distributed residuals as well as homoscedasticity of residuals, a residual plot was generated. An examination of this plot revealed no obvious violations of either assumption. Finally, to examine the fit of the regression model for predicting post-transfer first semester GPA, casewise diagnostics as well as Cook's Distance test for influential cases were conducted. These diagnostics revealed no significant outliers, and no cases identified as exerting significant influence in the model. After testing all the relevant assumptions and model fit diagnostics, a standard multiple regression analysis was conducted to determine the degree to which the number of transferred hours, a remedial course taken pretransfer, and transferred completion percentage predicted graduating GPA. These results are displayed in Table 5.

Table 5

Simultaneous Multiple Regression Analysis for Predicting Graduating GPA

Model	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Regression	14.29	3	4.76	39.70	.000
Residual	20.87	174	0.12		
Total	35.16	177			

Regression results indicated that the overall model significantly predicted graduating GPA, $R^2 = .406$, $R^2_{adj} = .396$, $F(3, 174) = 39.70$, $p < .001$. Since the model is a better predictor of graduating GPA than the mean, the rejection of the null hypothesis was supported. The model also accounted for approximately 39.6% of the variance in graduating GPA, which is a large effect size (Cohen, 1988). A summary of the unstandardized and standardized regression coefficients for this model (Table 6).

Table 6

Unstandardized and Standardized Coefficients for Predictors of Graduating GPA

Model	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	Collinearity Statistics	
1(Constant)	0.02	0.37		0.06	.949	Tolerance	VIF
Trans Hours	0.00	0.00	0.17	2.88	.004	.981	1.020
Remediation	-0.19	0.06	-0.19	-3.16	.002	.932	1.073
Comp Perc	3.20	0.38	0.51	8.46	.000	.925	1.081

Note. Trans Hours = Number of Hours Transferred; Remediation = Remedial Course Taken Pretransfer; Comp Perc = Transferred Completion Percentage.

Results from the coefficient table indicates that number of hours transferred ($p = .004$), a remedial course taken pretransfer ($p = .002$), and transferred completion percentage ($p < .001$) all significantly predicted graduating GPA with the transferred completion percentage being the most important predictor. An examination of the beta weights for number of transferred hours indicates that the more hours transferred the higher the graduating GPA. Similarly, the higher the transferred completion percentage the higher the graduating GPA. Conversely, taking a remedial course pretransfer negatively affects graduating GPA. Results revealed the equation for predicting the graduating GPA as the following: $\text{Graduating GPA (predicted)} = 0.02 + (0.003)(\text{number of hours transferred}) - (0.19)(\text{remedial course taken pretransfer}) + (3.2)(\text{transferred completion percentage})$.

Hypothesis 3

Hypothesis 3 stated that no significant predictive effects will exist among the use of on-campus housing, participation in collegiate athletics, and participation in social clubs on transfer student success as measured by the post-transfer first semester GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Before conducting a regression analysis, the data were examined to determine that the assumptions for multiple regression were met. An examination of the intercorrelation table indicated that two of the variables in the model, participation in collegiate athletics and participation in social clubs ($r = -.370$), had a strong correlation with each other. Because these two variables had a high correlation, R^2 was examined, resulting in a tolerance lower than $1 - R^2$ (Leech et al., 2015). Therefore, multicollinearity was considered problematic for the model. Furthermore, the choice was made to remove the

variable of participation in social clubs from the model. The data were then examined again to determine that assumptions for multiple regression were met. Scatterplots of the correlation between the predictor variables and the outcome variable did not reveal a clear violation of linear relationship. An examination of the intercorrelation table indicated no variables in the new model had a strong correlation with each other, and no tolerance was lower than $1 - R^2$. Therefore, multicollinearity was not considered a problem with the adjusted model. Table 7 shows the means, standard deviations, and intercorrelations for post-transfer first semester GPA.

Table 7

Means, Standard Deviations, and Intercorrelations for Post-Transfer First Semester GPA and Predictor Variables (N = 178)

Variable	<i>M</i>	<i>SD</i>	1	2
1st Sem GPA	3.05	0.67	-.145*	-.084
Pred Variable				
1. Housing	0.87	0.34	1.000	.113
2. Athletics	0.20	0.40	.113	1.000

Note. 1st Sem GPA = Post-Transfer First Semester GPA; Pred Variable = Predictor Variable; Housing = Use of On-Campus Housing; Athletics = Participation in Collegiate Athletics.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Since the original model was hindered by multicollinearity, an analysis was run without the participation in social clubs predictor variable. To test the assumptions of normally distributed residuals as well as homoscedasticity of residuals, a residual plot was generated. An examination of this plot revealed no obvious violations of either

assumption. Finally, to examine the fit of the regression model for predicting post-transfer first semester GPA, casewise diagnostics as well as Cook's Distance test for influential cases were conducted. These diagnostics revealed no significant outliers, and no cases identified as exerting significant influence in the model. After testing all the relevant assumptions and model fit diagnostics, a standard multiple regression analysis was conducted to determine the degree to which the use of on-campus housing and participation in collegiate athletics predicted post-transfer first semester GPA. These results are displayed in Table 8.

Table 8

Simultaneous Multiple Regression Analysis for Predicting Post-Transfer First Semester GPA

Model	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Regression	2.07	2	1.04	2.32	.101
Residual	78.23	175	0.45		
Total	80.30	177			

Regression results indicated that the overall model did not significantly predict post-transfer first semester GPA, $R^2 = .026$, $R^2_{adj} = .015$, $F(2, 175) = 2.32$, $p = .101$. Since the model is not a better predictor of post-transfer first semester GPA than the mean, the null hypothesis was not rejected.

Hypothesis 4

Hypothesis 4 stated that no significant predictive effects will exist among the use of on-campus housing, participation in collegiate athletics, participation in social clubs, and the post-transfer number of semesters until graduation on transfer student success as measured by the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Before conducting a regression analysis, the data were examined to determine that the assumptions for multiple regression were met. An examination of the intercorrelation table indicated that two of the variables in the model, participation in collegiate athletics and participation in social clubs ($r = -.370$), had a strong correlation with each other. Because these two variables had a high correlation, R^2 was examined, resulting in a tolerance lower than $1 - R^2$ (Leech et al., 2015). Therefore, multicollinearity was considered problematic for the model. Furthermore, the choice was made to remove the variable of participation in social clubs from the model. The data were then examined again to determine that assumptions for multiple regression were met. Scatterplots of the correlation between the predictor variables and the outcome variable did not reveal a clear violation of linear relationship. An examination of the intercorrelation table indicated no variables in the new model had a strong correlation with each other, and no tolerance was lower than $1 - R^2$. Therefore, multicollinearity was not considered a problem with the adjusted model. Table 9 shows the means, standard deviations, and intercorrelations for graduating GPA.

Table 9

Means, Standard Deviations, and Intercorrelations for Graduating GPA and Predictor Variables (N = 178)

Variable	<i>M</i>	<i>SD</i>	1	2	3
Grad GPA	3.21	0.45	-.106	-.124	-.285***
Pred Variable					
1. Housing	0.87	0.34	1.000	.113	.140*
2. Athletics	0.20	0.40	.113	1.000	-.147*
3. Terms Total	7.35	2.05	.140*	-.147*	1.000

Note. Grad GPA = Graduating GPA; Pred Variable = Predictor Variable; Housing = Use of On-Campus Housing; Athletics = Participation in Collegiate Athletics; Terms Total = Post-Transfer Number of Semesters Until Graduation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Since the original model was hindered by multicollinearity, an analysis was run without the participation in social clubs predictor variable. To test the assumptions of normally distributed residuals as well as homoscedasticity of residuals, a residual plot was generated. An examination of this plot revealed no obvious violations of either assumption. Finally, to examine the fit of the regression model for predicting Graduating GPA, casewise diagnostics as well as Cook's Distance test for influential cases were conducted. These diagnostics revealed no significant outliers, and no cases identified as exerting significant influence in the model. After testing all the relevant assumptions and model fit diagnostics, a standard multiple regression analysis was conducted to determine the degree to which the use of on-campus housing, participation in collegiate athletics, and the number of semesters until graduation predicted the graduating GPA. These results are displayed in Table 10.

Table 10

Simultaneous Multiple Regression Analysis for Predicting Graduating GPA

Model	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Regression	3.92	3	1.31	7.28	.000
Residual	31.24	174	0.18		
Total	35.16	177			

Regression results indicated that the overall model significantly predicted graduating GPA, $R^2 = .111$ $R^2_{adj} = .096$, $F(3, 174) = 7.28$, $p < .001$. Since the model is a better predictor of graduating GPA than the mean, the null hypothesis was rejected. The model also accounted for approximately 9.6% of the variance in graduating GPA, which is a medium effect size (Cohen, 1988). A summary of the unstandardized and standardized regression coefficients for this model (Table 11).

Table 11

Unstandardized and Standardized Coefficients for Predictors of Graduating GPA

Model	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	Collinearity Statistics	
1(Constant)	3.78	0.14		27.48	.000	Tolerance	VIF
Housing	-0.06	0.10	-0.05	-0.62	.538	.962	1.039
Athletics	-0.18	0.08	-0.16	-2.24	.026	.960	1.041
Terms Total	-0.07	0.02	-0.30	-4.14	.000	.954	1.049

Note. Housing = Use of On-Campus Housing; Athletics = Participation in Collegiate Athletics; Terms Total = Post-Transfer Number of Semesters Until Graduation.

Results from the coefficient table indicates that use of on campus housing did not significantly contribute to the model, while participation in collegiate athletics ($p = .026$) and number of semesters until graduation ($p < .001$) did significantly predict graduating GPA with number of semesters until graduation being the most important predictor. An examination of the beta weights for number of transferred hours indicates participation in collegiate athletics negatively affects the graduating GPA. Similarly, as the number of semesters increase until graduation, the greater the negative effects on graduating GPA. Results revealed the equation for predicting the graduating GPA as the following:

$$\text{Graduating GPA (predicted)} = 3.78 - (0.06)(\text{use of on-campus housing}) - (0.18)(\text{participation in collegiate athletics}) - (0.07)(\text{number of semesters until graduation}).$$

Summary

The purpose of this study was to determine predictive effects among the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage on transfer student success as measured by the post-transfer first semester GPA and graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. In addition, the purpose was to determine predictive effects among the use of on-campus housing, participation in collegiate athletics, participation in social clubs, and post-transfer number of semesters until graduation on transfer student success as measured by the post-transfer first semester GPA and graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. The summary of the results is displayed in Table 12.

Table 12

Summary of p Values for the Four Hypotheses on Post-Transfer First Semester GPA and Graduating GPA

Variables by H ₀	H1	H2	H3	H4
Model	.000	.000	.101	.000
Trans Hours	.000	.004		
Remediation	.000	.002		
Comp Perc	.000	.000		
Housing			.068	.538
Athletics			.361	.026
Terms Total				.000

Note. Trans Hours = Number of Hours Transferred; Remediation = Remedial Course Taken Pretransfer; Comp Perc = Transferred Completion Percentage; Housing = Use of On-Campus Housing; Athletics = Participation in Collegiate Athletics; Terms Total = Post-Transfer Number of Semesters Until Graduation.

Multicollinearity was unexpectedly an issue with all four hypotheses, so a predictor variable was dropped from each regression model from these hypotheses. The transfer GPA predictor variable was removed from Hypothesis 1 and 2, and the participation in social clubs predictor variable was removed from Hypotheses 3 and 4. The null hypothesis for Hypotheses 1, 2, and 4 was rejected due to the statistical significance of the regression model. The regression models for Hypotheses 1 and 2 had large effect sizes, and the regression model for Hypothesis 4 had a medium effect size.

The predictor variables that significantly contributed to the various regression models were as follows. For Hypothesis 1, number of hours transferred, whether a remedial course was taken pretransfer (negative predictor), and the transferred

completion percentage all significantly contributed to the adjusted regression model. For Hypothesis 2, number of hours transferred, whether a remedial course was taken pretransfer (negative predictor), and the transferred completion percentage all significantly contributed to the regression model. For Hypothesis 4, participation in athletics and number of semesters until graduation both significantly contributed to the regression model as negative predictors.

CHAPTER V

DISCUSSION

The purpose of this study was to determine the predictive effects of eight predictor variables on transfer student success as measured by either the post-transfer first semester GPA or the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. The predictor variables for Hypotheses 1 and 2 were the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage. The predictor variables for Hypotheses 3 and 4 were the use of on-campus housing, participation in collegiate athletics, and participation in social clubs. The post-transfer number of semesters until graduation was added as a predictor variable to Hypothesis 4. The post-transfer first semester GPA was the criterion variable for Hypotheses 1 and 3, and the graduating GPA was the criterion variable for Hypotheses 2 and 4. This chapter contains a summary of the findings of the multiple regression analysis from each hypothesis, the implications of the research in relation to the comprehensive context of the literature review, recommendations for future practice or policy, and future research considerations.

Findings and Implications

Hypothesis 1

Hypothesis 1 stated that no significant predictive effects will exist among the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and

the transferred completion percentage on transfer student success as measured by the post-transfer first semester GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Because transfer GPA and transferred completion percentage were highly correlated, the transfer GPA was removed from the multiple regression to adjust for multicollinearity. The transfer GPA was selected for removal since there was far less research on the transferred completion percentage in comparison to the transfer GPA. The adjusted regression model was statistically significant with a large effect size, and the null hypothesis was rejected. All three predictor variables significantly predicted post-transfer first semester GPA with transferred completion percentage as the most important predictor. Students with a greater number of transfer hours and transferred completion percentage were more likely to have a higher post-transfer first semester GPA. Conversely, the post-transfer first semester GPA was more likely to be lower for students who transferred in at least one remedial course compared to transfer students who did not.

Hypothesis 2

Hypothesis 2 stated that no significant predictive effects will exist among the transfer GPA, the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage on transfer student success as measured by the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Because transfer GPA and transferred completion percentage were highly correlated, the transfer GPA was removed from the multiple regression to adjust for multicollinearity. The transfer GPA was selected for removal since there was far less research on the transferred completion percentage in comparison to the transfer GPA.

The adjusted regression model was statistically significant with a large effect size, and the null hypothesis was rejected. All three predictor variables significantly predicted graduating GPA with transferred completion percentage as the most important predictor. Students with a greater number of transfer hours and a higher transferred completion percentage were more likely to have a higher graduating GPA. Conversely, the graduating GPA was more likely to be lower for students who transferred in at least one remedial course compared to transfer students who did not.

Hypothesis 3

Hypothesis 3 stated that no significant predictive effects will exist among the use of on-campus housing, participation in collegiate athletics, and participation in social clubs on transfer student success as measured by the post-transfer first semester GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Because participation in collegiate athletics and participation in social clubs were highly correlated, participation in social clubs was removed from the multiple regression to adjust for multicollinearity. The participation in social clubs predictor variable was selected for removal because it had a higher p value and was less likely to contribute to the model significantly. The adjusted regression model was not statistically significant, so the null hypothesis was not rejected. However, the use of on-campus housing was noted as having a significant negative correlation with the post-transfer first semester GPA.

Hypothesis 4

Hypothesis 4 stated that no significant predictive effects will exist among the use of on-campus housing, participation in collegiate athletics, participation in social clubs, and the post-transfer number of semesters until graduation on transfer student success as

measured by the graduating GPA of undergraduate transfer students at a private liberal arts university in Central Arkansas. Because participation in collegiate athletics and participation in social clubs were highly correlated, participation in social clubs was removed from the multiple regression to adjust for multicollinearity. The participation in social clubs predictor variable was selected for removal because it had a higher p value and was less likely to contribute to the model significantly. The adjusted regression model was statistically significant with a medium effect size, and the null hypothesis was rejected. Although on-campus housing was not significant, both participation in athletics and the post-transfer number of semesters until graduation significantly contributed to the model with the post-transfer number of semesters until graduation as the more important predictor. Both predictor variables were negative, meaning that transfer students who participated in college athletics and had a higher number of post-transfer semesters until graduation were more likely to have a lower graduating GPA.

Transfer GPA

Even though the transfer GPA was removed from the regression models for Hypotheses 1 and 2, the initial data before the variable's removal were revealing. For instance, the transfer GPA had a significant positive correlation with the number of hours transferred and transferred completion percentage. Meaning, the students who completed a higher number of hours pretransfer without having to drop or repeat courses usually had a higher pretransfer GPA. A significant negative correlation also existed between the transfer GPA and whether a remedial course was taken pretransfer. Thus, students who took a remedial course pretransfer did not perform as well academically as students who did not attempt a remedial course pretransfer. Identifying the significant correlations

between the transfer GPA and other predictor variables helped discern the academic background of the transfer students.

The initial data on the transfer GPA also were consistent with the literature. For example, the transfer GPA had a significant positive correlation with the post-transfer first semester GPA and an even stronger correlation with the graduating GPA. Schwehm (2017) found that the transfer GPA was positively correlated with the post-transfer university GPA, which was not tied to a specific semester or the GPA at graduation. While the criterion variables of this study differed, the data still complimented Schwehm's results since both studies compared the transfer GPA to at least one post-transfer GPA. Also, because the correlation with the transferred completion percentage was so strong, one could assume that the transfer GPA would have been a significant predictor of post-transfer first semester GPA and graduating GPA if the transferred completion percentage had been removed instead of the transfer GPA. D'Amico et al. (2013) acknowledged that the transfer GPA was a significant predictor of post-transfer first semester GPA, which would have aligned with this study had the transfer GPA been used in the regression model. Reyes (2010) and Wang (2012) reported that the transfer GPA was the strongest predictor of university GPA. The results of this study did not appear to contradict Reyes and Wang's studies since the transferred completion percentage was the most important predictor variable without the transfer GPA in the regression models. The evidence derived from Reyes (2010) and Wang's (2012) results combined with the significant correlations between the transfer GPA and criterion variables, as well as the correlation with the transferred completion percentage,

influenced the removal of the transfer GPA from the regression models. Even so, the initial data still concurred with the literature.

The data also supported literature on transfer students that fall outside the realm of the intended purpose of this study. Various researchers have noted the transfer shock phenomenon that may occur when a student transfers to a different institution (Fauria & Fuller, 2015; Ishitani, 2008; Laanan, 2007). When examining the data, the average post-transfer first semester GPA was significantly lower than the transfer GPA, which was confirmed using a paired samples *t* test. So, many of the transfer students at the institution of study experienced a transfer shock, which differed from other researchers' findings (Ishitani & McKittrick, 2010; Solomon, 2001). Ishitani (2008) professed that the majority of students who experienced transfer shock raised their GPAs when enrolled after a year, which also was consistent with this study's data. There was not a significant difference between the average transfer GPA and the average graduating GPA in this study, which supported Ishitani's conclusion. While the phenomenon of transfer shock was never intended to be examined using the study's data, the phenomenon's appearance was still noteworthy.

Hours Transferred

Results concerning the number of hours transferred somewhat clarified a discrepancy in the literature. The number of hours transferred significantly correlated with both the post-transfer first semester GPA and the graduating GPA. Thus, students who transferred in more hours typically had a higher GPA than transfer students who transferred in fewer hours. These results were consistent with Zhai and Newcomb's (2000) study, which revealed a significant correlation between the number of hours

transferred and the cumulative GPA. However, this study contradicted Schwehm (2017) who did not find a correlation between the number of hours transferred and cumulative GPA. Schwehm's study only included nontraditionally aged transfer students over the age of 24, and this study only contained traditionally aged students who graduated under the age of 26. The age difference between most students in these two studies may account for the different results. Even though a discrepancy remains in the literature, this study provides more evidence that the number of transferred hours positively correlates with a post-transfer GPA.

The number of hours transferred was also a positive predictor of the post-transfer first semester GPA and the graduating GPA, which aligned with other research studies. Gerhardt and Masakure (2016) found that the number of hours transferred was a positive predictor of the cumulative GPA for Canadian students, and Lopez and Jones (2016) recorded the same results for transfer students in STEM programs at various public institutions. Even though the population of this study was very different from the studies previously mentioned, the concurring results serve as evidence that these findings might be generalizable to a larger population of transfer students. Transfer students with a higher number of hours transferred were more likely to have a higher post-transfer GPA and graduating GPA than students with a lower number of hours transferred. More research using different transfer populations would be beneficial in determining the generalizability of these results.

Remedial Course(s) Transferred

Much discussion has occurred about the effectiveness of remedial courses on student success. Some claimed that taking remedial courses is a detriment to student

success, especially to degree completion (Ganga et al., 2018; Whinnery & Pompelia, 2019). All of the transfer students in this study's population completed their degree. Therefore, this study's results could not confirm or refute that belief; however, the results were informative on the relationship of remediation with a pre- and post-transfer GPA. Wang (2012) revealed that taking a remedial mathematics course negatively predicted post-transfer GPA, but taking a remedial reading course was not a significant predictor of post-transfer GPA. This study did not distinguish between course subjects, but taking at least one remedial course pretransfer was a negative predictor on the post-transfer first semester GPA and graduating GPA. On average, transfer students who had taken a remedial course pretransfer had a lower transfer GPA, transferred completion percentage, post-transfer first semester GPA, and graduating GPA compared to transfer students without remediation. The students who took a remedial course were required to do so because they were identified as underprepared in some way to complete college-level coursework. Thus, transfer students with remediation not matching or exceeding the academic performance of transfer students with no remediation was not a peculiar outcome. Even though the different GPAs used in this study were not as high for the students who took a remedial course when compared to the students without remediation, all of the transfer students in the study's population completed their bachelor's degree. Therefore, for this particular student population, remedial courses appeared to have been beneficial in helping students complete their degree. An alteration of this study that compares transfer completers with noncompleters could yield different results when determining the predictive effect on degree completion.

Transferred Completion Percentage

The transferred completion percentage has been infrequently researched, but this study's results revealed information that illustrated the completion percentage's relationship with other academic variables. A negative correlation existed with the transferred completion percentage and whether a remedial course was taken pretransfer. Students who had previously taken at least one remedial course were more likely to transfer in a lower completion percentage. Thus, students once deemed underprepared for college-level courses needed multiple attempts to complete degree requirements. A possible explanation for this relationship is that several of the students who needed to take a remedial course withdrew from courses that they were in danger of failing, repeated at least one course, or failed a course without repeating it. These students, on average, also did not appear to earn as high of a grade in these repeated courses when compared to students who completed courses on the first attempt. While students who took a remedial course pretransfer may have had to withdraw from courses due to extenuating circumstances not related to academics, withdrawing from, failing, or repeating courses due to a deficiency in college readiness did partially explain the significant correlations involving remediation, transfer GPA, and transferred completion percentage.

As previously noted, the correlation between the transferred completion percentage and transfer GPA was so strong that the decision was made to remove the transfer GPA from the regression models. Many researchers have documented that the transfer GPA was a positive predictor of student success, such as persistence, retention, degree completion and post-transfer GPA (Lopez & Jones; Luo et al., 2007; Mourad &

Hong; Reyes, 2010; Schwehm, 2017; Wang, 2009, 2012; Zhai & Newcomb, 2000). The strong relationship between the transfer GPA and transferred completion percentage suggests that the transferred completion percentage could also have predictive effects on different success measures. Nadasen and List (2016) noted the predictive effect of the transferred completion percentage on second-semester persistence at an online university, and Savona (2010) noticed a significantly above average graduation rate at community colleges when students completed at least 90% of their coursework. While more research is needed to determine if the transferred completion percentage has predictive effects on transfer student success at different types of institutions, this study does at least reveal the predictive effects on the post-transfer first-semester GPA and graduating GPA at a private liberal arts university, which partially fills a research gap.

According to the regression models used for Hypotheses 1 and 2, the transferred completion percentage was the most important predictor for the first semester GPA pretransfer and the graduating GPA. Students who only needed one attempt to complete their courses pretransfer on average continued to have a higher GPA post-transfer than the students who withdrew from, failed, or repeated courses. Literature was not found on the predictive effects of the transferred completion percentage on a post-transfer GPA, so these results were unique at the time of this study's composition. Further research on the transferred completion percentage is recommended to test the consistency of these results.

On-Campus Housing

More research has been dedicated to the influence of on-campus housing on the social aspect of student success compared to the academic success of students.

Researchers agreed that living on campus would help transfer students to integrate socially with their institution (Mitchell, 2011; Townsend & Wilson, 2009; Zeller, 2008). This study's data revealed a significant positive correlation between the use of on-campus housing and participation in social clubs, which aligned with the belief that living on campus increases the social involvement of transfer students. There was not a correlation between the use of on-campus housing and either participation in collegiate athletics or the number of semesters until graduation. Regardless, little evidence existed in the data to support the belief that living on campus does influence transfer student social integration.

Research on how the use of on-campus housing affects transfer students academically was not found in the literature. Still, comparisons can be made to studies containing native students within the studies' population. There was not a predictive effect of the use of on-campus housing on either of the post-transfer GPAs, which was consistent with Pillar's (2016) findings but inconsistent with De Araujo and Murray's (2010b) conclusions. Turley and Wodtke (2010) noticed that first-year students at liberal arts colleges had significantly higher GPAs than first-year students who lived off campus, which differed from this study's results. This study's data revealed a significant negative correlation between the use of on-campus housing and the post-transfer first semester GPA, but there was no correlation between the use of on-campus housing and the graduating GPA. The cause of this finding could be explained by the transfer shock phenomenon that was previously discussed. Also, 85% of this study's population at one time lived on campus. The possibility exists that a more balanced mix of on-campus students and off-campus students could yield different results in future studies; however,

no clear evidence was found in this study that the use of on-campus housing significantly affects transfer students' academic performance measured by the GPA.

Collegiate Athletics

Participation in collegiate athletics is a recognized means by which students socially integrate with their institution. Researchers have acknowledged that both native and transfer student-athletes typically do not integrate socially with their institution other than their participation in athletics (Denhart et al., 2009; Gilmour, 2013; Mitchell, 2011). There was a significant negative correlation in this study's data between participation in collegiate athletics and participation in social clubs. Thus, the transfer student-athletes in this study's population reflected researchers' general observation that the primary mode of social integration for student-athletes was the participation in collegiate athletics.

The effect of participation in collegiate athletics on the GPA is less prominent. While there were no significant correlations between participation in collegiate athletics and either of the post-transfer GPAs, participation in collegiate athletics was revealed as a significant negative predictor of the graduating GPA. On average, transfer student-athletes graduated with a lower GPA than nonathlete transfer students. Literature on collegiate athletic participation's effect on the graduating GPA for native or transfer students was not found. Pillar (2016) discovered a positive effect on the participation of collegiate athletics on sophomore GPA for native students, but Baker (2008) found no effect on the GPA for minority, native student-athletes. Whether participation in collegiate athletics for student-athletes, native or transfer, affects the GPA is yet to be fully understood, but this study revealed evidence that transfer student-athletes may be more likely to graduate with lower GPAs than other transfer students.

Social Clubs

Some data concerning the participation of social clubs were evaluated before the predictor variable's necessary removal of the regression models for Hypotheses 3 and 4. The significant positive correlation between the participation of social clubs and the use of on-campus housing and the significant negative correlation between participation in social clubs and participation in collegiate athletics was previously discussed. There was a significant positive correlation between social club participation and the post-transfer number of semesters until graduation. So, transfer students who spent more time at the institution were more likely to participate in social clubs than transfers who needed less time to complete their degree. There was no correlation between participation in social clubs and either of the post-transfer GPAs, which coincided with other researchers' findings (Castillo, 2011; Chatriand, 2012). The lack of correlations with the two post-transfer GPAs suggested that participation in social clubs would have unlikely been a significant predictor of either post-transfer GPA. This was the reason why the social club predictor variable was chosen as the most appropriate variable to remove from the regression models.

Post-Transfer Number of Semesters Until Graduation

Minimal research existed concerning the effect of the post-transfer number of semesters until graduation on transfer student success. While Mourad and Hong (2011) documented that the post-transfer number of semesters until graduation was a positive predictor of degree attainment, the results of this study discovered the post-transfer number of semesters until graduation was a negative predictor of the graduating GPA. Transfer students who required more semesters to graduate, on average, had lower GPAs

than students who needed fewer semesters to graduate. These results align with this study's finding concerning the number of hours transferred. Typically, students who transfer in a high number of hours require less time to graduate than students who transfer in a lower number of hours. Because the number of hours transferred was a positive predictor of the graduating GPA, the results concerning the post-transfer number of semesters until graduation was logical. Also, students who are not strong academically typically require more time to graduate because they are more likely to repeat courses or take fewer hours in a semester to lighten their course load. Therefore, a possible contributor as to why the post-transfer number of semesters was a negative predictor is that transfer students who at times underperformed academically needed additional semesters to complete degree requirements in comparison to transfer students with a higher quality academic performance. Another possible contributor to these results could have been the students' status as either a full- or part-time student, but the student load status was never determined for this study. More research is needed to explore the cause of these results as well as the generalizability to other institutions or transfer student populations.

Recommendations

Potential for Practice/Policy

This study examined various predictor variables that could affect transfer student success as measured by the post-transfer first semester GPA and the graduating GPA. The results of this study could be useful for enrollment managers who decide which transfer students to admit. Most enrollment managers only consider the transfer GPA for admissions purposes, but the number of hours transferred, a remedial course taken

pretransfer, and the transferred completion percentage are other variables enrollment managers could consider if they need more academic information to make an informed decision on a transfer student's enrollment. For example, if a transfer student's transcript contains a high GPA, several completed hours, a high completion percentage, and no remedial courses, then enrollment managers, especially at private liberal arts institutions, can be more confident in the student's ability to succeed at their institution. Contrarily, enrollment managers with rigorous academic programs or at competitive institutions who limit the number of accepted students may not want to admit a transfer student who has a combination of low GPA, few hours completed, at least one remedial course, or has a lower than normal completion percentage. If an enrollment manager is considering admitting a student with a low transfer GPA, then looking at the number of hours transferred, whether a remedial course was taken, and the completion percentage gives a clearer picture of the student and a better idea of how the student may succeed post-transfer.

Not only could these results improve the transfer admissions decisions, but also stakeholders and administrators could identify transfer students who may benefit from preventative academic success programs. Most institutions have interventions for students after students struggle academically; however, preventative academic programs aim to identify and assist at-risk students in preventing future poor academic performance. Stakeholders and administrators may decide to enlist transfer students who are more likely to struggle academically based on the predictive variables in this study into a preventative program or activity. Some examples of preventative activities, many of which also serve as interventions for students after they struggle academically, include

mandatory meetings with an academic advisor or counselor, tutoring, supplemental instruction, educational seminars, or check-ins with a student peer mentor.

Stakeholders and administrators can also monitor transfer student progress by tracking the number of semesters they are enrolled before graduating. The most efficient method to track the number of semesters is by keeping up with a student's degree plan. Most institutions require the development of a degree plan for their incoming students. Academic advisors should easily be able to monitor whether transfer students are following their plan. Transfer students who deviate from their degree plan by either taking the wrong courses, opting for a lighter course load, or having to repeat courses will require more semesters to graduate. Academic interventions should be implemented with transfer students once they need to add a semester to their original degree plan.

Collegiate coaches could use this study's results to assist in recruiting and monitoring student-athletes. The results of this study indicated that, on average, the graduating GPA of transfer student-athletes were lower than their transfer GPA. Therefore, coaches should be mindful of this GPA discrepancy as they recruit and monitor students. A best practice for coaches would be to recruit students who they believe can academically succeed at their institution since students must meet academic thresholds to maintain eligibility with the NCAA. Transfer student-athletes with a combination of a low GPA around a 2.0, fewer than 60 hours transferred, at least one remedial course, and a below-average completion percentage are more likely to earn lower grades at a new institution. If coaches decide to recruit transfer student-athletes who meet these criteria, then coaches should require them to participate with one or more of the preventative activities previously mentioned. Coaches can also monitor their

academic success by tracking the progress made on their transfer student-athletes' degree plans. Transfer student-athletes who require more semesters to graduation than initially planned may be at risk of decreasing their GPA and exhausting their scholarship money before completion. Academic prevention/intervention activities could be invaluable for transfer-student athletes who appear academically at-risk by what is on their incoming transcript or how well they progress according to their degree plan.

Future Research Considerations

This study provided evidence that the number of hours transferred, a remedial course taken pretransfer, and the transferred completion percentage of hours earned and hours attempted has a predictive effect on the post-transfer first semester GPA and the graduating GPA of transfer students. This research study also provided evidence that participation in collegiate athletics and the post-transfer number of hours until graduation have a predictive effect on the graduating GPA of transfer students. However, there was not sufficient evidence that the use of on-campus housing and participation in social clubs had a predictive effect on the post-transfer first semester GPA or graduating GPA of transfer students. The following propositions were recommended for future research considerations:

1. This was a single institution study at a private liberal-arts, faith-based university that is a member of NCAA Division II. Future researchers might consider replicating this study at different types of institutions to test the generalizability of this study's results.
2. Future researchers might modify a replication of this study by measuring transfer student success as bachelor's degree attainment instead of a post-

transfer GPA and using a logistic regression analysis instead of a multiple regression analysis.

3. Future researchers might decide to execute variations of this study by unpacking one or more of the predictor variables. For example, a researcher could analyze the students who took one remedial course pretransfer with the students who took multiple remedial courses pretransfer with their post-transfer GPAs. Alternatively, researchers could divide the remedial courses by subject and compare those specific subjects with a post-transfer GPA. Instead of grouping collegiate athletes into one group, a research study could focus on transfer athletes and divide them by sport, race, or gender. A different study could focus on the use of on-campus housing and separate the variable by the number of school years or terms the transfer student lived on campus. Researchers could study the predictive effect of social clubs in a different regression model. All the predictor variables, especially those influencing social integration, require more research to understand better how they affect transfer student success.
4. This study revealed that transfer student-athletes, on average, graduated with a lower GPA than other transfer students. On average, the transfer students experienced transfer shock in their first semester post-transfer and then improved their GPA; however, whether student-athletes experienced and recovered from transfer shock was not determined. Future studies could examine the influence of transfer shock on student-athletes.

5. Future researchers could focus on other predictor variables of this study to explore the cause of some of this study's results. For example, why would the number of hours transferred be a positive predictor of a post-transfer GPA, and why would the post-transfer number of semesters until graduation be a negative predictor of the graduating GPA? These two predictor variables are somewhat linked, but the factors that influenced these two variables have yet to be fully determined.
6. Future studies could be amended to account for the different types of transfer students. Traditionally-aged transfer students could be separated from nontraditional transfer students. Community college transfers could be compared to students who transferred from a 4-year institution. Students who transferred from one institution could be contrasted with students who transferred to multiple institutions before graduating with a bachelor's degree. Since there are many types of transfer students, there are several alternatives for researchers to study.
7. Other post-transfer social integration factors exist that could be used as predictor variables in future studies. An example of different social integration factors includes participation in the performing arts, such as theatrical or music groups. Working on-campus jobs or some sort of volunteer work are other ways transfer students could socially integrate with an institution. Faith-based institutions could study the predictive effect of participation in religious activities on transfer student success. Instead of athletic participation, researchers could use athletic game attendance as a predictor variable. Most

institutions have social events that are unique to those institutions and are valuable for social integration. Researchers could use an exclusive event at an institution as a predictor variable for a single institution study. A variety of options exist for researchers wanting to study social integration factors and transfer student success.

8. Future researchers may consider using post-transfer academic integration factors as predictor variables in their study. Examples of post-transfer academic integration could include the number of contact hours with faculty outside of the classroom, classroom attendance, participation in academic advising sessions, participation in tutoring or supplemental instruction, and the amount of time spent on coursework outside of class. Examining post-transfer academic integration factors could be especially useful for assisting transfer students who are in trouble academically or in danger of losing financial aid because of either a low GPA or completion percentage.

Conclusion

This study was an attempt to determine the predictive effects of the transfer GPA, number of hours transferred, a remedial course taken pretransfer, transferred completion percentage, use of on-campus housing, participation in collegiate athletics, participation in social clubs, and the post-transfer number of semesters until graduation on the post-transfer first semester GPA or the graduating GPA. Descriptions of the study's results, implications of the results in the context of the literature, and future recommendations based on the results were discussed in Chapter V. The number of hours transferred, whether a remedial course was taken pretransfer (negative), and transferred completion

percentage identified in the regression models as statistically significant predictors for both post-transfer GPAs. Participation in collegiate athletics and the number of post-transfer semesters until graduation were identified in the regression models as statistically significant negative predictors for the graduating GPA. Even though the transfer GPA and participation in social clubs predictor variables were removed from the regression models due to multicollinearity, this study's analysis contributed to the comprehensive literature regarding all eight predictor variables.

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APPENDIX



Status of Request for Exemption from IRB Review

(For Board Use Only)

Date: **4/2/2020**

Proposal Number: **2020-043**

Title of Project: **Dissertation - Predictive Effects on Transfer Student Success**

Principal Investigator: **Jake Brownfield** (jbrownfield@harding.edu)

-
- Research exempted from IRB review.
- Research requires IRB review.
- More information is needed before a determination can be made. (See attachment)

The proposal referenced above has been reviewed and the decision rendered is noted above. This study has been found to fall under the following exemption(s):

1 2 3 4 5 6 7 8

In the event that, after this exemption is granted, this research proposal is changed, it may require a review by the full IRB. In such case, a **Request for Amendment to Approved Research** form must be completed and submitted.

The IRB reserves the right to observe, review and evaluate this study and its procedures during the course of the study.

A handwritten signature in black ink, appearing to read "Cody Sipe".

Dr. Cody Sipe, Chair
Harding University Institutional Review Board