

The Value of Campus Recreation for Historically Marginalized Populations: An Analysis
of The NIRSA/NASPA Consortium Dataset

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Dedication

I dedicate this dissertation to my loving and adoring wife Allie and our three children: Ava, Annabelle, and Nico. For all the hours it has taken me away from you, your unconditional support never wavered. I am forever grateful. I love you.

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ABSTRACT

The services provided by campus recreation departments contribute to the wellbeing of college students (Forester, 2015). While this inherent understanding drives the work of practitioners in the field of campus recreation, the increasing cost of higher education has stimulated a culture of accountability. In 2010, the National Intramural and Recreational Sports Association (NIRSA) partnered with the National Association for Student Personnel Administrators (NASPA) to form a knowledge consortium, from which the Campus Recreation and Wellness Benchmark (CRWB) survey was sponsored. A total of 171 distinct institutions distributed the CRWB survey to students at their respective institutions at least once during the 10 years of the consortium's existence. In doing so, the field of collegiate recreation collected 219,169 responses and over 22.5 million points of data.

This quantitative dissertation analyzed the CRWB longitudinal dataset procured by the NIRSA/NASPA Knowledge Consortium. The purpose of this study was to understand how college students who identify with historically marginalized populations engage with campus recreation and assess the impact campus recreation had on their recruitment, retention, academic success, connection to the campus community and quality of life. Through the use of descriptive statistics, the study found that students who identify as women, transgender, and marginalized sexual orientations participated with campus recreation less than students from non-marginalized populations. Furthermore, the study found that students who identify with marginalized racial groups participated more than students who identify racially as white. Through binary logistic regression modeling, the study found that students who identify as women were less

likely to indicate campus recreation positively impacted their recruitment, retention, academic success, connection to campus, and quality of life when compared with students who identified as men. Students who identified as African American/Black, Hispanic/Latino/a, and Asian/Pacific Islander were more likely to indicate campus recreation positively impacted their recruitment, retention, academic success, connection to campus, and quality of life when compared with students who identified as white. It is anticipated the results of this study might be used to inform future resource allocation as we embrace the changing demographic among college-age students in the third decade of the 21st century.

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CHAPTER 1. INTRODUCTION

The 2019 NIRSA (Leaders in Collegiate Recreation) Annual Conference was held in Boston, Massachusetts and attended by a congregation of more than 2,500 individuals interested in the field of campus recreation. The conference tagline was “Join the Wellbeing Revolution”; having attended twelve annual conferences prior to attending the 2019 conference, I was intrigued by this tagline. Additionally, I observed a common theme being repeated throughout the conference: the work of a campus recreation department is important. The exhaustive repetition of this rhetorical soundbite has become a common practice among campus recreation practitioners, motivated by institutional insecurities that have plagued the field for over fifty years. The college student remains central to the mission of all campus recreation departments; both the Wellbeing Revolution and the institutional insecurities stem from this fact.

The traditional college students’ ages range from eighteen to twenty-four years old. According to the National Center for Education Statistics IPEDS dataset, in 2017 roughly seventy percent of students attending 4-year public or private institutions of higher education fell within this age range. Studies show the traditional college-age student has an increased need for physical exercise in order to maintain proper mental health (Snyder, Lee, Bjornsen, & Dinkel, 2017). As these individuals embark on the journey to graduation, finding healthy outlets for stress and pent-up energy becomes critical to their success in the classroom (Hackett, 2007; Roddy, Pohle-Krauza, & Geltz, 2017). Additionally, forming healthy exercise habits during college is proven to inform future behaviors which can contribute to an improved sense of wellbeing throughout life (Forrester, Arterberry, & Barcelona, 2006; Forrester, Ross, Hall, & Geary, 2007; Gaskin, Rey, & Scott, 2006; Misner, Massey, & Clements, 1983). The positive

impact of exercise and recreational sports on college students has been researched for over four decades.

Prior to this understanding, universities dedicated limited resources to providing the general student body with recreational outlets. The “Cane Spree” of 1869 at Princeton University is regarded as the first intramural event on a college campus (Blye, 2002). In this unsanctioned competition, sophomore students attempted to wrestle away the walking sticks of freshmen, evolving into an annual event in which the winner would boast naked around town. The unsavory behavior motivated university administrators at Princeton to develop a formal program for “structured” sports in order to regulate the student’s behavior, thus paving the path for the first intramural sports departments (Blye, 2002). In 1913, the University of Michigan and The Ohio State University founded the first official intramural departments and soon after built the first campus recreation centers (Means, 1973). The University of Michigan hired the first intramural director, Elmer Mitchell, who mentored William Wasson, the founder of the National Intramural Association (NIA), which would later become the National Intramural and Recreational Sports Association (NIRSA, n.d.). In 1950, Dr. Wasson brought together twenty intramural directors from eleven historically black colleges and universities for the inaugural annual conference in Chicago, Illinois (Granholm, 2019). As the demand for higher education steadily grew through the end of the 20th century, affluent institutions dedicated substantial resources to developing their infrastructure, which for many included building a state-of-the-art student recreation center (Kampf, Haines, & Gambino, 2018). As a perk of attendance, students were granted exclusive access to these facilities and the many programs and services provided by the recreation department.

The early recreation departments were housed within either the physical education (kinesiology) department or the athletic department (Byl, 2002). As universities built large and complex facilities dedicated to student recreation services, existing recreation departments moved from engaging a few hundred students per week to thousands of students per day. This growth in student engagement resulted in a realignment for many campus recreation departments who now find themselves reporting within a division of student affairs. Today, it is estimated that roughly seventy percent of campus recreation departments report within a division of student affairs (Milton, Roth, & Fiser, 2011). As with many complex entities, a division of student affairs is analogous to a mosaic of sorts. Composed of a myriad of functional areas, many of which laying claim to their own profession, a division of student affairs acts as an umbrella under which practitioners are employed to deliver services that support the mission of the institution (Long, 2012). The culminating effort of these functional areas supply students with a modern college experience, complimentary to higher learning, and necessary to attract, retain, and develop each new generation of students (Long, 2012). In order to align with the mission of student affairs, many campus recreation departments have developed a student-centered pedagogy that provides programs and services intended to support the overall health and wellbeing of student participants (Milton, Roth, & Fiser, 2011).

The work of practitioners in the field of student affairs is guided by two national associations: the American College Personnel Association (ACPA) and the National Association of Student Personnel Administrators (NASPA). Founded at the University of Wisconsin, Madison in 1918, NASPA currently engages 15,000 members from all fifty states, twenty-five countries, and eight US territories (NASPA, n.d.). NASPA espouses an array of shared

principles prescribed by the Council for Academic Standards (CAS); these principles include autonomy, non-maleficence, beneficence, justice, fidelity, veracity, and affiliation (CAS, 2006).

The actualization of NASPA's shared principles have been challenged in recent years with many of the functional areas, including campus recreation, contributing to an "arms race" aimed at providing students with publically perceived opulent amenities, often referred to as the "Climbing-Wall Wars", "Lazy River Lures", "Amenities Arms Race" and "Country-Club Environments" (Blumenstyk, 2015; Coleman & Vedder, 2008; Rossie, 2014; Stripling, 2017). To combat the growing skepticism, the field of campus recreation universally adopted operational practices that regulated facility access in order to legitimize the value to the student experience. Students are required to present, or "swipe", their student identification card every time they enter the recreation center in order verify they have paid the student fee that funds the campus recreation department. Due to this unique practice, campus recreation departments gain access to student data related to their rates of participation. To complement the established practice of reporting on student participation statistics, leaders in campus recreation developed an array of surveys that measured the student's reception of various recreational elements. This two-prong approaches to measuring student engagement allows for reporting on outputs and outcomes in a way that is unique to campus recreation departments.

In 2005, Juliette Moore, director of campus recreation at the University of Arizona, and a committee of campus recreation directors began developing a broad assessment instrument intended for use at various institutions regardless of size (Forrester, 2015). The group developed a consistent, validated, and robust approach to assessing the college student's experiences with campus recreation facilities, programs, and services through a survey titled the Campus Recreation and Wellness Benchmark (CRWB) survey (Forrester, 2015). In part due to the

growing need for justifying value, a consortium was formed between NIRSA and NASPA in 2010. The consortium adopted the CRWB survey and provided it for use to institutions across the US. Championed by NIRSA, the CRWB became the established assessment instrument for all campus recreation departments between 2010 and 2018. In that time, a host of campus recreation practitioners published research based on their use of the Recreation and Wellness Benchmark, but with simple methods, narrow scopes, and limited findings. Additionally, literature is severely limited in reporting on how campus recreation is received by students identifying with historically marginalized populations.

Context

The Council for the Advancement of Standards (CAS) issued an updated version of the Standards for Collegiate Recreation Programs (CRP) in the fall of 2017 (CAS, 2017). Promoted by NIRSA, the CAS standards help guide the structure and practices of a campus recreation department. These standards reference a series of functional elements, often referred to as programs, which comprise a campus recreation department. An assessment performed by the NIRSA National Research and Assessment Committee in 2016 found that the majority of campus recreation departments are split between two specific units of supervision: facility operations (facilities) and program implementation (programs). There are several subunits that fall within each unit and are often managed by a dedicated exempt-staff member titled “Coordinator” or “Assistant Director” who possess applicable skills and experiences that relate to specific subunit. Subunits within a facilities unit consist of customer services, member management, informal recreation, maintenance and grounds, and conference services. The programs unit was found to consist of four primary subunits: intramural sports, sport clubs, fitness, and aquatics. Less prevalent but still present program areas include outdoor/adventure

recreation, special events, and marketing/communications. At institutions with larger student populations, these program areas take on department-like existence of their own due to the stark differences in content, function, and participant demographics. These “mini-departments” have wide-ranging variation with their own subunit specificity. For instance, the “fitness program” might be divided into “group fitness” and “personal training”, with dedicated professional supervisors for each of these specialized services. As a condition of hire, supervisors of these services are required to hold a multitude of nationally-recognized certifications specific to the service for which they are responsible.

The complexity of a campus recreation department ranges based on the size of the university community it serves. An assessment was performed in 2018 to determine the staffing levels of campus recreation departments at the fourteen universities that hold membership in the South Eastern Conference (SEC). The assessment revealed that a total of 260 full-time, exempt-level, professional staff work in campus recreation departments throughout the SEC, with an average of nineteen exempt-level staff members per institution. Institutional administrators are committing the fiscal and human resources necessary to deliver on cultural expectations related to the modern “gold-standard” of higher education. In turn, staff members working in a campus recreation department are expected to deliver quality student services and assess the level of impact their programs are having on the student experience.

Statement of the Problem

Campus recreation departments continue to expand in order to meet the growing and changing demand of college students (Milton, Roth, & Fiser, 2011). It is estimated that roughly twenty percent of the student population at a residential college or university will record at least one participation with campus recreation facilities, programs, or services every week of the

semester (Stankowski, Trauntvein, & Hall, 2017). For large institutions, this translates to roughly 10,000 unique individuals engaging every month. This unrelenting demand motivates campus recreation leaders to request additional resources from upper administration. Despite capturing and reporting impressive outputs, many campus recreation departments struggle to justify their requests for resources due to a lack of data supporting meaningful student outcomes. As many institutions face shrinking budgets and severe resource reductions, they are forced to critically review the value of each department or program. The absence of data needed to demonstrate the enduring impact that campus recreation services have on students, specifically students who identify with historically marginalized populations, leave the department vulnerable to a loss in financial support.

A decline in funding places leaders of campus recreation departments between the relentless student demand and upper-administrative priorities. Given the student-centered mission of most campus recreation departments, a loss in financial resources can be detrimental to achieving the outcomes they would otherwise use to defend their request for resources. To establish the priorities related to resource allocation, higher education administrators would benefit from a source of information that reported the impact recreational services have on historically marginalized populations. This resource could be used to form a mutual understanding between campus recreation practitioners and upper-level administrators, thus establishing an even foundation for which a productive relationship might be built.

Several studies have been published in recent years related to campus recreation departments achieving their desired outcomes. These studies focus on specific student populations or take place during set timeframes (Elkins, Forrester, & Noel-Elkins, 2011; Lindsey & Sessoms, 2006; Lindsey, Sessoms, & Willis, 2009; Miller, 2011). While this research

contributes to understanding the value of campus recreation, it is often limited in application or struggles to answer broad scale questions. Additionally, the field of campus recreation has limited literature related to the impact participation has on historically marginalized students. Without this information present in the literature, senior administrators defer to their campus recreation leaders to report on their impact, yet without a relative comparison for measurement. Campus recreation leaders often stand to gain by promoting their services, despite forming anecdotal opinions. In contrast, the uninformed administrator is likely to view recreation in general as a luxury or amenity easily dispensable during turbulent financial times. When asked to justify the cost associated with delivering modern recreational services to a generation of college students facing over a trillion dollars in student debt, campus recreation practitioners struggle to provide an academic source that holistically describes the impact and outcomes of their work. This places the long-term sustainability of campus recreation in jeopardy and stands to compromise the efforts of those dedicating their career to providing students with meaningful experiences.

While recreation centers and sports programs have proven popular with college students, the field of campus recreation has failed to reach a distinguished place within higher education. In the fall of 2018, it was announced that the NIRSA/NASPA consortium had been dissolved. This unexpected parting had a canonizing effect on the dataset developed through the deployment of the CRWB survey for over fifteen years. In July 2019, researchers from Michigan State University analyzed the dataset and published definitive findings related to the impact campus recreation has on student development and success. While this research significantly contributes to defending the value of campus recreation to the public and skeptical

university administrators, it fails to provide insights on how participation is impacting students who identify with historically marginalized populations.

Purpose of the Study

The purpose of this quantitative study is to advance the understanding of how college students who identify with historically marginalized populations engage with campus recreation and assess the impact campus recreation had on their recruitment, retention, academic success, connection to the campus community and quality of life.

Research Questions

This study is guided by the following research questions:

1. How have college students who identify with historically marginalized populations engaged with campus recreation over the past eight years?
2. How have campus recreation facilities and programs influenced the recruitment and retention of students who identify with historically marginalized populations over the past eight years?
3. What relationships exist between participation with campus recreation and the academic success, connection to the campus community, and quality of life as reported by students who identify with historically marginalized populations?

Conceptual Framework

The study at hand is based on a conception framework that combines Astin's Theory of Student Involvement (Astin, 1984) and the definition of identity as constructed by Strayhorn (2010). Astin (1984) describes a student's investment of energies into various experiences and the return on this investment in the form of learning and personal development. As the student invests these energies, the individual absorbs these experiences against the backdrop of their

formed identity. The student, as an individual, carries out a physiological identification with “distinguishing values, beliefs, and objective realities of a particular social group” (Strayhorn, 2010, p. 143).

In 2015, Dr. Scott Forrester, Associate Professor of Recreation and Leisure Studies at Brock University in St. Catharines, Ontario, Canada, published an influential article in the *Recreational Sports Journal* titled, “The Benefits of Collegiate Recreational Sports Participation: Results From the 2013 NASPA Assessment and Knowledge Consortium Study” (Forrester, 2015). Dr. Forrester put forth a framework for measuring participation with campus recreation and its relationship to student development and wellness outcomes. Building upon Astin’s Theory of Student Involvement, Forrester defined the “breadth” of a student’s involvement as measured by the self-reported number of campus recreation activities in which they engage and the “depth” of participation as the self-reported rates of frequency in which a student participates with campus recreation facilities, programs, or services (Forrester, 2015). The study at-hand aims to apply these same elements to understanding campus recreation’s impact on the student experience from 2010 to 2018, specifically in regard to those students who self-identify with historically marginalized populations.

Significance

This study will significantly contribute to the growing understanding of how campus recreation departments impact college students who identify with historically marginalized populations through participation in facilities, programs, and services. Knowledge produced by this study should be valuable to both senior administrators in higher education and campus recreation professionals.

This study makes a significant contribution to student affairs by examining the full-scope of the NIRSA/NASPA consortium data set and reporting on modern trends associated with the field of campus recreation, specifically in regards to the impact participation has on historically marginalized populations. Additionally, forming this understanding should assist in decisions pertaining to resource allocation intended for the advancement or expansion of campus recreation activities; experience that students both prefer and benefit from in the context of wellness. By doing so, this study stands to indirectly impact the health and wellbeing of future generations of college students, thus making a significant contribution to the long-term health of society.

While the field of campus recreation has improved its approach to research and scholarship, there still remains a practitioner stigma around the field as a whole (Haines & Fortman, 2007). A study of this significance contributes to altering this stigma while motivating future studies related to examining the student impact that derives from the field of campus recreation.

Terminology

The following terms and definitions are included to create consistency and clarify the meaning of various technical terms found throughout this study.

Academic Success: A student achieving traditional milestones associated with higher education including, but not limited to, a high grade point average (GPA), progression toward degree acquisition, and graduation.

Campus/Collegiate Recreation: The collective body of similar units within higher education that provide recreation, sports, and fitness related facilities, programs, and services.

Campus Labs, Baseline: The web-based software that houses the RWB and the data produced throughout its use from 2006 – 2018.

Facility Operations: The base unit of a campus recreation department that often includes conference services, customer service, informal recreation, member management, marketing, maintenance and grounds, and special events.

Health and Wellbeing Outcomes (HWOs): The aggregate of elements listed in the RWB associated with a person's health and wellbeing including the ability to get a good night's sleep, athletic ability, balance/coordination, concentration, feeling of well-being, fitness level, overall health, physical strength, self-confidence, sense of adventure, stress management, and weight control.

Historically Marginalized Populations: Groups of people that identify with any or all of the following: non-white, non-male, LGBTQ, first-generation college students.

NIRSA/NASPA Consortium: The partnership established in 2010 between NIRSA (Leaders in Collegiate Recreation) and NASPA (Student Affairs Professionals in Higher Education).

Program Areas: The base unit of a campus recreation department that often includes aquatics, fitness, intramural sports, outdoor adventures, sport clubs.

Student Learning Outcomes (SLOs): The aggregate of elements listed in the RWB associated with personal skill development including the ability to develop friendships, ability to multitask, academic performance, communication, group cooperation, leadership skills, multicultural awareness, problem solving, time management, respect for others, and sense of belonging.

The Recreation and Wellness Benchmark (RWB): The 135-question survey instrument used between 2006-2018 and sponsored by the NIRSA/NASPA Consortium from 2010 – 2018.

Recruitment: The act of attracting potential students to enroll and attend an institution of higher education.

Retention: An institution's ability to reenroll students from year-to-year, with special regard paid to the reenrollment of first-time freshmen students for a second year.

CHAPTER 2. LITERATURE REVIEW

Background

The following chapter presents a review of the literature pertaining to the impact campus recreation has on college students. In general, the fitness industry and recreational sports programs have thrived within the 21st century. The majority of American's have embraced the reality that poor diets and sedentary lifestyles can be harmful to one's health and wellbeing (Pew Research Center, 2016). While it might seem intuitive to include an ample examination of the general benefits associated with recreational activities, campus recreation as a field is unique given its connection to higher education. For example, college students' motivation to utilize a campus recreation center or participate in campus recreation programs does not correlate with their level of satisfaction with experiences doing so (Osman, Cole, & Vessell, 2006). This counterintuitive finding is likely due to the universal funding model in which all students pay mandatory fees that fund their campus recreation department (Osman, Cole, & Vessell, 2006). Additionally, many of the primary benefits associated with campus recreation participation pertain directly to the college environment, including increased recruitment of students, improved retention of freshmen, enriched sense of campus community, and an enhanced academic performance (Forrester, 2015). Given the unique nature of these outcomes, it is not appropriate to include a review of the research related to the benefits of comparable fields such as private sports clubs and public parks and recreation departments. Instead, a focused review of the literature related to the impact of campus recreation on a number of established outcomes was performed to support this study.

As discussed, roughly three-quarters of all campus recreation departments exist as a functional unit within a division of Student Affairs (Milton, Roth, & Fiser, 2011). NASPA, one

of the two national association for practitioners working in student affairs, publishes the Journal of Student Affairs Research and Practice (JSARP) (NASPA, n.d.). Within the past nineteen years, JSARP has published seventy-seven volumes and over 800 articles (NASPA, n.d.) related to the field of student affairs. Only five articles published in the JSARP have been dedicated to examining the impact that campus recreation has on the student experience (NASPA, n.d.). The American College Personnel Association (ACPA), another association dedicated to the field of student affairs, publishes the Journal of College Student Development (JCSD). Established in 2003, the JCSD has to date published 124 volumes and 1,285 articles. The JCSD has only published one article regarding the impact of campus recreation on students (ACPA, n.d.). Despite the well-established reporting line between campus recreation and student affairs, there remains a severe lack of published research on campus recreation within the primary journals of student affairs.

Due to its size, complexity, and specialized nature, the field of campus recreation has emerged alongside the field of student affairs, instead of directly within it. This concurrent growth stimulated the development of a publication dedicated solely to the field of campus recreation. In 1979, the first volume of the “Recreational Sports Journal” (RSJ) was produced by the NIRSA National Headquarters and distributed to institutional members across the US (Granholm, 2019). The publication has gone through a variety of transitions over the course of time. In 2000, the RSJ became dedicated to publishing peer-reviewed research articles pertaining to the field of campus recreation (Granholm, 2019).

When performing a coding analysis of the 250 articles published within the thirty-eight volumes of the RSJ from 2000–2018, a host of themes emerge. A total of six themes were identified regarding the impact of campus recreation, including general impact, impact on

recruitment, retention, academic success, building a connection to campus and promoting a quality of life. Articles comparing and contrasting the impact of participating with campus recreation among various demographics were also identified. The five research articles published in the JSARP and the one article published in the JCSD were coded accordingly and included in this literature review.

The themes identified in the literature were also found as dominant sections of the Campus Recreation and Wellness Benchmark survey, therefore they provide a suitable framework for which to build a complete and thorough review of the existing literature.

General Impact

Student use of campus recreation facilities, programs, and services is essential to achieving any and all measurable outcomes. Student engagement becomes the gateway to having a meaningful impact, thus early research focused on measuring students' participation rates and patterns. In 2003, NIRSA commissioned the Kerr-Downs Research firm to perform a study on the ways students were participating with campus recreation programs across the US (Downs, 2003). The study defined a student participant as someone who engaged with campus recreation under a variety of set parameters, such as students who participated in intramural sports and/or sport clubs through organized team or individual competitions (Downs, 2003). The study also defined student participants as those who entered a recreation-managed facility by swiping their student identification card through an access-control gate (turnstile), students who enrolled in group fitness classes, and students who participated with the outdoor recreation program (Downs, 2003).

Given the technological limitation of the time, the study relied on students' self-reported rate of participation under the stated parameters. A total of sixteen institutions were selected to

contribute to the study. Institutions were selected based on geographic location, sector, setting, and institution-type (2-year vs. 4-year). The Kerr-Down Research group solicited assistance from the campus recreation director at each of the selected institutions in order to carry out data collection. Interviewers were strategically placed at various locations throughout the institutions where they engaged with students at random to collect information about the student's participation with campus recreation. A total of 2,673 interviews were performed, giving the study a 95% confidence level and a sampling error of plus or minus 1.9% (Downs, 2003). The study categorized students who participated with recreational sports and activities into three segments: heavy users, light users, and non-users. heavy users were defined as students who reported the highest use of recreational services, light users were defined as students who reported less frequent use of recreational services than heavy users, and non-users were students who reported not using recreational services at all (Downs, 2003). Among all institutions, the study found that 21% of students were heavy users, 54% of students were light users, and 25% of students were non-users (Kerr-Down, 2003). The Kerr-Downs study was primarily focused on examining the ways students prioritize campus recreation among other elements of their college experience, filtered by heavy, light, and non users of campus recreation, therefore it included a limited examination of student participation rates.

A more modern examination into students participation rates finds a stark contrast with the findings reported in the Kerr-Downs study. According to data reported by 300 four-year public or private universities in the 2015-2016 NIRSA Institutional Data Set (IDS), a median of 54% of students participate with their campus recreation department at least once per year (Granholm, 2019). For universities with student enrollment exceeding 25,000 students, annual participation jumps to two-thirds of all students (Granholm, 2019). Both the 2003 Kerr-Downs

study and the statistics reported in the NIRSA IDS suggest that the majority – whether simple majority or mass majority - of college students are participating with campus recreation at least once per year.

While it is customary for campus recreation departments to report participation statistics as key performance indicators, many universities have instituted a culture of accountability that requires the assessment of outcomes related to student learning and engagement. According to the CAS Standards, a campus recreation department should strive to enhance the mind, body, and spirit of students (CAS, 2017). This outcome is achieved in part by influencing a student's routine exercise habits. In 2004, researchers at West Virginia University performed a study into the ways a new student recreation center (SRC) influenced exercise patterns of college students (Zizzi, Ayers, Watson II., & Keeler, 2004). The study categorized students into two groups, users and nonusers, with users being defined as students enrolled full-time who used the SRC more than 3 times per week within the first nine months of the SRC being open. Nonusers were defined as students enrolled full-time that use the SRC fewer than three times per week through the first nine months of the new center opening (Zizzi, Ayers, Watson II., & Keeler, 2004). All students were asked if they exercised regularly prior to the opening of the SRC, defined as three or more times per week. The study found that 40% of users were not exercising regularly prior to the SRC opening, while 78% of nonusers did not engage in any kind of physical activity on a routine basis prior to opening the SRC (Zizzi, Ayers, Watson II., & Keeler, 2004). Three-quarters of nonusers cited “no time” as the reason for their sedentary lifestyle (Zizzi, Ayers, Watson II., & Keeler, 2004). The results of this study indicate the presence of a new student recreation center positively influences the physical behavior of college students.

Although the research suggests a student's exercise patterns are influenced by the presence of a new recreation center, special consideration should be paid to various demographics. In 2011, Alexandra Henchy of the University of Kentucky researched the ways participation with a Campus Recreation department varied between class level, gender, and living accommodations (Henchy, 2011). Through the use of the RWB, Henchy was able to procure 316 responses and 237 completed surveys (Henchy, 2011). Through analyzing the self-reported rate of participation with campus recreation (participation), the researcher concluded that participation did not differ significantly based on gender (Henchy, 2011). Roughly 75% of female students and 88% of males reported having participated with campus recreation throughout the year (Henchy, 2011). Further analysis revealed significant difference existing in participation among the five distinct class levels: 97% of freshmen, 84% of sophomores, 92% of juniors, and 85% of seniors reported participating with campus recreation, while only 69% of graduate students reported using the student recreation center (Henchy, 2011). The study also found difference existing between students living on-campus and students living off-campus. Roughly 95% of students living on-campus reported using the student recreation center, compared with 75% of students living off-campus reported having participated. The findings in this study help describe the demographics of campus recreation participants at a large southeastern university. The most active student participants tend to be first-time freshmen male students living on-campus (Henchy, 2011).

Recruitment

As a mandatory stop for most campus tours, modern campus recreation facilities are built to impress. Architects intentionally include design elements that create an “aw effect”, stimulating a range of emotions in potential students and family members, most notably, intrigue.

It is well established that the majority of high school athletes fail to compete at the collegiate level. Yet, these students still want to remain physically active in a variety of ways (Bryant, Banta, & Bradley, 1995). The programs and services housed in a campus recreation facility provide continued sporting experiences for these former student-athletes. Given the full-time dedication required to sport, the presence of these sports-based departments have an intuitive impact on recruiting students who played high school sports.

Researchers in the field have attempted to measure the importance of campus recreation on a student decision to attend a particular institution. Using questions directly from the Campus Recreation and Wellness Benchmark (CRWB) survey, Lindsey and Sessoms (2006) surveyed 300 students at a small, southeastern university. Results of the study found that approximately 70% of students indicated the availability of recreational sports facilities and programs were important at some level to their decision to attend their institution (Lindsey & Sessoms, 2006). Further breakdown of importance found that the majority of students (59%) indicate either “somewhat important” or “important”, while only 10% of students indicated “very important” (Lindsey & Sessoms, 2006). The same study found that 100% of freshman students indicated recreation facilities and programs were important to their decision to attend with 50% indicating “somewhat important” (Lindsey & Sessoms, 2006). While these results highlight the importance of campus recreation on student recruitment, the study is limited in its size, scope, and application. Further analysis of the impact is needed to establish a more concrete conclusion.

A more robust study using the same questions from the CRWB survey analyzed responses from students at two public institutions that differed by size of student enrollment (Kampf, Haines, & Gambino, 2018). Institution 1 was a public institution in the northeast with an enrollment of 8,000 students, while Institution 2 was a public institution located in the Mid-

Atlantic Region with an enrollment of 17,000 students. The studies primary focus was related to the impact campus recreation facilities have on the students reported level of importance to their decision to attend. Institution 1 is equipped with a new \$44 million dollar, 140,000 square foot student recreation center (SRC). Prior to the building of this facility, the campus recreation department shared facilities with the intercollegiate athletic department. Institution 2 built a \$28 million dollar SRC in 2012, making it roughly six years old by the time the survey was distributed. Each of the institutions distributed the survey question asking, “How important were campus recreation facilities in your decision to attend this institution?” For Institution 1, roughly 84% of freshman students indicated campus recreation was at least somewhat important to their decision to attend, while at Institution 2, roughly 92% of freshmen students indicated at least somewhat important (Kampf, Haines, & Gambino, 2018). The results of this study corroborate the findings published by Lindsey & Sessoms in 2006, further emphasizing the important role that campus recreation plays in recruiting students to attend colleges and universities.

It is easy to see how the size and versatility of the modern campus recreation center attracts young, energetic students. It is more challenging to understand how recreation programs impact the student decision to attend. It becomes increasingly complex when considering how demographic differences change the effect on recruitment. Given the recently identified decline in male enrollment across higher education, researchers at Elon University examined the impact of campus recreation, specifically Club Sports, on the recruitment of male students. Weaver, Forte, and McFadden (2017) took an innovative approach to analyzing the topic by performing a case study analysis on how higher education administrators perceive the role of club sports in recruiting male students (Weaver, Forte, & McFadden, 2017). Four different institutions were used in the study, each representing different enrollment sizes and male-to-female ratios. A total

of seventeen administrators were engaged in 60-minute semi-structured interviews and categorical indexing was used to analyze the data. The study found that club sports are perceived as most effective in their role of recruiting male students from small, male-specific markets (Weaver, Forte, & McFadden, 2017). The study also found that while administrators acknowledge the impact campus recreation has on recruitment, specifically with male students, the resources needed to bring the department to scale are often unavailable (Weaver, Forte, & McFadden, 2017). The results of this study suggest administration is reluctant to dedicate additional resources to campus recreation departments (Weaver, Forte, & McFadden, 2017). The administrators interviewed offered the belief that other techniques are more effective in recruiting male students, but failed to articulate those techniques (Weaver, Forte, & McFadden, 2017).

When combining the established importance on the student's decision with the impact on recruiting as acknowledged by university administrators, we find a strong connection between campus recreation and recruitment of students, specifically male students. However, the conclusions provided in the existing literature are narrow in scope and lack applicability, thus ample room exists for further examining the role campus recreation plays in the recruitment of college students.

Retention

An institution's ability to retain admitted students is one of the most widely accepted metrics for reporting institutional quality and performance. Researchers and practitioners in the field of Student Affairs have long studied the field's impact on improving or maintaining student retention rates. As a functional unit within most Student Affairs divisions, campus recreation plays a central role in achieving desired retention rates. Based on the fee-funded financial

model, membership to campus recreation facilities and programs is directly linked to an individual's student status. Therefore, the modern campus recreation department contributes to the exclusivity that distinguishes higher education from all other industries (Hains, 2001). It is reasonable to infer this mechanism contributes to a student's decision to return to school each semester. Practitioners working in the field of campus recreation have first-hand knowledge of the positive impact campus recreation has on student retention. The prevalence of these anecdotal conclusions have stimulated an array of research on the topic, thus making the formal study of campus recreation's impact on retention one of the most popular topics found in the literature.

The articles included in this literature review related to retention are uniformly framed by Tinto's Interactionalist Theory of Student Departure (Tinto, 1975). Tinto (1975) theorizes that a high degree of integration into the life of an institution, specifically its social life, improves a student's commitment to that institution, thus increasing the likelihood the student will be retained. Many campus recreation facilities serve as centers of social interactions between students (Zizzi, Ayers, Watson, & Keeler, 2004). Therefore, the environment that a campus recreation department provides is conducive to the socialization of students at that specific institution. According to Tinto (1975), the subsequent effect is an improved commitment to the school, leading to an increased chance of persisting from year-to-year as an actively enrolled student. Researchers at the University of Minnesota applied this rationale to their examination of how students' rate of participation with their campus recreation facility relate to retention of the first-time freshmen cohort (Huesman, Brown, Lee, Kellogg, & Radcliffe, 2009). Using each student's unique participation count on record with the campus recreation department, the researchers established a logit model using retention rate as a binary dependent variable. Their

logit model correctly identify 98.5% of the students who were retained (Huesman, Brown, Lee, Kellogg, & Radcliffe, 2009). Furthermore, the analysis found that every twenty-five recorded participations with the campus recreation department above the mean increased a student's predicted probability of being retained for their sophomore year by 1% (Huesman, Brown, Lee, Kellogg, & Radcliffe, 2009). For perspective, the researchers also found that every "D" grade earned decreased the probability of a student being retained to their sophomore year by 4% (Huesman, Brown, Lee, Kellogg, & Radcliffe, 2009). These results indicate a correlation exists between participation with a campus recreation department and the rate of retention for first-time freshmen students. One limitation cited in the study is the relatively small sample size (n=5,211) when concluding applicability to the entire field of campus recreation.

In 2015, Forrester published the results of a study commissioned by the NIRSA National Headquarters in which Forrester examined the aggregate results of the 2013 NIRSA/NASPA National Consortium Study. Through the distribution of the CRWB survey, a total of 33,522 students from thirty-eight colleges and universities from across the US provided feedback regarding their participation with campus recreation (Forrester, 2015). Roughly 67% of students indicated that campus recreation programs were at least somewhat important to their decision to remain at their institution (Forrester, 2015). Additionally, 74% of students indicated campus recreation facilities were at least somewhat important to the decision to remain at their institution (Forrester, 2015). Using Astin's Theory of Student Involvement, Forrester (2015) defined the "depth of involvement" as the self-described frequency of participation with campus recreation and the "breadth of involvement" as the self-described number of campus recreation activities in which a student participated (Forrester, 2015). The results of a Kruskal-Wallis analysis of variance showed a correlation between an increasing breadth or depth of participation and the

importance students place on campus recreation programs and facilities in their decisions to remain at their institution (Forrester, 2015). Given the size of the survey sample, the results of the Forrester study became commonplace knowledge among NIRSA professional members as they championed the impact of campus recreation on student success.

Modern recreation facilities are equipped with state-of-the-art technologies that verify a person's membership with the campus recreation department. From the general practice of requiring the participant to swipe their student ID to high-tech biometric scanning that uses the student's finger, hand, or retina, the science behind verifying identification has exploded in the past decade. Behind each ID verification comes an immense amount of data collection related to the individual scanning in. The leading member management software companies serving campus recreation have perfected the ability to integrate student registrar information with campus recreation access data. Campus recreation professionals, immersed in a culture of accountability, rely on participation outputs to measure key performance indicators and assess program objectives. Additionally, these technological advancements make it possible to measure the correlation between campus recreation participation and retention of first-time freshman without the need to survey students, thus mitigating the limitations that come with survey research. Kampf and Teske (2013) studied the behavior of 3,809 first-time freshmen at a large, four-year, residential college. The institution reported that 69.5% of the freshman cohort was retained for a second year. Of the group of students retained, 98.1% recorded at least one swipe with the campus recreation department during their freshman year (Kampf & Teske, 2013). Additionally, the results of a binary logistic regression analysis found that first-time freshmen students who swipe in at least 1 time with the campus recreation center were 1.5 times more likely to return the following year (Kampf & Teske, 2013).

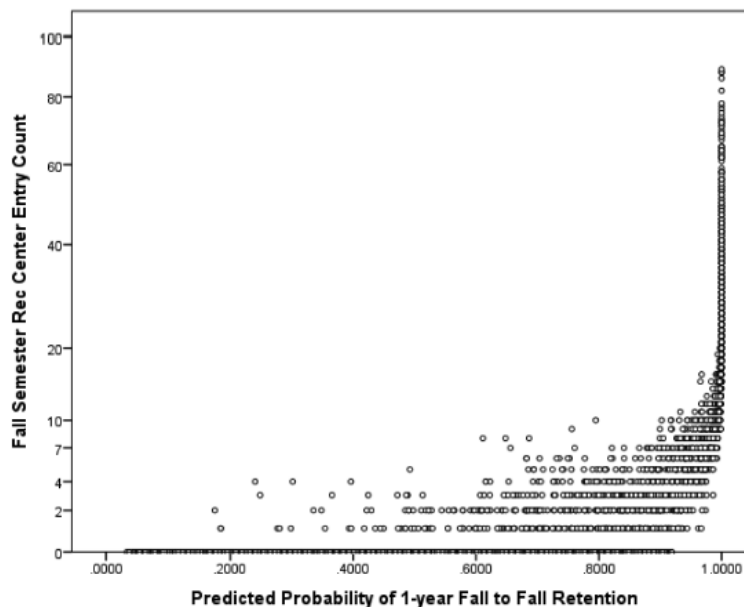


Figure 1. 1 Kampf and Teske (2013) visual demonstration of the relationship between collegiate recreation facilities usage and predicated probabilities of retention calculated from a logistic regression.

This graph illustrates the positive correlation the researchers found to exits between students engaging with the campus recreation department and their return to school for a second year (Kampf & Teske, 2013). The unique ability for researchers to measure objective statistics reinforces the notion that campus recreation is having a direct impact on student retention rates.

While the quantitative research suggests that participating with campus recreation has a direct impact on student retention, the question remains as to why participation is improving retention rates. A study performed by David Hall (2006) attempted to answer this question through qualitative methods, specifically the use of in-depth interviews with students who participate with campus recreation. Hall performed interviews with eight students, four men and four women, and used the same seven-question interview protocol to collect data related to the

original research question, “How is participation in campus recreation related to retention of students?” (Hall, 2006, p. 42). Open coding then axial coding were used to identify central themes throughout the data (Hall, 2006). Hall concluded that “Sense of Community at the university” was the central theme to emerge from the data (Hall, 2006, p. 43). Hall states, “The codes of friendship, meeting new people, relationships forged, and socialization were intertwined. Those experiences were a direct result of participating in the recreation program and in turn helped the student develop the sense of community identified in the interviews.” (Hall, 2006, p. 43). When asked directly how participation with campus recreation impacted their decision to stay at the university, participants reinforced the sense of community as the primary reason participation had an impact on their decision to continue at the institution (Hall, 2006). These results reinforce the application of Tinto’s theory, clearly demonstrating how a campus recreation department facilitates an environment in which a student develops a sense of belonging and connection to their campus. The result is a greater desire to succeed academically in order to remain part of the campus community, thus driving up the rate of retention for students who engage with campus recreation departments.

A large portion of the literature relates both recruitment and retention as a unified force, inextricably linked and directly related to student success (Lindsey & Sessoms, 2006; Weaver, Forte, & McFadden, 2017; Kampf, Haines, & Gambino, 2017). Building upon Hall’s study, John Miller (2011) surveyed 534 students and received a 76% response rate. From the results of his study, and in conjunction with previous research, Miller (2011) published his Attraction, Bonding Involvement, Belonging and Persistence (ABIBP) Cycle (see *Figure 1.2*). This depiction articulates the mechanisms at play that directly relate to improved student retention through the implementation of campus recreation facilities, programs, and services.

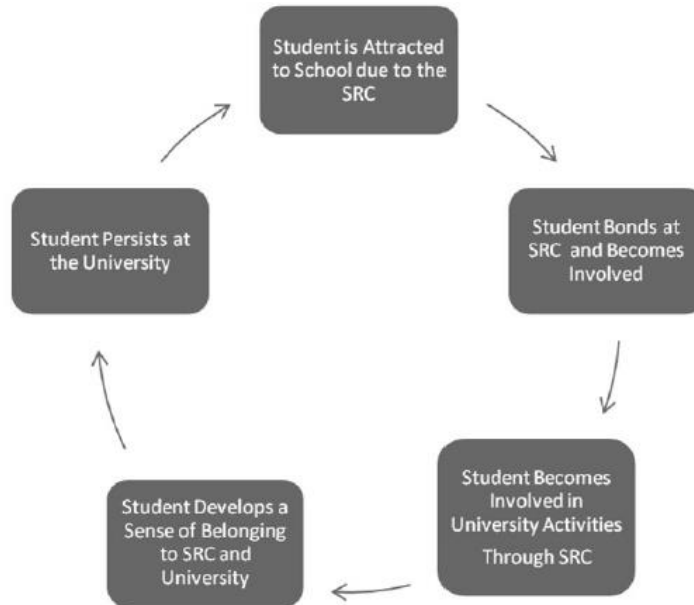


Figure 1.2 Miller's Attraction, Bonding Involvement, Belonging, and Persistence (ABIBP) cycle.

As stated previously, the existing literature is saturated with the examination of the impact campus recreation has on retention rates. Limitations found to exist in the literature are similar to those found in most social science studies, including lack of a causal relationship found in the quantitative studies, as well as the subjectivity bias of the researcher performing qualitative examinations. Given the accepted nature of these limitations, the existing literature suffices in providing ample evidence there is a connection between participating with campus recreation and the retention of students.

Academic Success

In its most elementary form, a student's success is based on the learning that happens as result of being submersed in an educational environment (Nunn, 2014). While learning is at the heart of all education, institutions of higher education are expected to transform students into

critical thinkers, content experts, and citizens of the world through a variety of curricular, co-curricular, and extracurricular experiences. In order to remain accountable to their mission, institutions of higher education have adopted a variety of objective metrics intended to measure academic performance.

Chief among these metrics is grade point average or GPA. A “term GPA” represent the average of all final grades received at the conclusion of a specified period of time or “term”. A “cumulative GPA” represents the average of all grades received in pursuit of a degree. While controversial in progressive circles, GPA is still widely accepted as a primary indicator of academic success. Tinto (1975) reports that GPA is “the single most important factor in predicting persistence in college” (p. 104). Essentially, grades are a reflection of a student’s classroom performance, therefore a student decision to leave or remain at an institution is directly impacted by the grades they earn. For students aspiring to attain education beyond a bachelor’s degree, maintaining a high cumulative GPA is critical to being admitted to a graduate program of choice. Ultimately, GPA is the most socially recognizable method of reporting on an individual’s performance as a student.

The impact of extracurricular engagement on GPA has been thoroughly explored by academics for over fifty years. A plethora of highly respected scholars have found positive relationships existing between student involvement in out-of-class activities and student success (Astin, 1997; Bowen, 1977; Boyer, 1987; Pace, 1990; Pascarella & Terenzini, 1991; Tinto, 1975). The impact of participating within a campus recreation department has also been explored, but to a lesser extent. Belch, Gebel, and Maas (2001) performed an analysis of three different first-time freshmen cohorts at the same institution, each cohort separated by a year: 1993, 1994, 1995. The researchers looked at the way each cohort’s mean GPA related to the

cohort's engagement with Campus Recreation Services (CRS). The researchers found that little difference existed between the mean GPA of first-time freshmen who used CRS (GPA of 2.57) and those who did not use CRS (GPA of 2.55) (Belch, Gebel, and Maas, 2001). However, they found a significant improvement to GPA existed for first-time freshmen based on the number of participations recorded with CRS (Belch, Gebel, & Maas, 2001). First-time freshmen who engaged with CRS one to four times had a mean GPA of 2.5; first-time freshmen who engaged with CRS five to nineteen times had a mean GPA of 2.55; first-time freshmen who engaged with CRS twenty to forty-nine times had a mean GPA of 2.66; first-time freshmen who engaged with CRS fifty of more times had a mean GPA of 2.73 (Belch, Gebel, & Maas, 2001). While significant, this study used uneven participation quantities to compare GPA differences and failed to draw causal links between campus recreation participation and earning better grades.

Another study performed by researchers at East Carolina University examined the relationship between the students' healthy behaviors, including engagement with campus recreation, and a student's GPA (Becker, Cooper, Atkins, & Martin, 2009). The results of a multiple linear regression analysis found a .345 correlation ($p < .000$, $r = .345$) existed between students' health behaviors (student's mean score on the Salutogenic Wellness Promotions Scale or SWPS) and their GPA (Becker, Cooper, Atkins, & Martin, 2009). This is to say the study reported a .345 change to GPA for every 1 unit increase on the SWPS. Given the well-established relationship between health/wellness and participation with campus recreation, the correlation reported in this study strongly indicates that GPA is positively impacted by a student's participation with campus recreation.

A deeper inquiry can be performed into the ways campus recreation and GPA impact student engagement rates. A study by Mayers, Wilson, and Potwarka (2017) used Hayes'

PROCESS macro where both GPA and campus recreation participation serve as independent variables and five of Krause and Coates Student Engagement Scales serve as dependent variables (Mayer, Wilson, & Potwarka, 2017). Results of the analysis indicate that campus recreation participation has a positive influence and a direct moderating effect, and significantly more so for first-year students with low GPAs, on transition engagement, peer engagement, intellectual engagement, and beyond-class engagement (Mayer, Wilson, & Potwarka, 2017). Participation with campus recreation benefits the ways that first-time college students are engaging with their campus environment, specifically for those students earning lower GPAs (Mayer, Wilson, & Potwarka, 2017). As cited by Tinto (1975), college students with lower GPAs are more likely to discontinue their educational pursuit, especially those students who earn low GPA in their first year in college. The results of this study suggest that campus recreation acts as an intervention for first-year students earning low GPA, thus saving them from dropping out after a subpar academic performance in their first year of college.

Other metrics associated with academic success have been assessed relative to student participation with campus recreation, such as the passing of classes (credits) and a student's persistence from one year to the next or completion/graduation of a degree program. In a study at a large public university in the southeast, researchers isolated the student record of engagement with facilities, group fitness, and intramural sports and transformed the data to reflect total contact hours with a campus recreation department (Sanderson, DeRousie, & Guistwite, 2018). Additionally, the study listed a wide array of control variables for students with at least one contact hour, specifically demographics (gender, age, race, class level, housing type) and pre-college academic metrics (high school GPA and SAT scores). Each term GPA (Fall and Spring) as well as the full academic year GPA were used as one dependent variable in

the study (Sanderson, DeRousie, & Guistwite, 2018). Additionally, percentage of credits passed was used as a second dependent variable and persistence or graduation, reported in a binary with the student moving from one class level to the next (1) or leaving school (0) served as the third dependent variable (Sanderson, DeRousie, & Guistwite, 2018). In addition to reporting the descriptive statistics related to the control variables, the study provided a comprehensive slate of inferential statistics. These included results of an analysis of variance, multivariate linear regression analysis for the first two dependent variables, and a logistic regression for the third dependent variable. Each analysis was performed with and without the control variables acting as covariates. Results of the study showed that each independent variable was statistically significant across the control variables with the exception of race, therefore it was removed from the regression analysis (Sanderson, DeRousie, & Guistwite, 2018). The multivariate linear regression analysis showed a weak, but positive, correlation existed between contact hours with campus recreation and GPA, specifically for each one-hour increase in contact hours, GPA was anticipated to increase by 0.06 (Sanderson, DeRousie, & Guistwite, 2018). The overall model was reported to only predict a very small amount of variance in GPA with an r-squared score of 0.01. Like with GPA, a weak, but positive correlation was identified between contact hours with campus recreation and percentage of credits passed irrespective of control variable influence (Sanderson, DeRousie, & Guistwite, 2018). The results of the logistic regression using persistence or graduation as the dichotomous dependent variable yielded statistically significant findings. The study reported the results of the logistic regression indicate students with one or more contact hours per week were 49% more likely to persist or graduate when compared with students who recorded 0 contact hours (Sanderson, DeRousie, & Guistwite, 2018). Once demographic and pre-college control variables were added to the regression analysis, students

with at least one contact hour was 53% more likely to persist or graduate when compared with students without any contact hours (Sanderson, DeRousie, & Guistwite, 2018). When the researchers ran the regressions across class-levels, they found that contact hours had a significantly greater reaction on the outcome variables for lowerclassmen when compared with their impact on upperclassmen (Sanderson, DeRousie, & Guistwite, 2018). Given the researchers including several control variables and covariates in their inferential analysis, they conclude by saying, “the results indicate there is a significant positive relationship between colligate recreation and academic success.” (Sanderson, DeRousie, & Guistwite, 2018, p. 50).

The existing literature suggests that students participating in campus recreation facilities, programs, and services are experiencing a higher degree of academic success on a variety of levels when compared with students who do not participate with campus recreation. The literature is absent of a qualitative examination of how participation with campus recreation is linked to improved academic performance. Consequently, the existing research is limited in only providing correlation and not causation between campus recreation participation and student success. Nonetheless, the conclusions offered are significant when reporting on the value of campus recreation as a whole.

Connection with Campus Community

A prime way to contextualize the college experience is to associate it with the connection a student feels to their campus community. This connection is largely based on a student’s successful socialization within the culture and environment of the institution as a whole (Tinto, 1993). The literature suggests that participating with campus recreation enhances a student’s personal and social diversity (Bradley, Phillipi, & Bryant, 1992; Bryant and Bradley, 1993; Milton, 1993). A student’s growth in these areas are likely to establish an intrinsic connection to

their institution, in turn resulting in a higher level of satisfaction with their college experience (Haines, 2001).

A study published in the NASPA Journal highlights the impact that participating in intramural sports - a staple program in a campus recreation department - has on a student's sense of belonging (Artinger, Clapham, Hunt, Meigs, Milord, Sampson, & Forrester, 2006). The study found that, while controlling for demographic variables, the more students participated in intramural sports, the higher levels of social growth and satisfaction they reported (Artinger, Clapham, Hunt, Meigs, Milord, Smapson, & Forrester, 2006). Forrester (2015) goes on to showcase the impact of diversifying experiences with campus recreation in his finding that roughly nine out of ten students feel campus recreation had at least some impact on their sense of belonging/association within their institution.

The existing literature relies heavily on Astin's (1984) Student Involvement Theory that states "the amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program" (p.298). Although campus recreation and its various programs are not traditionally seen as educational, the cause-and-effect of frequent engagement clearly represents the applicability of Astin's theory. Given the established exclusivity of access to campus recreation resources, and the sprawling nature of facilities and programs, it is logical to see how students with high rates of participation feel better acclimated to the campus environment. While the literature appears ample in examining this topic, it fails to demonstrate how this impact has fluctuated across a span of time.

Quality of Life

According to the Center for Disease Control and Prevention (2015), the benefits of exercise and physical activity are widely accepted by the US public. What is less understood is how those benefits are represented in the seven dimensions of wellness as identified by Cereola, Snyder, Cereola, and Horton (2014). These dimensions include physical wellness, intellectual wellness, social wellness, occupational wellness, spiritual wellness, emotional wellness, and environmental wellness (Cereola, Snyder, Cereola, & Horton, 2014). The culmination of these seven dimension represents synergistic and holistic wellness or, more actionably, the quality of one's life. It is intuitive to associate participating with a campus recreation department to a student's physical wellness given the kinesthetic actions underscoring the facilities, programs, and services. However, social and emotional wellness are not as intuitively connected to participating with campus recreation. As the challenges continue to mount surrounding the mental health of college students, prioritizing student access to campus recreation departments has become a mitigation strategy for many universities.

Researchers in the field of campus recreation have contributed significantly to understanding the connection between engagement with campus recreation departments and mental health. A study published in 2000 showed a positive correlation between participating with a campus recreation department and improvements to a student's stress-induced anxiety (Kanters, 2000). The study participants were asked to complete paper-and-pencil pretest survey that collected data on their demographics, personalities, physical health, and perceived social support (Kanters, 2000). The participants were each given two notebooks and instructed to record their daily behaviors related to changes in anxiety and leisure behaviors over a 17-day span of time leading up to the week of final examinations (Kanters, 2000). The analysis

controlled for many intervening variables including age, gender, and perceived social support (Kanters, 2000). The results of the regression indicated a 0.71 Person product-moment correlation between sports participation and decreased anxiety levels (Kanters, 2000). With such a high correlation, this analysis provided ground-breaking support for the impact recreational sports participation has on decreasing the anxiety experienced by college students. While the results clearly demonstrate a positive relationship exists, the study was hampered by its small number of participants; only forty-four students contributed to the findings, clearly limiting the applicability of the results.

A more direct and measureable outcome of participating with campus recreation is psychosocial health elements listed in the fourth level of Maslow's (1943) Hierarchy of Need, specifically self-esteem. As college students enter an uncertain environment, they cling to the familiar and for many, sports and exercise have been a central part of their personal identity for the extent of their conscious life. Additionally, the desire to attract a mate is amplified in the traditional college-age individual, thus resulting in a specific focus around maintaining the socially-constructed ideal outward appearance (Sanchez, Good, Kwang, & Saltzman, 2008). These elements combine to motivate high-rates of participation with a campus recreation department. A significant amount of research has been conducted to measure how participation impacts self-esteem and other psychosocial variables in college students who participate with campus recreation. A consensus is reached within the literature that a healthy level of participation and engagement in fitness and sports has a positive impact on the self-esteem levels of college students (Simmons & Childers, 2013; Suttikun & Chang, 2016; Watson, Ayers, Zizzi, & Naoi, 2006). Additionally, Forrester (2015), through use of the CRWB survey, offers a finding that self-confidence positively correlates with the depth (frequency of participation) and

breadth (variation of engagement) of participation with a campus recreation department across demographics and user groups. While the literature appears confident in its suggestion that participating with campus recreation departments positively impacts a student's quality of life, there still remains room for examination considering the limited sample size of students examined throughout each article.

Impact across Demographics

It is essential to examine the literature through a variety of perspectives. Unfortunately, there is a very limited amount of research exploring how participating with campus recreation impacts different groups of students. A total of three articles were found that specified impact of participation by a specific group, two of which explored the African-American student experience, while the other examined the topic from a gender-binary lens.

Lindsey, Sessoms, and Willis (2009) performed research into the importance that campus recreation facilities and programs had to African-American males and females. The researchers found that African-American males were significantly more likely to indicate importance associated with recruitment, retention, importance after graduation, as well as more likely to indicate frequent participation (Lindsey, Sessoms, & Willis, 2009). The study was limited by the sample size (80 males; 81 females) and selection process (convenience sampling). Additionally, the study failed to include a comparison with other racial demographics across the institution. In a different article, Lindsey (2012) explores the difference between African-American males and females by using the skills-development section of the CRWB survey. Overall, both demographics indicated high rates of development in communication skills, respect for others, sense of accomplishment, leadership, and self-confidence (Lindsey, 2012). Males indicated being motivated by reasons associated with themselves, while females also included community

and societal pressures (Lindsey 2012). Again, the study was limited by engaging only fifty-five males and 189 females through convenience sampling.

More recently, researchers have explored the perceived impediments to participation through the lens of male and female students. Researchers at the University of Texas, Arlington surveyed 2,400 of the most active participants to understand the reported constraints to maximizing the usefulness of campus recreation facilities, programs, and services (Stankowski, Trauntvein, & Hall, 2017). They reported that females were twice as likely to indicate their participation was impeded by a limited understanding and comfort with the complex use fitness equipment (Stankowski, Trauntvein, & Hall, 2017). Conversely, male students were more likely to express a willingness to participate in unfamiliar sports or exercise-related activities when compared with female students (Stankowski, Trauntvein, & Hall, 2017). The application of these findings are most pertinent to practitioners working in the field of campus recreation, specifically the intentions to program directly for a particular demographic of students. As for advancing the literature, the study contributes little to our understanding of how participation with campus recreation, and its subsequent impact, varies across gender demographics.

A significant gap exists in the literature regarding the examination of campus recreation participation impact on different groups of students, specifically the impact on historically marginalized groups of students.

Summary

This chapter aimed to provide an overview of the existing literature as it relates to the impact use of campus recreation facilities, programs, and services have on students. Given the unique nature of the field of campus recreation, a comparison review with similar fields (City Parks and Recreation, Private Sports Clubs, etc.) was not appropriate. Additionally, the primary

journals related to student affairs were found to have a severe lack of research related to the topic. A categorical coding was performed on all articles published in the *Recreational Sports Journal* (RSJ) between 2000 and 2018 in order to identify research relevant to this study. The RSJ articles, along with the limited number of articles found in the student affairs journals (JSARP & JCSD), were cross-referenced with the prominent sections of the Campus Recreation and Wellness Benchmark (CRWB) survey in order to identify pertinent literature. These sections include a review of the general impact on student behavior, as well as an impact on recruitment, retention, academic success, the student's ability to build a connection with the campus community, and the various aspects that compose a student's quality of life. While extremely limited, a small number of research articles reported on impacts experienced by specific groups of students (African-American students and binary-gendered students).

In general, campus recreation departments have grown in their capacity to measure and report on key performance indicators, such as the number of unique students who participate and the frequency of their participation. Research commissioned by the NIRSA national headquarters and performed by the Kerr-Downs Research firm found that the majority of college students participate with their campus recreation department at least once per year (Kerr-Down, 2003). These findings were corroborated in the NIRSA Institutional Data Set that reports roughly 54% of all eligible students are swiping their student ID cards with a campus recreation department on an annual basis (Granholm, 2019). Researchers identified a positive correlation exists between the opening of a new recreation center and improved exercise patterns of students (Zizzi, Ayers, Watson II., & Keeler, 2004). While a high rates of student participation has been noted in the literature, participation rates are found to fluctuate across class levels, gender identities, and residential status (Henchy, 2011). The research related to student participation

rates with campus recreation is limited in its ability to report on how students are benefiting from participating.

Given the grandeur and opulence of the modern campus recreation center, there is an expected effect on the recruitment efforts for new students. Through the use of the CRWB survey, researchers have reported findings on the degree of impact campus recreation has on a student's decision to attend a particular college or university. The findings suggest that a notable impact is made on the student's decision to attend when considering both campus recreation facilities and programs (Lindsey & Sessoms, 2006; Kampf, Haines, & Gambino, 2018). Further investigation reviewed the way administrators perceive the effects of campus recreation on recruiting students, specifically male students. Weaver, Forte, and McFadden (2017) found that university administrators identified a positive impact exists on recruiting male students, but uniformly sighted a lack of available resources limit the chances to bring the impact to scale.

The most robust topic in the literature is the examination of how campus recreation impacts student retention. Guided by Tinto's interactionalist theory of student departure (1975), the literature suggests a positive correlation exists between student participation with campus recreation and the chances that students return for a second year (Huesman, Brown, Lee, Kellogg, & Radcliffe, 2009; Kampf & Teske, 2013; Forrester, 2015). Unique to retention, a qualitative examination on the topic revealed that participating with campus recreation connects students to campus and motivates them to achieve academically in order to remain eligible for continued participation with campus recreation (Hall, 2006).

The effects of campus recreation participation on academic success, specifically in terms of GPA, persistence, and graduation, were also sighted within the literature. Researchers found that small, yet positive, relationships existed in the data linking academic performance with

campus recreation participation. The findings suggest a positive correlation exists between number of recorded participations and an increase in GPA (Belch, Gebel, & Maas, 2001; Becker, Cooper, Atkins, & Martin, 2009). A deeper examination found that first-year, first-time freshmen with low GPAs in their first term were more likely to earn improved grades in their second term if they participated with campus recreation (Mayer, Wilson, & Potwarka, 2017). A recent study found a positive correlation exists between frequency of participation with campus recreation and credits passed as well as the students' rate of persistence and graduation (Sanderson, DeRousie, & Guistwite, 2018). Given the nature of the topic, it is surprising to find the literature entirely devoid of a qualitative study that examines why participating with campus recreation impacts a student's success in the classroom.

The issue of mental health amongst college students has become a focal point of conversation across the nation. The literature provides insights into the positive mental health benefits students are getting out of their participation with campus recreation. The findings suggest students can reduce stress and anxiety as well as improve self-esteem through a healthy and balanced approach to participating with campus recreation (Kanters, 2000; Sanchez, Good, Kwang, & Saltzman, 2008). These health benefits relate back to the seven dimensions of wellness and the overall quality of life for college students across the US (Cereola, Snyder, Cereola, & Horton, 2014).

An underpinning element for many of the outcome-related topics found in the literature is the student's ability to connect with the campus community. Through the framework of Astin's student involvement theory, we see that participation with campus recreation enhances a student's personal and social diversity (Bradley, Phillipi, & Bryant, 1992; Bryant & Bradley, 1993; Milton, 1993). Additionally, the research suggests there is a direct correlation between the

breadth of participation and the student's sense of belonging/association within their institution (Artinger, Clapsham, Hunt, Meigs, Milord, Sampson, & Forrester, 2006; Forrester, 2015).

The literature severely lacks an adequate examination of the impact participation with campus recreation has on a variety of students groups. Two research articles written by the same investigator, at the same institution, found that African-American students participate at comparable rates when examined on a binary gendered spectrum (Lindsey, Sessoms, & Willis, 2009). Additionally, the researchers found African-American students are experiencing tangible skill development through their participation with campus recreation (Lindsey, 2012). A separate article compares the prevalence of impediments to participating with campus recreation related to binary gender identities (Stankowski, Trauntvein, & Hall, 2017). While there is value in providing insights into the ways different groups of students are interacting with campus recreation, the existing literature severely lacks an adequate examination of this topic, specifically the impact on these different groups of students.

In closing, an adequate degree of research has been performed into understanding the ways in which participating with campus recreation impacts college students. The primary gap in the literature relates to the robust application of the established finding. The existing literature is notorious for reporting extremely small survey samples and responses. Often less than 100 student responses are cited in articles that report powerful findings. This lack of statistical power stands to compromise the veracity of such findings, leaving doubt in the mind of an educated reader. Additionally, the literature is entirely devoid of research into how the student experience, and subsequent impact, has changed over time. And finally, the literature lacks depth in exploring how the noted impacts associated with campus recreation participation impact students who identify with historically marginalized populations.

CHAPTER 3: METHODS

Chapter three provides an outline of the methodological processes used to examine the impact that participating with a campus recreation department has on college students who identify with historically marginalized populations. This chapter includes a description of the study's design, review of the research questions, as well as a comprehensive description of the data used to answer the research questions. Additionally, chapter three provides a breakdown of the selected variables, the analysis design, and notable limitations deriving from this study's methodology.

Study Design

The purpose of this study is to enhance the understanding of how campus recreation impacts various elements related to the student experience, and how impact differs between various populations of students. Impact is established through a variety of variables that represent student recruitment, retention, academic success, connection to the campus community, and quality of life. This quantitative study uses statistical methods applied to the archival data collected by the NIRSA/NASPA Knowledge Consortium over the course of eight years, beginning in 2010-2011 and ending in 2017-2018. A central focus of the consortium was the design, implementation, and use of the Campus Recreation and Wellness Benchmark (CRWB) survey. Intended for practitioner assessment, the full CRWB was comprised of 142 questions, the majority of which related to student satisfaction with operational elements of a campus recreation department.

For the purposes of this study, a total of 47 out of the 142 survey questions were found relevant. The study analyzed student response data in an aggregate and an individual basis for the seven-year span in which the knowledge consortium existed. Both descriptive and inferential

statistics were used to relate the demographics associated with historically marginalized populations with participation rates and impact variables. The results of these analyses will provide substantive answers to the research questions guiding this study. These questions are as follows:

1. How have college students who identify with historically marginalized populations engaged with campus recreation over the past eight years?
2. How have campus recreation facilities and programs influenced the recruitment and retention of students who identify with historically marginalized populations over the past eight years?
3. What relationships exist between participation with campus recreation and academic success, connection to the campus community, and quality of life as reported by students who identify with historically marginalized populations?

Instrument Development and Administration

The Campus Recreation and Wellness Benchmark (CRWB) survey was first drafted in 2005 by Juliette Moore, Director of Campus Recreation at the University of Arizona, and a committee of directors from across the US (Forrester, 2015). The instrument was used for the first time in 2005-2006 with six institutions running a beta-test. The rollout proved successful and staff at the NIRSA National Headquarters launched a strategic plan to advance the instrument in preparation of forming a knowledge consortium with NASPA. In 2009, NIRSA formed a group of assessment practitioners and charged them with modifying the instrument based on results of the beta-test (Forrester, 2015). The revised instrument was pilot tested with a sample of students to assure validity, relevancy, and efficiency (Forrester, 2015). The final

version of the instrument was developed using Campus Labs Baseline software and consisted of 142 possible questions (Appendix A).

During the 2009 NIRSA Annual Conference in Charlotte, NC, NIRSA leadership announced the formation of the NIRSA/NASPA Knowledge Consortium and began promoting the use of the CRWB survey. While the instrument remained openly available for use, and cost-free to institutions with Campus Labs accounts, NIRSA published a three-year schedule of suggested survey delivery in order to boost the quantity of responses available in the dataset for benchmark assessments. In accordance with NASPA's knowledge consortium standards, institutions using the survey were allowed to add or omit up to ten questions of their choosing without losing the option to benchmark against the national and peer-group averages. All data collected through the NIRSA/NASPA Knowledge Consortium was housed in Campus Labs Baseline.

In 2009-2010, - the initial year of the NIRSA/NASPA Knowledge Consortium - the CRWB was used by 55 different institutions and garnered 35,172 survey responses from students. This would remain both the largest number of institutions participating and highest number of survey responses recorded in a single year within the 13 years the CRWB survey was available.

Over the course of its entire existence (2006-2018), the CRWB survey was used at least once by 171 distinct institutions and received a total of 288,380 responses from students. The CRWB survey received a total of 69,211 student responses prior to the formation of the knowledge consortium (24% of all responses) and 219,169 responses after the knowledge consortium was formed (76% of all responses).

A total of 33 institutions used the CRWB survey before the formation of the knowledge consortium, but did not use it after. These 33 institutions account for 25,954 response or 9% of all responses received by the CRWB. After the formation of the knowledge consortium, a total of 101 institutions used the CRWB at least once, but not before the consortium was formed. These institutions received a collective 141,306 response from students or 49% of all survey responses received on the CRWB. The remaining 37 institutions used the survey at least once before and at least once after the formation of the knowledge consortium and account for 42% of all response (121,120 survey responses). Ninety-four institutions (55%) used the CRWB survey only once, while the remaining 77 institutions (45%) distributed the CRWB at least twice and up to ten times over the course of the 13 years it was available for use.

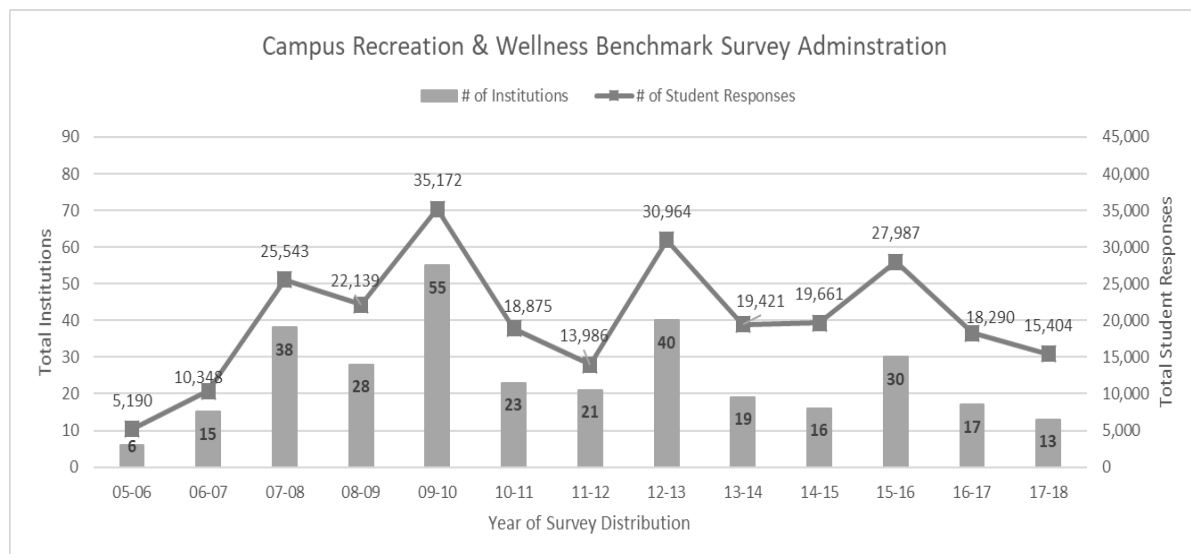


Figure 3.1 A graphing display of the total institutional representation and total response rates received for each year the Campus Recreation and Wellness Benchmark survey was distributed at institutions across the US.

Figure 3 demonstrates the change in participation and responses received after the formation of the NIRSA/NAPSA Knowledge Consortium in 2009-2010. Additionally, the three-year cycle schedule is observable having taken place in 2009-2010, 2012-2013, and 2015-2016.

In December of 2018, the decision was made to dissolve the NIRSA/NASPA Knowledge Consortium and end the three-year cycle of data collection through use of the CRWB survey. According to Pam Watts, Executive Director of the NIRSA National Headquarters, the decision to dissolve the consortium was due to the combination of the declining rate of institutional participation and a saturation of data related to the learning outcomes intended for the survey.

In June of 2019 – roughly six months after the request was made to access the consortium dataset for the purposes of this study – three professors from the Michigan State University published findings deriving from their analysis of the NIRSA/ NASPA Knowledge Consortium (Vasold, Deere, & Pivarnik, 2019).

Description of Data

Per the NIRSA research protocol, a formal application was submitted to the NIRSA Research and Assessment Committee on November 28, 2018. The application included a request for access to all responses received on the CRWB survey over the past thirteen years. The application was approved on December 5, 2018 and access was granted by the Director of Campus Support at Campus Labs (Appendix B). The data was provided through a File Transfer Protocol (FTP) server and downloaded in 13 separate spreadsheets, each containing the raw student response data from each year the CRWB survey was used. Approval for an exempt review of the study was granted by the Institutional Review Board on December 17, 2018 (Appendix C).

Upon accessing each file, all data fields were reviewed and confirmed for consistent alignment throughout the 13 individual datasets. A manual data merge was performed to combine all 13 years in a single dataset, paying special consideration to insert the date of each academic year the survey was used (2005 – 2018). The merged dataset consisted of 282 columns, 311,761 rows, and a total of 22,527,262 cells of data.

A data cleanse was performed that included the removal of all rows containing only a “respondent ID” and no other associated response data. This anomaly occurs when a potential survey participant accesses the survey, but fails to provide a single answer to any question. The total number of rows were reduced by 23,381, resulting in a total of 288,380 responses being recorded over the entire span of time the CRWB survey was available for use. The data was then sorted by the first question on the survey asking for a respondent type: student, faculty, staff, community member, or alumni. All responses provided by those indicating anything other than “student” – a total of 27,073 responses or 9.38% of all responses – were removed from the single dataset. All response data associated with a blank respondent type were kept in the dataset. All responses that provided only the respondent type as “student” and no other associated data were deleted. All responses recorded prior to the formation of the NIRSA/NASPA Consortium – responses collected before 2009-2010 – were removed from the final dataset, leaving a total of 139 unique institutions.

The full CRWB survey is divided into two parts: the first part consisting of 85 questions related to participation, recruitment, retention, student impact, and participant demographics. The second part includes 56 questions related to participant satisfaction with the specific elements of their campus recreation department’s facilities, programs, and services. The sections are connected by a single question asking respondents if they would be willing to answer more

questions. The survey includes skip logic stemming from questions asked early in the survey related to ways students participate, therefore the 142 total questions are not necessarily asked to all respondents.

Given the purpose of this study, all questions included in the second part of the survey were found irrelevant and deleted from the merged dataset. By excluding this part of the survey, a total of 5,230,373 points of data were removed from the merged dataset. The remaining questions were reviewed for applicability and an additional 50 questions were removed, resulting in a final dataset consisting of 36 questions, 195,847 responses, and 4,246,422 points of data. Almost 19% percent of all respondents answered all thirty-five questions, while 6% answered only one question.

While the NIRSA/NASPA Consortium began collecting data in 2009-2010, the survey did not include demographic questions – specifically related to gender, race, sexual orientation, and family education level – until 2011-2012. Therefore, for the purpose of answering the research questions, all data captured in the first two years of the consortium was not included in the final dataset.

The final dataset reflect answers in Likert-scale format and with ordinal response types. All Likert scale questions included in the final dataset relate to recruitment, retention, or impact of participation. These questions were posed using one of the following three answer formats:

- Style 1: Very Important (4) – Moderately Important (3) – Slightly Important (2) – Not at All Important (1)
- Style 2: Definitely (3) – Somewhat (2) – Not at all (1)
- Style 3: Extremely likely (4) – Somewhat likely (3) – Somewhat unlikely (2) – Extremely unlikely (1) – Not sure (66) – Not applicable/Graduating (99)

The majority of questions included in the final dataset were asked with categorical response types pertaining to either the depth of participation (frequency of engagement) or the breadth of participation (programmatic engagement). These questions were asked using the following two styles:

- Style A: Never (1) - 1 time per week (2) – 2 times per week (3) – 3 times per week (4) – 4 times per week (5) – 5 times per week (6) – 6 times per week (7) – 7 times per week (8) – More than 7 times per week (9)
- Style B: 5 or more times per week (6) – 3-4 times per week (5) – 1-2 times per week (4) – 1-2 times per month (3) – 1-2 times per semester/quarter (2) – Never (1)

The remaining questions using categorical response types collected demographic information from the survey respondent. These questions were posed using a variety of demographic representations in the available answer options. These questions were used to isolate responses for students who identified with historically marginalized populations.

Table 3.1 provides an overview of the data used in this study.

Table 3.1 - CRWB Survey Questions in Final Dataset

Q	Topic	Answer Style	Type	Var.	n
1	Recruitment	Style 1	Ordinal	DV	175,099
2	Recruitment	Style 1	Ordinal	DV	172,239
3	Retention	Style 1	Ordinal	DV	172,380
4	Retention	Style 1	Ordinal	DV	170,718
5	Depth	Style A	Ordinal	IV	110,978
6	Breadth	Style B	Ordinal	IV	179,425
7	Breadth	Style B	Ordinal	IV	173,968
8	Breadth	Style B	Ordinal	IV	175,246
9	Breadth	Style B	Ordinal	IV	180,771
10	Breadth	Style B	Ordinal	IV	184,624
11	Breadth	Style B	Ordinal	IV	183,982
12	Breadth	Style B	Ordinal	IV	182,484
13	Breadth	Style B	Ordinal	IV	169,619
14	Breadth	Style B	Ordinal	IV	154,492
15	Breadth	Style B	Ordinal	IV	174,885
16	Impact	Style 2	Ordinal	DV	124,629
17	Impact	Style 2	Ordinal	DV	123,267
18	Impact	Style 2	Ordinal	DV	123,994
19	Impact	Style 2	Ordinal	DV	123,398
20	Impact	Style 2	Ordinal	DV	123,989
21	Impact	Style 2	Ordinal	DV	123,161
22	Impact	Style 2	Ordinal	DV	122,925
23	Impact	Style 2	Ordinal	DV	124,457
24	Impact	Style 2	Ordinal	DV	122,078
25	Impact	Style 2	Ordinal	DV	123,510
26	Impact	Style 2	Ordinal	DV	123,004
27	Impact	Style 2	Ordinal	DV	122,415
28	Impact	Style 2	Ordinal	DV	123,927
29	Impact	Style 2	Ordinal	DV	123,829
30	Impact	Style 2	Ordinal	DV	124,030
31	Impact	Style 2	Ordinal	DV	122,654
32	Demographic	Demographic	Categorical	IV	135,498
33	Demographic	Demographic	Categorical	IV	150,342
34	Demographic	Demographic	Categorical	IV	151,572
35	Demographic	Demographic	Categorical	IV	102,751
36	Impact	Style 3	Ordinal	DV	143,199

Note. Information listed herein is in reference to the questions selected from the Campus Recreation and Wellness Benchmark survey to be used in this study.

Independent Variables

The first set of independent variables was established by organizing the response data into engagement groups. The students' self-described frequency of participation per week represented the "depth" of participation (Astin, 1984, Forrester, 2015). The number of programs in which a student indicated they participated in at least once per week served as the "breadth" of participation (Astin, 1984, Forrester, 2015). Engagement groups were organized into four levels of participation: Heavy Users, Moderate Users, Light Users, and Non-Users (Forrester, 2015). The following table describes the organization of engagement groups based on Forrester's model (2015) (Table 3.2).

Table 3.2 - Engagement Groups by Level

Group	Level	Participation Rate
Depth	Non-Users	0 Participations
Depth	Light Users	1-2 Participations
Depth	Moderate Users	3-4 Participations
Depth	Heavy Users	5 or more Participations
Breadth	Non-Users	0 Programs
Breadth	Light Users	1-4 Programs
Breadth	Moderate Users	5-7 Programs
Breadth	Heavy Users	8-10 Programs

Note. Information listed above references the involvement scales developed by Forrester and published in his 2015 paper "*Benefits of Collegiate Recreational Sports Participation: Results From The 2013 NASPA Assessment and Knowledge Consortium Study*".

The survey question related to the depth of participation asked, "On average, how many times per week do you participate in on-campus recreational sports, programs, and/or activities?"

Participants selected from a range of weekly participation, starting with "1-time per week", and

ending with “More than 7 times per week”. Participants were also given the option of “None” to indicate their level of participation. Given their answers to this question, each participant was assigned involvement levels for “depth” according to the scale referenced in Table 3.2.

The survey questions relating to breadth of participation are asked in a cluster toward the start of the survey. Participants were asked, “How often do you participate in the following on-campus activities, programs, and/or services?” followed by a list of ten different offerings associated with campus recreation. These offerings include intramural sports, sport clubs, aquatics, group exercise classes, weight training, cardio exercise, open-recreation, racquet sports, outdoor adventures, and personal training. A survey participant was given answer options to reflect their rate of participation (Style B); for the purpose of measuring breadth of participation to be compared with depth of participation, all answers in the affirmative indicating weekly participation were assigned 1, while all other answers were issued a 0. Each participant’s answers to the ten questions were summed together to identify the total number of programs in which they engaged per week. Each participant’s total number of programs per week was used to assign them to an engagement level as reflected in Table 3.2.

The second set of independent variables was developed using the series of demographic questions included in the CRWB survey. For the purposes of this study, a specific set of demographics were used to answer the research questions related to historically marginalized populations.

Survey participants were asked to identify their gender, race, sexual orientation, and their status as a first-generation college student. These questions were asked using preset answers that met the social standards of the time. All answer options allowed students to select “other” and

write in a response. For the purpose of this quantitative study, the write-in portions of these answers were omitted from the final dataset, while the indication of “other” was retained.

Table 3.3 provides a description of the answer options available to survey respondents for each of the demographic questions used in this study.

Table 3.3 – Demographic Answer Options

Demographics	Answer Options
Gender	Man
Gender	Woman
Gender	Transgender
Gender	Other
Race	White
Race	African American/Black
Race	Hispanic/Latino/a
Race	Asian/Pacific Islander
Race	Multiracial
Race	Native American
Race	Other
Sexual Orientation	Non-LGBTQ
Sexual Orientation	LGBTQ
Family College	Not a 1st Generation College Student
Family College	1st Generation College Student

Note. Information listed above is in reference to answers options available to survey participants of the Campus Recreation and Wellness Benchmark survey.

Dependent Variables

Guided by the research questions, the dependent variables were selected to represent student impact, specifically related to recruitment, retention, academic success, connection to the campus community, and quality of life. The survey is split into two sections that ask questions related to these impact factors.

The first section of questions asks students to rate the level of importance campus recreation facilities and programs have on their decision to attend and remain at their institution. These four questions are asked using answer Style 1.

The second section consists of sixteen questions that ask students to divulge how impactful their participation with campus recreation has been on a variety of developmental topics related to academic success, connection to campus, and quality of life. Answers are provided using Style 2.

Analysis and Interpretation

The analysis is designed to answer each of the research questions guiding the study. The following section includes a description of the methods used in each of the subsections representing the guiding research questions. All analyses were performed using a combination of Microsoft Excel 2016 and IBM SPSS Statistics 26.

Participation with Campus Recreation

In order to answer the first research question guiding this study, a host of descriptive statistics were produced pertaining to the frequency of student's weekly participation with campus recreation (depth of participation) and the total number of campus recreation programs in which students indicated participating weekly (breadth of participation) (Forrester, 2015).

These two dimensions of participation – depth and breadth – were kept separated due to their lack of intuitive interaction and the lack of precedent existing in the literature.

In the context of the depth and breadth, four levels of student engagement were developed: Heavy Users, Moderate Users, Light Users, and Non-Users (Forrester, 2015). For depth of participation, Heavy Users were considered all students who indicated participating with campus recreation five or more times per week. Moderate Users were all students who indicated participating with campus recreation three-to-four times per week. Students assigned the Light Users group for depth of participation indicated they participated with campus recreation one-to-two times per week. Students who indicated they never participated with campus recreation were assigned as Non-Users. In relation to breadth of participation, students who indicated they participated in eight-to-ten programs per week were grouped as Heavy Users. Students indicating weekly participation in five-to-seven programs were classified as Moderate Users, students indicating one-to-four weekly participations in programs were classified as Light Users, and students indicating they never participated in campus recreation programs were assigned to the Non-User group.

Student responses included in the final dataset – an aggregate of eight years of data collection – were organized into the four engagement levels for depth and breadth of participation. A mean number of weekly participations, a standard deviation, as well as the total number of students in the sample were reported. For both depth and breadth of participation, the proportionality of each engagement level was reported in a percentage in order to provide descriptive context for student participation with campus recreation (Forrester, 2015). A rate of change for both mean and proportionality per engagement level was reported by contrasting the descriptive statistics found in student responses to the CRWB survey in 2010-2011 or 2011-2012

with student responses to the CRWB survey in 2017-2018. All descriptive statistics described were calculated, organized, and reported for students who identified with each of the historically marginalized populations associated with gender, race, sexual orientation, and family college education.

Importance for Recruitment & Retention

The CRWB survey asks students four questions related to the level of importance campus recreation facilities and programs had on their decision to “attend” (Recruitment) and “remain at” (Retention) their respective institutions. Answer options were supplied in an ordinal state, specifically as “Not at all important”, “Slightly important”, “Moderately important”, and “Very important”. As the fourth, fifth, sixth, and seventh question posed in the CRWB survey, these questions procured a high quantity of responses from students.

An initial analysis was performed on the survey responses that would serve as the dependent variable in a binary logistic regression analysis. The correlation between survey responses to the questions of “How important were campus recreation facilities” on recruitment and “How important were campus recreation programs” on recruitment. A second analysis examined the relationship between facilities and programs, but for retention. Given the ordinal nature of the data, a Spearman Rho correlation was performed to identify the relationship between the two aspects of campus recreation (facilities and programs) (Table 3.4). For the questions related to the importance of campus recreation facilities and the importance of campus recreation programs had on recruitment, the analysis found the two aspects to be highly correlated (correlation coefficient of 0.73, Sig of .000). Additionally, the correlation between facilities and programs in regards to the importance on a student’s decision to remain at their institution (Retention) were also highly correlated (correlation coefficient of 0.76, Sig of .000).

Table 3.4 - Facilities and Programs on Recruitment and Retention

	Spearman Rho Correlation Coefficient	
	Programs - Recruitment	Programs - Retention
Facilities - Recruitment	0.729	0.593
Facilities - Retention	0.620	0.759

Note. All correlation coefficients were significant (Sig. 000)

Given the high correlation of these variables, the responses pertaining to the importance of facilities and the responses pertaining to the importance of programs were merged to represent the importance of both campus recreation facilities and programs in a single variable for recruitment. The same transformation was performed to produce a single variable for retention.

A binary logistic regression was selected as the inferential methodology used in this study to answer the second and third research questions; this allows for reporting the odds ratios related to a students' likelihood to answers in a certain manner. An odds ratio deriving from a binary logistic regression is interpreted as a percentage of likelihood, with 1 indicating an equal likelihood relative to a reference group; $100(e^b - 1)$ (Demaris, 1995).

Due to combing seven years of repetitive survey data, the logistic regression analysis – specifically the predictability power of the regression model – required a manual separation and isolation of each year of data in order to ensure an accurate reporting of the odds ratios found to be significant for each independent variable. This required that a total of seven logistic regressions be performed. Upon running the logistic regression for each year included in the final dataset, a median was used to report the odds ratio associated with each independent variable and the median's corresponding sig. The median was selected to control for outliers and

more accurately report on finding deriving from the inferential analysis. This same process was used for the analysis related to understanding the impact on the student experience.

For the purpose of answering the second research question, student responses related to the importance of campus recreation – both facilities and programs - on a student’s decision pertaining to recruitment and retention were transformed into a dichotomous variable with 1 representing “Important at some level” and 0 representing “Not important”. This transformation required students to answer in the affirmative – slightly, moderately, or very – for both features of campus recreation (facilities and programs), thus ensuring subsequent findings accurately represented the importance of campus recreation as a whole (hereafter referred to as the “importance of campus recreation”), as opposed to representing campus recreation in two separate and disjointed aspects: facilities and programs.

In order to identify the likelihood of students indicating that campus recreation was important to their decision to attend or remain at their specific institution, several models were produced using a binary logistic regression analysis. The analysis relied on the demographics associated with historically marginalized populations to serve as independent variables. Additionally, the importance of campus recreation for recruitment and the importance of campus recreation for retention each served as the dependent variables in two separate models.

For the purpose of analyzing retention, the CRWB survey posed the question to students “In deciding to continue at this college, how important are campus recreation facilities (or programs)?” Given the present tense of the sentence structure – specifically “how important *are...*”, as opposed to “how important *were*” – it is logical to conclude this question cannot be answered in the affirmative by students who find it unlikely they will return to the institution the following semester. The eighty-fifth question on the CRWB survey asked students to indicate

the likelihood they would return to their institution the following term/semester. For the purpose of answering the second research question in this study, the answers provided by a student who indicated they were “somewhat or definitely unlikely to return” or “Not applicable/graduating” were not included in the logistic regression for retention; the omission of these student responses enhances the accuracy of reporting on campus recreation’s importance on a student’s decision to continue at their institution.

The multicollinearity of the independent variable was tested for the dataset as a whole and from year-to-year, in order to ensure the collinearity assumption was not violated.

Given the conceptual framework of this study, the reference groups used to interpret the odds ratio produced through the logistic regression are as follows: students identifying as “man” for gender, students identifying as “White” for race, and students identifying as “not LGBTQ” for sexual orientation (hereafter referred to as “Non-Marginalized Groups”). For all logistic regressions included in this study, students identifying as transgender were removed from the models due to the extremely small size of the population on a year-to-year basis, never exceeding .01% of the sample in any given year. Additionally, students identifying as first-generation college student were removed from the list of independent variables included in the regression after being found to have a devastating effect on the model’s predictability power.

Further application of the logistic regression analysis utilized an interaction between gender and race as the independent variables with students identifying as “white” and “man” serving as the reference group. The model was applied to the dataset as a whole and was found to have a high power of prediction (the chi-square value produced through the Hosmer-Lemeshow goodness-of-fit test was found to be insignificant at a Sig. of .304). The interacting

demographics served as the independent variables and the importance of campus recreation on recruitment and then retention served as the dependent variables.

Impact on the Student Experience

Three primary areas related to the overall student experience were analyzed to identify campus recreation's impact on the student experience: academic success, connection to campus, and quality of life.

One of the questions included in the CRWB survey asked students to indicate the level in which participating with campus recreation improved or enhanced their academic performance. Given the direct nature of the survey question, it alone was selected to serve as the dependent variable in a logistic regression analysis. An ordinal regression was attempted, but failed to provide significance for the findings per ordinal level. Therefore the dependent variable was transformed from an ordinal level to a dichotomous variable, with student responses indicating "definitely" assigned a 1 and student response indicating "somewhat" or "not at all" assigned a 0. For the independent variables, a laborious transformation was performed where students who identified with a historically marginalized gender, race, or sexual orientation were interacted with that same students assigned engagement level for both depth and breadth of participation. A new demographic/independent variable was created for every student, for example, "Heavy Users*Women". The findings resulting from this logistic regression analysis, specifically the odds ratio ($\text{Exp}(B)$), were interpreted against the dominate reference group (man, white, not LGBTQ) in the same engagement level, for the two dimensions of participation (depth or breadth).

As with the survey question used to measure academic success, the CRWB survey asked students to indicate the level in which participating with campus recreation improved or enhanced a variety of developmental topics. These included self-confidence, concentration,

respect for others, multicultural awareness, sense of belonging, communication skills, problem solving skills, feeling of well-being, time management skills, ability to get a good night's sleep, leadership skills, ability to multi-task, stress management, ability to develop friendships, and overall health. For each question, students were asked to select “definitely”, “somewhat”, or “not at all” to represent their level of improvement or enhancement deriving from participation with campus recreation.

A factor analysis was performed on the list of variables described above. The initial analysis found the KMO and Bartlett's Test to indicate significance in the factor analysis findings (Sig. of .000). The total variance explained, the initial Eigenvalues, and the scree plot all suggested there were two prominent factors among the list of variables (Table 3.5). A parallel analysis confirmed that a total Eigen score above 1.01 in fact indicated a sizable factor. Given the first component had a total of 8.890 and the second component had a total of 1.557, it was concluded the list of variables produced two factors. Using an oblique rotation, a second factor analysis was run, fixing the number of factors at two and suppressing all coefficient values below 0.5 (Mertler & Vannatta, 2017). A pattern matrix emerged in the SPSS output and clearly organized the variables into the two factors. The first factor included communication skills, multicultural awareness, leadership skills, problem solving skills, sense of belonging, ability to develop friendships, respect for others, and the ability to multitask. The second factor included overall health, feeling of wellbeing, stress management, ability to get a good night sleep, self-confidence, time management, and concentration. The first factor was titled “Connection to Campus” and the second factor was titled “Quality of Life”.

Table 3.5 - Factor Analysis - Pattern Matrix

Variables	Component	
	Factor 1	Factor 2
Communication Skills	0.932	
Multicultural Awareness	0.866	
Leadership Skills	0.849	
Problem Solving Skills	0.844	
Sense of Belonging/Association	0.779	
Ability to Develop Friendships	0.743	
Respect of Others	0.727	
Ability to Multi-Task	0.592	
Overall Health		0.923
Feeling of Well-being		0.894
Stress Management		0.817
Ability to Get a Good Night Sleep		0.669
Self Confidence		0.641
Time Management		0.595
Concentration		0.550

Note. Factor 1 represents "Connection to Campus"; Factor 2 represents "Quality of Life" KMO and Barlett's Test of .963; Component Correlation Score of .617. Significance level was set at 0.500 (Mertler and Vannatta, 2017)

Forrester (2015) used the same series of variables in his analysis, yet did not describe the rationale used for grouping such variables. Additionally, Forrester labeled the variables found in Factor 1 as "Student Learning Outcomes" and the variables found in Factor 2 as "Health and Wellness Outcomes" (Forrester, 2015). Given the extensive literature review included in this study, it is believed that titling the two factors as "Connection to Campus" and "Quality of Life" more accurately represent the variables included in each factor.

For the purpose of this study, variables included in either of the two factors were transformed through the same methods described above for the academic success variable. Once in dichotomous form (1: definitely; 0: somewhat or not-at-all), all variables associated with a factor were made to interact in which all variables included in a factor with a value of one were

multiplied together to represent a student response that indicated “definitely” enhanced or improve all of the variables constituting the factor. This transformation produced a single dichotomous variable that represented each of the two factors (“Connection to Campus” and “Quality of Life). Significance was set at alpha level 0.05 for all correlation coefficients and odds-ratios reported in the output of the binary logistic regression analyses.

Using the same independent variables described in the analysis for academic success, twenty-one logistic regressions were performed – one for each year - with each factor serving as the dependent variable. Findings were reported for the interaction variables between engagement level and demographic, with the dominant demographics serving as the reference group for interpretation.

Limitations

As a quantitative study, the primary limitation relates to answering the deeper question related to “why” campus recreation impacts recruitment, retention, academic success, connection to campus, and/or quality of life for historically marginalized populations.

A more granular limitation relate to elements of the CRWB survey. For depth of participation, the survey posed the question in a way that limited student responses to indicating either “weekly” participation or “never” participate. This eliminated students who participate every other week, once a month, or once a semester. A subsequent limitation is then found in limiting the breadth of participation in the same manner.

The inferential methodology used the median odds ratio from seven individual binary logistic regressions calculated for each year included in the dataset. A more optimal method would have been to run the logistic regression on the dataset as a whole, but due the repetitive

nature of the survey data, doing so caused each model to lose predictability power, thus resulting in the limitation of using the median of the seven years.

A notable limitation is related to reporting on the retention rates of students for the second research question. Retention is better measured as an objective metric, calculated by identifying which students actually returned for their sophomore year, thus reporting on “retention” for the purpose of this study is more closely related to “intention to persist”. However, this limitation is mitigated by including the control variable that asked students their likelihood to return the following semester, excluding those who stated they were very unlikely or had graduated.

Given the wide-ranging nature of campus recreation services, the quality and scope of facilities and programs could vary among the institutions represented in the dataset, however the CRWB allowed students to forgo answers related to services that were not available at their respective institution. This is thought to have reduced the inaccuracy that might derive from aggregating all institutions within the study.

When examining the experiences of historically marginalized populations in a quantitative study, a notable limitation tends to be the lack of statistically significant representation in the student responses. This limitation also is prevalent in this study as students identifying as either transgender or Native American were not included in the analysis due to response rates. This limitation applies to all other communities that could be considered historically marginalized populations whose identity was not captured in the CRWB survey.

A final limitation pertains to the nature of the data collection. Both the independent variables and the dependent variables relied on self-reported information from students. This limitation is created by survey participation and could be improved by using campus data to

record student's depth and breadth of participation, demographics, and even assessing such things as academic success through the measurement of earned GPA in a given semester. This limitation is inherent to the nature of survey analysis.

Summary

This quantitative study utilized survey data produced by the CRWB survey championed by the NIRSA/NASPA Knowledge Consortium between the years of 2011 and 2018. A total of 195,847 survey responses related to 36 survey questions used to answer the study's research questions.

Following the precedent set by Forrester (2015), student responses were organized into four levels of engagement (Heavy, Moderate, Light, and Non) relating to their depth and breadth of participation. The mean, standard deviation, and proportionality among the levels of engagement depth and breadth were reported for students identifying with historically marginalized populations. Additionally, a rate of change was identified for the descriptive statistics related to the cohort of student responses in 2011-2012 when compared to the cohort of student responses in 2017-2018.

In order to identify the impact campus recreation has on recruitment and retention, fourteen logistic regressions were performed to determine how much more or less likely students who identified with historically marginalized populations were to indicate campus recreation had some level of importance when compared with students from non-marginalized demographics. Another two logistic regressions were run to extend the analysis to the interaction of gender and race in order to more accurately reflect the importance, or lack of, that campus recreation had on recruitment and retention for historically marginalized populations.

A factor analysis was performed on the development topics listed in the CRWB survey. The results of the factor analysis provided solid evidence of two distinct factors, each including variables that aligned with Forrester's (2015) previous research. The factors were titled "Connection to Campus" and "Quality of Life". The development topics associated with the two factors were interacted to form a single dichotomous variable representing "Connection to Campus" and "Quality of Life". The data produced through the single survey question related to "Academic Performance" was also used to answer the research questions.

Sixty-three individual binary logistic regressions were produced using historically marginalized populations and their interactions with the depth and breadth of engagement levels as independent variables and the dichotomous variables for academic performance, connection to campus, and quality of life as dependent variables. Significance was set at alpha level 0.05 for all correlation coefficients and odds-ratios reported in the outputs of the regression analyses.

CHAPTER 4: FINDINGS

The purpose of this study was to understand how college students who identify with historically marginalized populations participate with campus recreation departments. Furthermore, this study intended to explore how such participation impacts various elements related to student success with regard to how students identified with these populations. This study was guided by the following three research questions.

1. How have college students who identify with historically marginalized populations engaged with campus recreation over the past eight years?
2. How have campus recreation facilities and programs influenced the recruitment and retention of students who identify with historically marginalized populations over the past eight years?
3. What relationships exist between participation with campus recreation and the academic success, connection to campus, quality of life, and satisfaction with the college experience as reported by students who identify with historically marginalized populations?

To answer the research questions, this study used a dataset deriving from the Campus Recreation and Wellness Benchmark (CRWB) survey, distributed for eight consecutive years (2010-2018) by 139 distinct institutions and procuring 195,847 student responses.

This chapter is organized into three sections to address each research question: student participation with campus recreation, the impact of campus recreation on recruitment and retention, and the impact of participation on the student experience. The first section includes descriptive statistics, while sections related to impact rely on inferential statistics.

Participation with Campus Recreation

Using Astin's (1984) and Forrester's (2015) publications on the "depth" and "breadth" of student involvement, each survey participant was assigned one of four engagement levels: Non-User, Light User, Moderate User, and Heavy User (see Table 3.2). The measurement of "depth" of participation is defined by the overall frequency in which a student participated. In order to measure depth, this study relied on the CRWB survey question that asked students how often they participated with campus recreation, hereafter referred to as the depth question. Available responses to the depth question included 0 times per week, 1 time per week, 2 times per week, 3 times per week, 4 times per week, 5 times per week, 6 times per week, 7 times per week, or more than 7 times per week. A total of 110,978 students provided an answer to the depth question. These students indicated participating with campus recreation an average of 2.32 times per week ($SD = 1.92$). A comprehensive review of the depth of participation by demographics is available in the appendices of this study (Appendix E).

Table 4.1 displays that when analyzing frequencies of each engagement level for depth of participation, it was found that 14.9% of responses were categorized as Heavy Users (5 or more times per week), while 26.1% were considered Moderate Users (3-4 times per week), 40.9% were considered Light Users (1-2 times per week), and 18.1% were classified as Non-User (never participate).

Table 4.1 - Frequency of Participation by Engagement Level

	Depth		
	Mean	n	%
Non-Users	n/a	20,092	18.1
Light Users	1.42	45,401	40.9
Moderate Users	3.37	28,990	26.1
Heavy Users	5.77	16,495	14.9
Total	2.32	110,978	100.0

A comparison was performed between answers provided for the depth question in the first year the CRWB was distributed under the NIRSA/NASPA Consortium, (2010-2011) and the final year the CRWB was distributed (2017-2018). As displayed in Table 4.2, a total of 9,558 students answered the depth question in 2010-2011, while a total of 10,102 students answered the same question in 2017-2018. Students answering the depth question in 2010-2011 participated with campus recreation an average of 2.20 times per week ($SD = 1.85$). Students answering the same question in 2017-2018 participated with campus recreation an average of 2.35 times per week ($SD = 1.91$). When comparing the proportionality of engagement levels for depth of participation from 2010-2011 with 2017-2018, it was found that the proportion of non-users decreased by 1.0 percentage points, while the proportion of heavy users increased by 2.9 percentage points during the same timeframe.

Table 4.2 - Depth of Participation in Campus Recreation

Year	Weekly Participation Rate (0-8 times per week)			Engagement Level			
	Mean	SD	n	Non %	Light %	Moderate %	Heavy %
2010-2018	2.32	1.92	110,978	18.1	40.9	26.1	14.9
2010-2011	2.20	1.85	9,558	18.3	43.2	26.2	12.4
2017-2018	2.35	1.91	10,102	17.3	40.9	26.6	15.2
Change (10-11 vs. 17-18)	0.15	0.06	544	-1.0	-2.3	0.4	2.9

The “breadth” of participation is operationalized as the number of different activities in which a student participated. In following Forrester’s (2015) methods for measuring a student’s breadth of participation with campus recreation, this study relied on an aggregate of answers given to CRWB questions related to a student’s involvement in ten different programs. Table 4.3 below displays a total of 142,258 students answered at least one of the ten questions

representing breadth of participation. Students who took the survey indicated participating in at least 2.08 programs per week ($SD = 1.73$). An analysis of the breadth of participation for all students found that 72.1% were considered Light Users. A comprehensive review of the breadth of participation by demographics is available in the appendices of this study (Appendix F).

Table 4.3 - Frequency of Participation by Engagement Level

	Breadth		
	Mean	n	%
Non-Users	n/a	28,330	19.9
Light Users	2.22	102,519	72.1
Moderate Users	5.50	9,681	6.8
Heavy Users	9.04	1,728	1.2
Total	2.08	142,258	100.0

A comparison was performed between breadth of participation in 2010-2011 and 2017-2018. A total of 13,662 students responded to at least one of the questions related to breadth of participation in 2010-2011, while a total of 10,452 students answered at least one of the question related to breadth in 2017-2018. Students in 2010-2011 indicated participating in an average of 2.08 programs per week ($SD = 1.78$), while students in 2017-2018 indicated participating in an average of 1.87 programs per week ($SD = 1.55$). When comparing engagement levels for breadth of participation from 2010-2011 to 2017-2018, the proportion of students considered Light Users increased from 70% to 74% of all users. See Table 4.4 below.

Table 4.4 - Breadth of Participation in Campus Recreation

Year	Weekly Participation Rate (0-10 programs per week)			Engagement Level			
	Mean	SD	n	Non %	Light %	Moderate %	Heavy %
2010-2018	2.08	1.73	142,258	19.9	72.1	6.8	1.2
2010-2011	2.08	1.78	13,662	21.6	70.0	7.1	1.3
2017-2018	1.87	1.55	10,452	20.5	74.4	4.3	0.8
Change (10-11 vs. 17-18)	-0.21	-0.23	-3,210	-1.1	4.4	-2.8	-0.6

By Gender

Students who took the CRWB were asked to indicate the gender with which they identify. The answer options provided in the survey included man, woman, transgender, and other. A total of 150,342 students provided answers to the question related to their gender identity. Thirty-eight percent of survey participants – 57,452 students – identified as “Man”, 60.3% of survey participants – 90,676 students – identified as “Woman”, and 0.2% of survey participants – 317 students – identified as “Transgender”.

As displayed in Table 4.5 below, the analysis of students weekly participation rates, or depth of participation, found that students who identified as men participated an average of 2.62 times per week ($SD = 2.02$), students identifying as women participated an average of 2.19 times per week ($SD = 1.84$), and students identifying as transgendered participated an average of 1.86 times per week ($SD = 1.91$).

By extending depth of participation by gender to the engagement levels, the analysis showed that 19.4% of men were Heavy Users, while 12.7% of students who identified as women were considered Heavy Users. Conversely, 15.2% of students who identified as men were considered Non-Users, yet 18.9% of students who identified as women were also considered Non-Users.

When analyzing how the depth of participation changed from 2010-2011 to 2017-2018 with regard to the gender demographics, results showed men increased their average weekly participation by 0.20 and women increased their average weekly participation by 0.22, but Transgender students average weekly participation decreased by 0.46 times per week.

With respect to the depth of participation by engagement level for men, the proportion of Light Users decreased by 5.1 percentage points when comparing rates from 2010-2011 with rates from 2017-2018. Conversely, the proportion of men classified as Heavy Users increased by 4.2 percentage points when comparing the rate from the same set of years (2010-2011 vs. 2017-2018).

When analyzing the depth of participation by engagement levels for students identifying as women, the results showed a 2.2 percentage point decrease for Non-Users and a 2.3 percentage point decrease for Light Users when comparing rates of participation in 2010-2011 with 2017-2018. The same comparison found that students identifying as women and considered Moderate Users saw a 1.3 percentage point increase and women considered Heavy User saw a 3.2 percentage point increase when comparing 2010-2011 to 2017-2018.

The results also showed the proportion of transgender students categorized as Non-Users, Moderate Users, and Heavy Users decreased from 2010-2011 to 2017-2018. Consequently the proportionality of Light Users identifying as transgender increased considerably (16.9 percentage points) when comparing rates from 2010-2011 with 2017-2018.

Table 4.5 - Depth of Participation in Campus Recreation by Gender

Demographic	Weekly Participation Rate (0-8 times per week)			Engagement Level			
	Mean	SD	n	Non %	Light %	Moderate %	Heavy %
Man							
2010-2018	2.62	2.02	35,720	15.2	37.2	28.2	19.4
2010-2011	2.46	1.94	3,157	15.1	40.6	28.2	16.1
2017-2018	2.68	2.00	2,907	14.9	35.5	29.3	20.3
Change (10-11 vs. 17-18)	0.22	0.06	-250	-0.2	-5.1	1.2	4.2
Woman							
2010-2018	2.19	1.84	54,704	18.9	42.8	25.6	12.7
2010-2011	2.06	1.76	4,850	19.5	45.1	25.2	10.2
2017-2018	2.26	1.84	4,677	17.3	42.8	26.5	13.4
Change (10-11 vs. 17-18)	0.20	0.07	-173	-2.2	-2.3	1.3	3.2
Transgender							
2010-2018	1.86	1.91	196	27.6	42.3	19.9	10.2
2010-2011	1.93	2.20	14	35.7	35.7	21.4	7.1
2017-2018	1.47	1.41	38	26.3	52.6	15.8	5.3
Change (10-11 vs. 17-18)	-0.46	-0.79	24	-9.4	16.9	-5.6	-1.9

An analysis of the frequency in which students participate in campus recreation programs, or breadth, showed students identifying as men participated in an average of 2.45 programs per week ($SD = 1.83$), students identifying as women participated in an average of 1.89 programs per week ($SD = 1.58$) and students identifying as transgender participated in an average of 2.56 programs per week ($SD = 2.85$). Table 4.6 below displays a full list of averages for all gender demographics.

When considering students participating in programs by their level of engagement, the results showed that men considered Moderate Users of campus recreation programs made up 9.9%, while men who never participated (Non-Users) made up 14.8%. In replicating the same analysis for students identifying as women, the results showed that 4.8% of women were considered Moderate Users and 21.4% of women were considered as Non-Users.

The analysis included a comparison between the breadth of student participation in 2010-2011 and 2017-2018. The results of this comparison showed that all three gender categories experienced a decrease in average participation (men by -0.43 programs per week, women by -0.13 programs per week, and transgender by -1.47 programs per week).

When applying the comparison to the proportion of students per gender and engagement level, the results showed the proportion of men in the Moderate User group decreased by 5.2 percentage points, while the proportion of men in the Light User group increased by 6.3 percentage points when comparing proportionalities in 2010-2011 with 2017-2018.

Students identifying as women experienced very little change in their proportionality among the four engagement levels (Heavy Users, Moderate Users, Light Users, and Non-Users) when comparing rates from 2010-2011 with rates in 2017-2018.

In continuing to analyze the breadth of student participation in 2010-2011 versus 2017-2018, there was found to be a 16.2 percentage point decrease for the proportion of students who identified as transgender and who were classified as Heavy Users. The proportionality of students identifying as transgender and categorized as Non-Users increased by 19.7 percentage points when comparing 2010-2011 with 2017-2018.

Table 4.6 - Breadth of Participation by Gender

Demographic	Weekly Participation Rate (0-10 programs per week)			Engagement Level			
	Mean	SD	n	Non %	Light %	Moderate %	Heavy %
Man							
2010-2018	2.45	1.83	45,763	14.8	73.7	9.9	1.7
2010-2011	2.49	1.88	4,624	16.0	71.2	11.1	1.8
2017-2018	2.06	1.56	3,020	16.0	77.5	5.9	0.6
Change (10-11 vs. 17-18)	-0.43	-0.32	-1,604	0.0	6.3	-5.2	-1.2
Woman							
2010-2018	1.89	1.58	68,573	21.4	73.0	4.8	0.7
2010-2011	1.89	1.61	6,414	22.6	71.8	4.8	0.8
2017-2018	1.76	1.44	4,817	20.9	75.5	3.0	0.5
Change (10-11 vs. 17-18)	-0.13	-0.17	-1,597	-1.7	3.7	-1.8	-0.3
Transgender							
2010-2018	2.56	2.85	221	31.7	48.9	10.0	9.5
2010-2011	3.06	3.42	16	18.8	62.5	0.0	18.8
2017-2018	1.59	1.79	39	38.5	56.4	2.6	2.6
Change (10-11 vs. 17-18)	-1.47	-1.63	23	19.7	-6.1	2.6	-16.2

By Race

The CRWB survey posed the question, “With which category do you most identify?” The answer options provided included “African American/Black”, “Asian/Pacific Islander”, “Hispanic/Latino/a”, “Indigenous/Native American/American Indian”, “White”, “Multiracial”, or “Other (please specify)”. Table 4.7 below includes a list of a statistics related to race.

A total of 147,164 students answered the survey question related to their racial identity. Seventy two percent of survey participants – 106,191 students – identified as “White”, 5.3% of survey participants – 7,772 students – identified as “African American/Black”, 7.9% of survey participants – 11,617 students – identified as “Hispanic/Latino/a”, 9.8% of survey participants – 14,459 students – identified as “Asian/Pacific Islander”, 3% of survey participants – 4,414 students – identified as “Multiracial”, 0.4% of survey participants – 825 students – identified as “Indigenous/Native American/American Indian”, and 1.0% of survey participants – 1,886

students – identified as “Other”. For the purpose of the study, the category of “Other” was omitted. Additionally, the number of answers associated with students identifying as “Indigenous/Native American/American Indian” were too few to contribute to answering this study’s research questions in a meaningful way, thus they are not reported in this section of the study. Further examination of responses associated with “Other” or “Indigenous/Native American/American Indian” can be found in the appendices of this study (Appendix D).

In exploring the depth of participation, students who identified as White averaged 2.37 participations per week ($SD = 1.96$), students who identified as African American/Black averaged 2.28 participations per week ($SD = 1.83$), students who identified as Hispanic/Latino/a averaged 2.35 participations per week ($SD = 1.86$), students who identified as Asian/Pacific Islander averaged 2.33 participations per week ($SD = 1.73$), students who identified as Multiracial averaged 2.36 participations per week ($SD = 1.96$).

When analyzing the depth of participation by engagement level for students who identified as White, 81.7% of students indicated they participated weekly (Light Users, Moderate Users, or Heavy Users), while 18.3% indicated they never participated with Campus Recreation (Non-Users). For students identifying as African American/Black, 83.8% of students indicated they participated weekly with campus recreation and 16.2% indicated they were Non-Users. For students who identified as Hispanic/Latino/a, a total of 82.7% indicated participating on a weekly basis, while 17.3% were found to be in the Non-User group. For students identifying as Asian/Pacific Islander, a total of 87.5% indicated weekly participation and 12.5% were considered Non-Users of campus recreation. When the engagement levels of students identifying as multiracial were explored, it was found that 81.2% of students indicated

participating on a weekly basis, but 18.8% indicated they never participated in campus recreation. The full proportionality of the weekly users is displayed below in Table 4.7.

When comparing the cohort of students submitting answers to the CRWB survey in 2010-2011 against answers provided on the 2017-2018 administration, average rates of participation increased for every racial category. For students identifying as White, the average rate of participation increased by 0.20 times per week; for students identifying as African American/Black, it increased by 0.10 times per week; for students identifying as Hispanic/Latino/a, it increased by 0.12 times per week, for students identifying as Asian/Pacific Islander, it increased by 0.12 times per week, for students identifying as Multiracial, it increased by 0.17 times per week.

An analysis of change from 2010-2011 to 2017-2018 was applied to the proportionality of racial demographics by engagement level. The results showed the proportion of students identifying as White and considered Heavy Users increased by 3.7 percentage points, while the proportion of students identifying as White and considered Light Users decreased 4.1 percentage points when comparing 2010-2011 with 2017-2018. For students identifying as African American/Black, the proportion of the population considered Heavy Users increased by 2.6 percentage points while the proportion of all other engagement levels decreased slightly when comparing 2010-2011 to 2017-2018. The proportion of students identifying as Hispanic/Latino/a and as Heavy Users remained unchanged, while the proportion of Moderate Users increased by 3.5 percentage points. The proportion of students identifying as Asian/Pacific Islander and considered Heavy Users and Moderate Users increased by 2.9 and 2.7 percentage points respectively when comparing rates in 2010-2011 with rates in 2017-2018. The population of students identifying as Multiracial saw their proportion of students classified as Heavy Users

increase by 7.6 percentage points, but the proportion of the same population considered Moderate Users had a decrease of 6.1 percentage points when comparing 2010-2011 with 2017-2018.

Table 4.7 - Depth of Participation by Race

Demographic	Weekly Participation Rate (0-8 times per week)			Engagement Level			
	Mean	SD	n	Non %	Light %	Moderate %	Heavy %
White							
2010-2018	2.37	1.96	62,501	18.3	39.6	25.9	16.2
2010-2011	2.20	1.87	6,039	18.9	42.4	25.9	12.8
2017-2018	2.40	1.96	4,993	18.4	38.4	26.8	16.5
Change (10-11 vs. 17-18)	0.20	0.09	-1046	-0.5	-4.1	0.9	3.7
African American/Black							
2010-2018	2.28	1.83	4,979	16.2	44.0	27.6	12.2
2010-2011	2.18	1.79	580	17.2	44.7	27.2	10.9
2017-2018	2.28	1.87	348	17.0	43.7	25.9	13.5
Change (10-11 vs. 17-18)	0.10	0.08	-232	-0.3	-1.0	-1.4	2.6
Hispanic/Latino/a							
2010-2018	2.35	1.86	7,807	17.3	39.9	28.3	14.5
2010-2011	2.46	1.82	320	15.0	38.8	30.3	15.9
2017-2018	2.58	1.85	453	12.8	37.5	33.8	15.9
Change (10-11 vs. 17-18)	0.12	0.03	133	-2.2	-1.2	3.5	0.0
Asian/Pacific Islander							
2010-2018	2.33	1.73	9,724	12.5	46.0	29.1	12.4
2010-2011	2.31	1.70	580	8.3	54.5	26.2	11.0
2017-2018	2.43	1.74	1,324	9.8	47.3	28.9	14.0
Change (10-11 vs. 17-18)	0.12	0.04	744	1.5	-7.2	2.7	2.9
Multiracial							
2010-2018	2.36	1.96	2,777	18.8	39.7	26.0	15.5
2010-2011	2.37	2.00	228	17.1	39.0	30.3	13.6
2017-2018	2.54	1.99	302	17.5	37.1	24.2	21.2
Change (10-11 vs. 17-18)	0.17	-0.01	74	0.4	-1.9	-6.1	7.6

An analysis related to the Breadth of participation by the five racial categories found that students identifying as white participated in an average of 2.08 programs per week ($SD = 1.61$), students who identified as African American/Black averaged 2.27 programs per week ($SD = 2.01$), students who identified as Hispanic/Latino/a participated in an average of 2.23 programs

per week ($SD = 1.88$), students who identified as Asian/Pacific Islander participated in an average of 2.10 programs per week ($SD = 1.97$), and students who identified as Multiracial participated in an average of 2.11 programs per week ($SD = 1.77$). See Table 4.8 below.

When considering students participating in programs by their level of engagement, the analysis found that students identifying as White and considered to participate in at least one program weekly accounted for 82.1%, while students reporting they never participate (Non-Users) made up 17.9% of their racial demographic. In replicating the same analysis for students identifying as African American/Black, the analysis found that 77.9% participate in at least one program weekly, while 22.1% were considered Non-Users. Students who identified as Hispanic/Latino/a who participated in at least one program weekly made up 79.6%, while students identifying as Hispanic/Latino/a who did not participate in campus recreation programs, or Non-Users, made up 20.4% of the Hispanic/Latino/a racial demographic. For the group of students identifying as Asian/Pacific Islander, 78% reported weekly participation in at least one program, yet Non-Users were found to be 22% of students identifying as Asian/Pacific Islander. For the group of students identifying as Multiracial, a total of 79.8% reported participating in at least one program weekly, while Non-Users were found to be 20.2% of students identifying as Multiracial. The full proportionality of the each racial demographic per engagement level is displayed below in table 4.8.

The analysis included a comparison between student answers in 2010-2011 and student answers in 2017-2018. The results of this comparison analysis showed that all racial demographic groups experienced a decrease in the average weekly participation in campus recreation programs (White by -0.22 programs per week, African American/Black by -0.25

programs per week, Hispanic/Latino/a by -0.33 programs per week, Asian/Pacific Islander by -0.52 programs per week, and Multiracial by -2.30 programs per week.

When applying the comparison to the proportion of students per racial demographic and engagement level for breadth of participation, it was found the proportion of students identifying as White and in the Moderate User group dropped by 3.0 percentage points, while students identifying as White and in the Light User group increased by 4.4 percentage points. Students identifying as African American/Black and categorized in the Heavy User group saw their proportionality of the racial demographic decrease by 2.5 percentage points. Additionally, those students assigned to the Moderate User group decreased by 4.2 percentage points, the Light Users group increased by 9.1 percentage points, and the Non-User group decreased by 2.7 percentage points. For students identifying as Hispanic/Latino/a, the Moderate User Group decreased by 4.4 percentage points, and the Non-User group increased by 4.1 percentage points. For students identifying as Asian/Pacific Islander, the Moderate User group decreased by 6.3 percentage points, and the Light User group increased by 8.8 percentage points. For students identifying as Multiracial, the Heavy User group decreased by 2.0 percentage points, the Light User group decreased by 3.5 percentage points, and the Non-User group increased by 6.5 percentage points.

Table 4.8 – Depth of Participation by Race

Demographic	Weekly Participation Rate (0-10 programs per week)			Engagement Level			
	Mean	SD	n	Non %	Light %	Moderate %	Heavy %
White							
2010-2018	2.08	1.62	81,798	17.9	75.0	6.4	0.7
2010-2011	2.09	1.66	8,391	19.4	72.9	6.9	0.8
2017-2018	1.87	1.42	5,154	18.5	77.3	3.9	0.3
Change (10-11 vs. 17-18)	-0.22	-0.24	-3237	-0.9	4.4	-3.0	-0.5
African American/Black							
2010-2018	2.27	2.01	5,967	22.1	66.3	9.0	2.5
2010-2011	2.33	2.21	672	25.1	60.0	11.3	3.6
2017-2018	2.08	1.78	366	22.4	69.1	7.1	1.4
Change (10-11 vs. 17-18)	-0.25	-0.43	-306	-2.7	9.1	-4.2	-2.2
Hispanic/Latino/a							
2010-2018	2.23	1.88	8,968	20.4	69.0	8.7	1.9
2010-2011	2.26	1.68	460	16.7	73.7	8.5	1.1
2017-2018	1.93	1.56	467	20.8	74.3	4.1	0.9
Change (10-11 vs. 17-18)	-0.33	-0.11	7	4.1	0.6	-4.4	-0.2
Asian/Pacific Islander							
2010-2018	2.10	1.97	11,524	22.0	68.4	7.0	2.5
2010-2011	2.30	2.12	777	21.0	66.3	9.8	3.0
2017-2018	1.78	1.59	1,364	20.2	75.1	3.5	1.2
Change (10-11 vs. 17-18)	-0.52	-0.54	587	-0.8	8.8	-6.3	-1.8
Multiracial							
2010-2018	2.11	1.77	3,452	20.2	71.8	6.5	1.5
2010-2011	2.46	1.97	303	15.5	75.2	5.9	3.3
2017-2018	1.98	1.69	314	22.0	71.7	5.1	1.3
Change (10-11 vs. 17-18)	-0.48	-0.28	11	7.5	-3.5	-0.8	-2.0

By Sexual Orientation

In staying consistent with the approach to analyzing participation rates for students identifying with historically marginalized populations, the study examined the frequency of participation (depth) and scope of program engagement (breadth) by students identifying as “Lesbian, Gay, Bisexual, or Queer” and students who did not identify with the LGBTQ community.

A total of 7,267 students (7.1%) completing the survey identified LGBQ. The remaining 95,484 students (92.9%) who provided an answer to the survey question indicated they did not identify as LGBQ.

When exploring the depth of students' engagement with campus recreation, the analysis found that students who identified as LGBQ averaged 2.4 participations per week ($SD = 2.00$), while students who did not identify as LGBQ averaged 2.8 participations per week ($SD = 1.96$). See Table 4.9 below.

Results further showed that 70.9% of students who identified as LGBQ participated at least once per week as either Heavy, Moderate, or Light Users, while Non-Users were 29.1% of the population identifying as LGBQ. In contrast, 77.4% of students not identifying as LGBQ indicated participating weekly (Heavy, Moderate, or Light Users), while 22.6% said they never participated with campus recreation (Non-Users). Table 4.9 further displays the difference between users groups.

Due to a lack of available data in 2010-2011 for sexual orientation, a comparison was performed for student responses collected in 2011-2012 with student responses collected in 2017-2018. When comparing the frequency of participation by students completing the CRWB survey in 2011-2012 against students completing the CRWB survey in 2017-2018, it was found that students identifying as LGBQ indicated a slight increase to their weekly participation (0.06 times per week). When comparing participation rates for students not identifying as LGBQ over the same span of time, it was found that average participation increased by 0.12 for this group of students.

The rates of change observed between these two periods of data collection (2011-2012 and 2017-2018) indicated that students identifying as LGBQ and considered Heavy Users saw a

4.5 percentage point decrease in their participation, while Moderate Users saw a 7.8 percentage point increase and Light Users saw a 2.8 percentage point increase. This same population of students considered Non-Users saw a 6.2 percentage point decrease to their proportionality of the population as a whole.

Students not identifying as LGBQ did not see a significant increase or decrease irrespective of their engagement level when comparing 2011-2012 with 2017-2018.

Table 4.9 – Depth of Participation by Sexual Orientation

Demographic	Weekly Participation Rate			Engagement Level			
	(0-8 times per week)			Non	Light	Moderate	Heavy
	Mean	SD	n	%	%	%	%
Not LGBTQ							
2011-2018	2.80	2.03	56,422	22.6	22.2	34.7	20.5
2011-2012	2.76	2.02	4,929	22.6	23.0	34.8	19.6
2017-2018	2.88	2.01	5,306	20.9	22.1	35.5	21.5
Change (11-12 vs. 17-18)	0.12	0.00	377	-1.7	-0.9	0.7	1.9
LGBTQ							
2011-2018	2.40	1.96	3,993	29.1	23.3	32.5	15.0
2011-2012	2.35	2.06	242	33.1	20.7	28.1	18.2
2017-2018	2.41	1.83	613	26.9	23.5	35.9	13.7
Change (11-12 vs. 17-18)	0.06	0.23	371	-6.2	2.8	7.8	-4.5

In regards to the breadth of student participation (the number of programs a student engaged in weekly), those identifying as LGBQ indicated they participated in an average of 1.78 programs per week ($SD = 0.73$), while those students not identifying as LGBQ indicated participating in an average of 2.08 programs each week ($SD = 1.68$). See Table 4.10 below.

For breadth of participation, students identifying as LGBQ and considered weekly participants were 73.7% of the population, while Non-Users were 26.3%. The proportionality changed considerably for students who did not identify as LGBQ; 81.3% of these students

identified as participating weekly while, Non-Users, or students that indicated they never participate with campus recreation, were 18.7% of their population.

The chronological comparison between students submitting responses to the CRWB survey in 2011-2012 against responses received in 2017-2018 found that students identifying as LGBQ decreased in the average number of programs participated in weekly by 0.25 per week. Students not identifying as LGBQ also saw a decrease in the average number of weekly programs, indicating an average drop of 0.28 per week.

When the year-to-year comparison was analyzed by user groups for students identifying as LGBQ, Moderate Users saw the largest decrease at 2 percentage points, while Light Users increased by 2.1 percentage points. Students not identifying as LGBQ saw a similar rate of decrease with Moderate Users decreasing by 3.2 percentage points, Light Users increased by 2.8 percentage points between 2011-2012 and 2017-2018.

Table 4.10 - Breadth of Participation by Sexual Orientation

Demographic	Weekly Participation Rate (0-10 programs per week)			Engagement Level			
	Mean	SD	n	Non %	Light %	Moderate %	Heavy %
Not LGBTQ							
2011-2018	2.08	1.68	74,617	18.7	74.0	6.2	1.1
2011-2012	2.18	1.70	6,605	17.7	73.7	7.5	1.1
2017-2018	1.90	1.51	7,077	18.6	76.5	4.3	0.6
		-					
Change (11-12 vs. 17-18)	-0.28	0.19	472	0.9	2.8	-3.2	-0.5
LGBTQ							
2011-2018	1.78	1.73	5,369	26.3	67.7	4.5	1.5
2011-2012	1.89	1.86	341	25.5	67.2	5.3	2.1
2017-2018	1.64	1.55	853	26.5	69.3	3.3	0.9
		-					
Change (11-12 vs. 17-18)	-0.25	0.31	512	1.0	2.1	-2.0	-1.2

By Family Education Level

The CRWB survey asked students, “Are you the first in your family to go to college (neither of your parents/guardians have attended any college)?” For the purpose of this study, students answering this question in the affirmative as “First-Generation” students. Students answering “no” to this question are categorized as “Not First-Generation” students.

As displayed in Table 4.11, the depth of participation results showed that not first-generation students ($n = 50,044$) participated an average of 2.78 times per week ($SD = 2.03$), while first-generation students ($n = 12,493$) participated an average of 2.70 times per week ($SD = 1.98$).

The analysis of depth of participation by engagement levels indicated that not first-generation students who were considered weekly participants constituted 77.0%, while Non-Users rounded out the remaining 23.0% of not first-generation students. Students identifying as first-generation students had similar engagement rate, where 76.8% participated weekly and 23.2% indicated they never participated (Non-Users) with campus recreation.

The study examined the depth of participation for the demographic of family education level across the span of 8 years by comparing answers provided on the CRWB in 2010-2011 with answers provided on the CRWB in 2017-2018. The analysis found that not first-generation students’ weekly participation increased by 0.21 times per week between 2010-2011 and 2017-2018, yet first-generation students’ weekly participation only increased by 0.13 times per week in the same timeframe.

The same time period was used to identify difference in depth of participation by engagement level for the family education level demographic. Students identifying as not first-generation students and also classified as Heavy Users experienced a 4.3 percentage point

increase between 2010-2011 and 2017-2018, while all other engagement levels (Non, Light, and Moderate), experienced decreases when comparing the two periods of time. In contrast, students identifying as first-generation students and assigned to the Heavy User group were found to have a 2.6 percentage point increase, yet Light Users were the only engagement level that significantly decreased (3.2 percentage points).

Table 4.11 - Depth of Participation by Family Education Level

Demographic	Weekly Participation Rate (0-8 times per week)			Engagement Level			
	Mean	SD	n	Non	Light	Moderate	Heavy
				%	%	%	%
Not 1st Generation							
2010-2018	2.78	2.03	50,044	23.0	22.2	34.6	20.2
2010-2011	2.64	1.99	4,616	24.5	22.9	35.6	17.0
2017-2018	2.85	2.01	4,649	21.6	22.1	35.0	21.3
Change (10-11 vs. 17-18)	0.21	0.03	33	-2.9	-0.8	-0.6	4.3
1st Generation							
2010-2018	2.70	1.98	12,493	23.2	23.3	35.0	18.5
2010-2011	2.62	1.95	1,178	23.6	24.4	35.7	16.3
2017-2018	2.75	2.03	855	23.7	21.2	36.1	18.9
Change (10-11 vs. 17-18)	0.13	0.08	-323	0.1	-3.2	0.4	2.6

The study also explored the rate in which students engaged in campus recreation programs, referred to as breadth of participation. Students identifying as not first-generation students were found to participate in an average of 2.03 programs per week, while students who identified as first-generation students indicated participating in an average of 2.23 programs per week. See Table 4.12 below.

Exploring breadth of participation by engagement level revealed that 81.3% of students identifying as not first generation students participated in at least one program per week, while 18.7% indicated they never participate in campus recreation programs. For the students

identifying as first-generation students, 79.4% indicated weekly program participation and 20.6% indicated never participating (Non-Users).

The rate of programmatic participation (Breadth) was then analyzed across an eight year span of time (2010-2011 and 2017-2018). Students identifying as not first-generation students indicated a decrease in breadth of participation by a rate of 0.28 programs per week. First-generation students indicated almost the same decrease of 0.25 programs per week.

The eight-year comparison analysis for Breadth of participation was extended for the proportionality of engagement levels. Moderate User proportionality decreased when comparing the 2010-2011 with 2017-2018 by 3.2 percentage points of not first-generation students. Students identifying as first-generation students and assigned to the Moderate Users decreased by 2.0 percentage points.

Table 4.12 - Breadth of Participation by Family Education Level

Demographic	Weekly Participation Rate (0-10 programs per week)			Engagement Level			
	Mean	SD	n	Non	Light	Moderate	Heavy
				%	%	%	%
Not 1st Generation							
2010-2018	2.08	1.65	83,304	18.7	74.0	6.5	0.8
2010-2011	2.18	1.70	6,605	17.7	73.7	7.5	1.1
2017-2018	1.90	1.51	7,077	18.6	76.5	4.3	0.6
		-					
Change (10-11 vs. 17-18)	-0.28	0.19	472	0.9	2.8	-3.2	-0.5
1st Generation							
2010-2018	2.23	1.96	19,999	20.6	68.7	8.3	2.4
2010-2011	1.89	1.86	341	25.5	67.2	5.3	2.1
2017-2018	1.64	1.55	853	26.5	69.3	3.3	0.9
		-					
Change (10-11 vs. 17-18)	-0.25	0.31	512	1.0	2.1	-2.0	-1.2

Importance for Recruitment and Retention

This study relied on a series of binary logistic regressions to determine the effect campus recreation had on students' decision to attend and remain at their college or university. The dataset was formed by aggregating all years the CRWB survey was used. The repeating nature of the data created an anomaly in the analysis where a binary logistic regression analysis applied to the dataset as a whole lost all predictability power. In order to improve the model's predictability power, the binary logistic regression was performed on each individual year included in the dataset. A median of the odds ratios was reported for this series of regressions. Reporting the median – as opposed to the mean – controlled for outliers in the data and produced more accurate reporting of the findings. The odds ratio coefficient was chosen to provide a likelihood comparison between historically marginalized populations and their appropriate reference groups. An odds ratio is interpreted against a reference group and is a percentage likelihood, where an $\text{Exp}(B)$ of 1 indicates no likelihood, scores less than 1 indicate a lesser likelihood, and scores exceeding 1 indicate a greater likelihood (Demaris, 1995).

The predictability power of all models were determined by running the Hosmer and Lemeshow goodness-of-fit test at alpha level 0.05. If the goodness-of-fit test was not significant, the model was deemed to have a strong predictability power.

As appropriate when running a regression analysis, the multicollinearity assumption for the independent variables was checked. To do so, the variance inflation factor (VIF) was calculated for each independent variable. The VIF score of each independent variable was set at or above 1.000, indicating multicollinearity was not an issue. This assumption was only checked once as the independent variables remained the same for all binary logistic regressions. Students identifying as women were found to have a VIF of 1.008. For demographics related to race,

students identifying as African American/Black had a VIF of 1.026, Hispanic/Latino/a had a VIF of 1.076, Asian/Pacific Islander had a VIF of 1.036, and Multiracial students had a VIF of 1.016. Students identifying as Lesbian, Gay, Bisexual, or Queer (LGBQ) had a VIF of 1.024. All interaction variables were also found to have VIF scores above 1.000.

Recruitment

Seven logistic regressions were performed, each related to an individual year in the dataset (Appendix G). The dependent variable for the recruitment outcome was the rate of importance that students indicated campus recreation facilities and programs had on their decision to attend a college or university. The independent variables were the five demographic variables representing historically marginalized populations: Women, African American/Black, Hispanic/Latino/a, Asian/Pacific Islander, Multiracial, and LGBQ.

For the recruitment outcome, the goodness-of-fit test had a median chi-square value of 4.14. The Sig for each Hosmer and Lemeshow test exceeded 0.05, with the median value of 0.48.

As shown in Table 4.13, the median odds ratio for students identifying as women was Exp(B) of 0.89. Students identifying as African American/Black were found to have a median Exp(B) of 1.43. The median Exp(B) for students identifying as Hispanic/Latino/a was 1.18. Those students who selected their race as Asian/Pacific Islander were found to have a median Exp(B) of 1.30. The analysis also showed that students identifying as LGBQ had a median Exp(B) of 0.61.

Table 4.13 - Importance for Recruitment – Single Demographic Logistic Regression Analysis (2011-2018)

	Exp(B)	Sig.
Demographic		
Women	0.89	0.000
African American/Black	1.43	0.000
Hispanic/Latino/a	1.18	0.002
Asian/Pacific Islander	1.35	0.000
Multiracial	0.98	0.835
LGBQ	0.61	0.000

Note. The Hosmer & Lemeshow goodness-of-fit test median X^2 value was 4.143, $p = .387$. The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.

For further analysis, race and gender variables were interacted, which substantially improved the model's predictability power and allowed for a logistic regression analysis of the whole dataset. A list of interactions between gender and race served as independent variables while the rate of importance ("important at some level" v. "not important") was used as the dependent variable. The Hosmer and Lemeshow goodness-of-fit test chi-square value was 2.38, with a Sig of .304. The reference group used to interpret the odds ratios for the regression was "Man*White" and "Woman*White". The analysis found that students who identified as a Man and as African American/Black had a Exp(B) of 1.92. Students who identified as a Man and as Hispanic/Latino/a had a Exp(B) of 1.38. Students identifying as a Man and as Asian/Pacific Islander had a Exp(B) of 1.61. Students identifying as a Woman and as African American/Black were found to have an Exp(B) of 1.28. Students identifying as a Woman and as Hispanic/Latino/a had a Exp(B) of 1.18. Students identifying as a Woman and as Asian/Pacific Islander had a Exp(B) of 1.20. See Table 4.14 below.

Table 4.14 - Importance for Recruitment – Interaction Demographic Logistic Regression Analysis (All years)

	Exp(B)	Sig
Demographic		
Man*African American/Black	1.92	.000
Man*Hispanic/Latino/a	1.38	.000
Man*Asian/Pacific Islander	1.61	.000
Man*Multiracial	1.03	.654
Woman*African American/Black	1.28	.000
Woman*Hispanic/Latino/a	1.18	.000
Woman*Asian/Pacific Islander	1.20	.000
Woman*Multiracial	0.97	.488

Note. The Hosmer & Lemeshow goodness-of-fit test X^2 value was 2.38, $p = .304$.

Retention

Seven logistic regressions were performed, each related to an individual year in the dataset (Appendix H). The dependent variable for the retention outcome was the rate of importance that students indicated campus recreation facilities and programs had on their decision to remain at their college or university. Each of the demographic answers representing historically marginalized populations were used in the model as independent variables. The results of the Hosmer and Lemeshow goodness of fit test included a median chi-square value of 1.52 and a median Sig. of 0.901. This was reported as a median to correct for the repetition anomaly experienced when running the regression analysis on the dataset as a whole.

As how in Table 4.15, in regard to the likelihood campus recreation was important to their decision to remain at their college or university, students identifying as women had a median Exp(B) of 0.88. For the demographics included for race, students identifying as African American/Black had a median Exp(B) of 1.79, students identifying as Hispanic/Latino/a had a

median Exp(B) of 1.51, and students identifying as Asian/Pacific Islander had a median Exp(B) of 1.70. Students identifying as LGBQ had a median Exp(B) of 0.64.

Table 4.15 - Importance for Retention – Single Demographic Logistic Regression Analysis (2011-2018)

	Exp(B)	Sig.
Demographic		
Women	0.88	0.004
African American/Black	1.79	0.000
Hispanic/Latino/a	1.51	0.000
Asian/Pacific Islander	1.70	0.000
Multiracial	1.17	0.259
LGBQ	0.64	0.000

Note. The Hosmer & Lemeshow goodness-of-fit test median X^2 value was 1.228, $p = 0.942$. The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.

A deeper analysis of retention incorporated interactions among demographics as independent variables. As with the recruitment outcome, using interacting demographics as independent variables improved the model's predictability power when applied to the whole dataset, instead of individual years. When doing so, the Hosmer and Lemeshow goodness-of-fit chi square value was 2.52, with a sig. of 0.472, thus indicating the model had a high predictability power. The reference groups used to interpret the regression model's odds ratios for each independent variable were "Man*White" and "Woman*White". See Table 4.16 below.

The logistic regression analysis results showed that students who identified as a man and as African American/Black had a Exp(B) of 2.26. Students who identified as a man and as Hispanic/Latino/a had a Exp(B) of 1.76. Students identifying as a man and as Asian/Pacific Islander had a Exp(B) of 2.08. Students identifying as a woman and as African American/Black were found to have an Exp(B) of 1.71. Students identifying as a woman and as

Hispanic/Latino/a had a Exp(B) of 1.47. Students identifying as a woman and as Asian/Pacific Islander had a Exp(B) of 1.51.

Table 4.16 - Importance for Retention – Interaction Demographic Logistic Regression (All years)

	Exp(B)	Sig
Demographic		
Man*African American/Black	2.26	.000
Man*Hispanic/Latino/a	1.76	.000
Man*Asian/Pacific Islander	2.08	.000
Man*Multiracial	1.20	.011
Woman*African American/Black	1.71	.000
Woman*Hispanic/Latino/a	1.47	.000
Woman*Asian/Pacific Islander	1.51	.000
Woman*Multiracial	1.13	.018

Note. The Hosmer & Lemeshow goodness-of-fit test X^2 value was 2.52, $p = .472$.

Impact on the Student Experience

Findings concerning the impact campus recreation participation had on the student experience were organized into three sections corresponding to the existing literature. These included the improvement/enhancement of academic success, connection to campus, and quality of life. A variety of dependent variables derived from the CRWB survey and the full dataset were utilized to formulate the subsequent findings.

Academic Success

The CRWB survey asked students specifically to indicate the level in which campus recreation services improved or enhanced their academic performance. An analysis was performed to understand how students identifying with historically marginalized populations compared with students of non-marginalized demographics when affirming that participating

with campus recreation “definitely” improved or enhanced their academic performance. Seven logistic regressions were calculated, one for each year included in the dataset (2011-2012 through 2017-2018) (Appendix I). The repeating nature of the data created an anomaly in the analysis: when a binary logistic regression was applied to the full dataset, the model lost all predictability power, thus the regression analysis was performed on each individual year’s data. The odds ratio coefficient was used to report a likelihood of comparisons between historically marginalized populations and their appropriate reference groups. The median odds ratio of the seven regressions – seven years included in the full dataset – was selected for reporting on the results of the analysis. Doing so controlled for outliers in the data and reflected a more accurate reporting of the findings. The Hosmer and Lemeshow goodness-of-fit median chi square value for the seven models was 5.026 with a median Sig. of 0.285.

As displayed in Table 4.17, when asked if participating with campus recreation definitely improved academic performance, students who identified as African American/Black had a Exp(B) of 1.29 and students identifying as Hispanic/Latino/a had a Exp(B) of 1.37. Conversely, students identifying as Lesbian, Gay, Bisexual or Queer (LGBQ) had a Exp(B) of 0.76.

Table 4.17 - Definitely Improved/Enhanced Academic Performance Logistic Regression Analysis (2011-2018)

	Exp(B)	Sig.
Demographic		
Women	0.99	0.819
African American/Black	1.29	0.070
Hispanic/Latino/a	1.37	0.000
Asian/Pacific Islander	0.97	0.801
Multiracial	0.93	0.616
LGBQ	0.76	0.002

Note. The Hosmer & Lemeshow goodness-of-fit test median X^2 value was 5.026, $p = .285$. The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.

To address the third research question, depth of participation engagement levels and demographic variables were interacted. Doing so organized students identifying with historically marginalized populations into the four engagement levels: Heavy Users, Moderate Users, Light Users, and Non-Users. The interacted variables served as the independent variables in the model. The dependent variable was the rate in which students indicated that campus recreation definitely improved/enhanced their academic performance. Table 4.18 displays the logistic regression analysis, reporting the median odds ratio and the adjoining sig score for each of the independent variables. The Hosmer and Lemeshow goodness-of-fit median chi square value for the seven regression outputs was found to be 4.65 with a Sig. of .561. A comprehensive review of the depth of participation by engagement level is available in the appendices of this study (Appendix J).

For students identifying as women, those who indicated participating with campus recreation five or more times per week (depth - Heavy Users) had a Exp(B) of 1.99. The Moderate User Group (participating 3-4 times per week) had a median Exp(B) of 1.30, the Light User had a median Exp(B) 0.78, and the Non-User Group had a median Exp(B) of 0.58.

Heavy Users identifying as African American/Black had a Exp(B) of 1.82 and students identifying as Hispanic/Latino/a had a Exp(B) of 1.93. Moderate Users identifying as African American/Black had a median Exp(B) of 1.51 and students identified as Hispanic/Latino/a had a median Exp(B) of 1.73. Light Users identifying as Hispanic/Latino/a had a median Exp(B) of 1.45. Light Users who identified as Asian/Pacific Islander had a median Exp(B) of 0.84. Non-Users who identified as Asian/Pacific Islander had a median Exp(B) of 0.55.

Light Users who identified as LGBQ had a median Exp(B) of 0.74 and Non-Users who identified as LGBQ had a median Exp(B) of 0.51.

Table 4.18 - Definitely Improved/Enhanced Academic Performance by Depth Logistic Regression Analysis (2011-2018)

Depth	Exp(B)	Sig.
Heavy Users		
Heavy User*Women	1.99	0.000
Heavy User* African American/Black	1.82	0.007
Heavy User*Hispanic/Latino/a	1.93	0.010
Heavy User*Asian/Pacific Islander	1.48	0.063
Heavy User*Multiracial	1.18	0.555
Heavy User*LGBQ	1.02	0.944
Moderate Users		
Moderate User*Women	1.30	0.000
Moderate User*African American/Black	1.51	0.028
Moderate User*Hispanic/Latino/a	1.73	0.000
Moderate User*Asian/Pacific Islander	1.06	0.566
Moderate User*Multiracial	0.91	0.701
Moderate User*LGBQ	0.86	0.434
Light Users		
Light User*Women	0.78	0.000
Light User*African American/Black	1.19	0.138
Light User*Hispanic/Latino/a	1.45	0.000
Light User*Asian/Pacific Islander	0.84	0.047
Light User*Multiracial	0.72	0.272
Light User*LGBQ	0.74	0.011
Non-Users		
Non-User*Women	0.58	0.000
Non-User*African American/Black	0.76	0.504
Non-User*Hispanic/Latino/a	1.01	0.958
Non-User*Asian/Pacific Islander	0.55	0.002
Non-User*Multiracial	0.66	0.322
Non-User*LGBQ	0.51	0.014

*Note. The Hosmer & Lemeshow goodness-of-fit test median X^2 value was 4.65, $p = .561$.
The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.*

The analysis for campus recreation's enhancement of students' academic performance also included examining the breadth of participation and historically marginalized populations. The dependent variable remained the rate in which students indicated that campus recreation definitely improved or enhanced their academic performance. After running seven logistic

regressions – one for each year in the full dataset – the Hosmer and Lemeshow goodness-of-fit median chi square value was 4.33 with a sig. of .503. A comprehensive review of the depth of participation by engagement level is available in the appendices of this study (Appendix K).

Table 4.19 displays that Heavy Users who identified as Women had a median Exp(B) of 2.24. Moderate Users who identified as Women had a median Exp(B) of 2.24. Light Users who identified as Women had a median Exp(B) of 1.12. Non-Users who identified as Women had a median Exp(B) of 0.44.

Heavy Users who identified as African American/Black had a median Exp(B) of 4.58. Heavy Users who identified as Hispanic/Latino/a had a median Exp(B) of 6.52. Heavy Users who identified as Asian/Pacific Islander had a median Exp(B) of 2.98. Heavy Users who identified as Multiracial had a median Exp(B) of 3.29. Moderate Users who identified as African American/Black had a median Exp(B) of 2.02. Moderate Users who identified as Hispanic/Latino/a had a median Exp(B) of 2.66. Moderate Users who identified as Asian/Pacific Islander had a median Exp(B) of 1.79. Light Users who identified as African American/Black had a median Exp(B) of 1.23. Light Users who identified as Hispanic/Latino/a had a median Exp(B) of 1.37. Non-Users who identified as Asian/Pacific Islander had a median Exp(B) of 0.60.

Heavy Users who identified as LGBQ had a median Exp(B) of 3.33. Light Users who identified as LGBQ had a median Exp(B) of 0.79. Non-Users who identified as LGBQ had a median Exp(B) of 0.47.

Table 4.19 - Definitely Improved/Enhanced Academic Performance by Breadth Logistic Regression Analysis (2011-2018)

Breadth	Exp(B)	Sig.
Heavy Users		
Women	2.24	0.01
African American/Black	4.58	0.00
Hispanic/Latino/a	6.52	0.00
Asian/Pacific Islander	2.98	0.00
Multiracial	3.29	0.20
LGBQ	3.33	0.19
Moderate Users		
Women	2.24	0.00
African American/Black	2.02	0.10
Hispanic/Latino/a	2.66	0.00
Asian/Pacific Islander	1.79	0.14
Multiracial	1.25	0.54
LGBQ	0.95	0.87
Light Users		
Women	1.12	0.02
African American/Black	1.23	0.03
Hispanic/Latino/a	1.37	0.00
Asian/Pacific Islander	0.96	0.65
Multiracial	0.87	0.43
LGBQ	0.79	0.01
Non-Users		
Women	0.44	0.00
African American/Black	0.87	0.70
Hispanic/Latino/a	1.17	0.23
Asian/Pacific Islander	0.60	0.01
Multiracial	0.67	0.34
LGBQ	0.47	0.00

*Note. The Hosmer & Lemeshow goodness-of-fit test median X^2 value was 4.33, $p = .503$.
The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.*

Connection to Campus

A factor analysis was performed on fifteen questions asked in the CRWB survey, from which two distinct factors emerged. The group of variables representing the first factor were transformed into a single dichotomous variable, hereafter referred to as “connection to campus”.

An analysis was performed to understand how students identifying with historically marginalized populations compared with students of non-marginalized demographics when affirming that participating with campus recreation “definitely” improved/enhanced their connection to campus. Seven logistic regressions were produced, one for each year included in the dataset (Appendix L). The repeating nature of the data created an anomaly in the analysis: when a binary logistic regression was applied to the full dataset, the model lost all predictability power, thus the regression analysis was performed on each individual year of data. The odds ratio coefficient was used to report a likelihood of comparisons between historically marginalized populations and their appropriate reference groups. The median odds ratio of the seven regressions was selected for reporting on the results of the analysis. Doing so controlled for outliers in the data and reflected a more accurate reporting of the findings. The Hosmer and Lemeshow goodness-of-fit median chi square value for the seven models was 2.99 with a Sig. of 0.564.

As shown in Table 4.20, the analysis showed that students identifying as women had a median Exp(B) of 0.86. Students identifying as African American/Black had a Exp(B) of 2.08. Students identifying as Hispanic/Latino/a had a Exp(B) of 1.87. Students identifying as Asian/Pacific Islander had a Exp(B) of 1.32 and a Sig. of 0.007. Students who identified as Lesbian, Gay, Bisexual, or Queer (LGBQ) had a Exp(B) of 0.69 with a Sig. of 0.021.

Table 4.20 - Definitely Improved/Enhanced Connection to Campus Logistic Regression Analysis (2011-2018)

	Exp(B)	Sig.
Demographic		
Women	0.86	0.023
African American/Black	2.08	0.000
Hispanic/Latino/a	1.87	0.000
Asian/Pacific Islander	1.32	0.007
Multiracial	1.15	0.596
LGBQ	0.69	0.021

Note. The Hosmer & Lemeshow goodness-of-fit test median X^2 value was 2.99, $p = .564$. The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.

Depth of participation engagement levels and demographic variables were interacted. Doing so organized students identifying with historically marginalized populations into the four engagement levels: Heavy Users, Moderate Users, Light Users, and Non-Users. The interacted variables served as the independent variables in the model. The dependent variable was the rate in which students indicated that campus recreation definitely improved/enhanced their connection to campus. Seven logistic regressions were run to find the median odds ratio. The Hosmer and Lemeshow goodness-of-fit median chi square value for the seven regression outputs was found to be 3.24 with a Sig. of .862. A comprehensive review of the depth of participation by engagement level is available in the appendices of this study (Appendix M).

As displayed in Table 4.21, when considering depth of participation, Heavy Users who identified as African American/Black had a median Exp(B) of 2.53. Heavy Users who identified as Hispanic/Latino/a had a median Exp(B) of 3.06. Heavy Users group who identified as Asian/Pacific Islander had a median Exp(B) of 1.85. Moderate Users who identified as African American/Black had a median Exp(B) of 2.52. Moderate Users who identified as Hispanic/Latino/a had a median Exp(B) of 1.92. Light Users who identified as women had a

median Exp(B) of 0.70. Light Users who identified as African American/Black had a Exp(B) of 1.93. Light Users who identified as Hispanic/Latino/a had a median Exp(B) of 2.15. Non-Users who identified as women had a median Exp(B) of 0.46.

Table 4.21- Definitely Improved/Enhanced Connection to Campus by Depth
Logistic Regression Analysis (2011-2018)

Depth	Exp(B)	Sig.
Heavy Users		
Heavy User*Women	1.30	0.109
Heavy User* African American/Black	2.53	0.002
Heavy User*Hispanic/Latino/a	3.06	0.000
Heavy User*Asian/Pacific Islander	1.85	0.014
Heavy User*Multiracial	1.70	0.329
Heavy User*LGBQ	0.94	0.886
Moderate Users		
Moderate User*Women	1.06	0.485
Moderate User*African American/Black	2.52	0.002
Moderate User*Hispanic/Latino/a	1.92	0.001
Moderate User*Asian/Pacific Islander	1.64	0.135
Moderate User*Multiracial	1.24	0.617
Moderate User*LGBQ	0.63	0.382
Light Users		
Light User*Women	0.70	0.000
Light User*African American/Black	1.93	0.003
Light User*Hispanic/Latino/a	2.15	0.000
Light User*Asian/Pacific Islander	1.11	0.577
Light User*Multiracial	0.94	0.875
Light User*LGBQ	0.68	0.055
Non-Users		
Non-User*Women	0.46	0.002
Non-User*African American/Black	0.98	0.953
Non-User*Hispanic/Latino/a	1.41	0.249
Non-User*Asian/Pacific Islander	0.67	0.212
Non-User*Multiracial	0.85	0.827
Non-User*LGBQ	0.45	0.060

*Note. The Hosmer & Lemeshow goodness-of-fit test X^2 value was 3.24, $p = .862$.
The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.*

The same logistic regression analysis was performed using the interaction between breadth of participation engagement levels and demographics. With connection to campus serving as the dependent variable, and the twenty-four interaction variables serving as the independent variables, seven logistic regressions were run, one for each year available in the dataset. The Hosmer and Lemeshow goodness-of-fit test produced a median chi squared value of 4.16 and a Sig. of .740 for the model pertaining to Breadth of participation. A comprehensive review of the breadth of participation by engagement level is available in the appendices of this study (Appendix N).

Students who were assigned to the Heavy Users group and who identified as women were found to have a median Exp(B) of 3.41. Heavy Users who identified as African American/Black had a median Exp(B) of 5.43. Heavy Users who identified as Hispanic/Latino/a had a median Exp(B) of 9.33. Heavy Users who identified as Asian/Pacific Islander had a Exp(B) of 4.20. Moderate Users who identified as women had a median Exp(B) of 2.10. Moderate Users who identified as African American/Black had a median Exp(B) of 2.28. Moderate Users who identified as Hispanic/Latino/a had a median Exp(B) of 3.48. Moderate Users who identified as Asian/Pacific Islander had a median Exp(B) of 2.37. Light Users who identified as African American/Black had a median Exp(B) of 1.92. Light Users who identified as Hispanic/Latino/a had a median Exp(B) of 1.67. Light Users who identified as LGBQ had a median Exp(B) of 0.63. Non-users who identified as women had a median Exp(B) of 0.51. See Table 4.22 below.

Table 4.22 - Definitely Improved/Enhanced Connection to Campus by Breadth Logistic Regression Analysis (2011-2018)

Breadth	Exp(B)	Sig.
Heavy Users		
Heavy User*Women	3.41	0.000
Heavy User* African American/Black	5.43	0.018
Heavy User*Hispanic/Latino/a	9.33	0.000
Heavy User*Asian/Pacific Islander	4.20	0.000
Heavy User*Multiracial	5.33	0.077
Heavy User*LGBQ	0.94	0.909
Moderate Users		
Moderate User*Women	2.10	0.000
Moderate User*African American/Black	2.28	0.021
Moderate User*Hispanic/Latino/a	3.48	0.000
Moderate User*Asian/Pacific Islander	2.37	0.016
Moderate User*Multiracial	1.31	0.687
Moderate User*LGBQ	0.86	0.811
Light Users		
Light User*Women	0.86	0.142
Light User*African American/Black	1.92	0.000
Light User*Hispanic/Latino/a	1.67	0.000
Light User*Asian/Pacific Islander	1.33	0.039
Light User*Multiracial	1.26	0.242
Light User*LGBQ	0.63	0.003
Non-Users		
Non-User*Women	0.51	0.000
Non-User*African American/Black	1.41	0.402
Non-User*Hispanic/Latino/a	1.65	0.098
Non-User*Asian/Pacific Islander	1.02	0.925
Non-User*Multiracial	0.82	0.742
Non-User*LGBQ	0.57	0.188

*Note. The Hosmer & Lemeshow goodness-of-fit test X^2 value was 4.026 with Sig of .673
The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.*

Quality of Life

A factor analysis of fifteen questions on the CRWB survey resulted in two distinct factors. The group of variables representing the second factor were interacted to produce a single dichotomous variable, hereafter referred to as “quality of life”. An analysis was performed to understand how students identifying with historically marginalized populations compared with students of non-marginalized demographics when affirming that participating with campus recreation “definitely” improved/enhanced their quality of life. Seven logistic regressions were performed, one for each year included in the dataset (Appendix O). The repeating nature of the data created an anomaly in the analysis: when a binary logistic regression was applied to the full dataset, the model lost all predictability power, thus a regression analysis was performed on each individual year of data. The odds ratio coefficient was used to report a likelihood of comparisons between historically marginalized populations and their appropriate reference groups. The median odds ratio of the seven regressions was selected to report on results while controlling for outliers and representing more accurate findings. The Hosmer and Lemeshow goodness-of-fit median chi square value for the seven models was 2.99 with a Sig. of .564.

As shown in Table 4.23, students identifying as African American/Black had a median Exp(B) of 1.42 and students identifying as Hispanic/Latino/a had a median Exp(B) of 1.58. Students identifying as Lesbian, Gay, Bisexual, or Queer (LGBQ) had a median Exp(B) of 0.73.

Table 4.23 - Definitely Improved/Enhanced Quality of Life Logistic Regression Analysis (2011-2018)

	Exp(B)	Sig.
Demographic		
Women	0.94	0.416
African American/Black	1.42	0.009
Hispanic/Latino/a	1.58	0.000
Asian/Pacific Islander	1.15	0.067
Multiracial	1.07	0.619
LGBQ	0.73	0.002

Note. The Hosmer & Lemeshow goodness-of-fit test median X^2 value was 4.441, $p = .492$. The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.

Depth of participation engagement levels and demographic variables were interacted. Doing so organized students identifying with historically marginalized populations into the four engagement levels: Heavy Users, Moderate Users, Light Users, and Non-Users. The interacted variables served as the independent variables in the model. The dependent variable was the rate in which students indicated that participating with campus recreation definitely improved/enhanced their quality of life. The Hosmer and Lemeshow goodness-of-fit median chi square value for the seven regression outputs was 4.16 with a Sig. of .740. A comprehensive review of the depth of participation by engagement level is available in the appendices of this study (Appendix P).

As displayed in Table 4.24, Heavy Users who identified as women had a median Exp(B) of 1.81. Heavy Users who identified as African American/Black had a median Exp(B) of 1.88. Heavy Users who identified as Hispanic/Latino/a had a median Exp(B) of 2.42. Heavy Users who identified as Asian/Pacific Islander had a median Exp(B) of 1.82. Moderate Users who identified as women had a median Exp(B) of 1.26. Moderate Users who identified as African American/Black had a median Exp(B) of 1.75. Moderate Users who identified as

Hispanic/Latino/a had a median Exp(B) of 1.56. Moderate Users who identified as Asian/Pacific Islander had a median Exp(B) of 1.38. Light Users who identified as women had a median Exp(B) of 0.67. Light Users who identified as Hispanic/Latino had a median Exp(B) of 1.62. Light Users who identified as LGBTQ had a median Exp(B) of 0.62. Non-Users who identified as women were found to have a median Exp(B) of 0.59. Non-Users who identified as LGBTQ had a Exp(B) of 0.51.

Table 4.24 - Definitely Improved/Enhanced Quality of Life by Depth Logistic Regression Analysis (2011-2018)

Depth	Exp(B)	Sig.
Heavy Users		
Heavy User*Women	1.81	0.000
Heavy User* African American/Black	1.88	0.015
Heavy User*Hispanic/Latino/a	2.42	0.000
Heavy User*Asian/Pacific Islander	1.82	0.011
Heavy User*Multiracial	1.51	0.205
Heavy User*LGBQ	1.04	0.870
Moderate Users		
Moderate User*Women	1.26	0.029
Moderate User*African American/Black	1.75	0.001
Moderate User*Hispanic/Latino/a	1.56	0.011
Moderate User*Asian/Pacific Islander	1.38	0.006
Moderate User*Multiracial	1.31	0.233
Moderate User*LGBQ	0.77	0.307
Light Users		
Light User*Women	0.67	0.000
Light User*African American/Black	1.36	0.117
Light User*Hispanic/Latino/a	1.62	0.006
Light User*Asian/Pacific Islander	1.05	0.773
Light User*Multiracial	0.89	0.761
Light User*LGBQ	0.62	0.024
Non-Users		
Non-User*Women	0.59	0.000
Non-User*African American/Black	0.68	0.526
Non-User*Hispanic/Latino/a	1.16	0.593
Non-User*Asian/Pacific Islander	0.57	0.097
Non-User*Multiracial	0.54	0.397
Non-User*LGBQ	0.51	0.044

*Note. The Hosmer & Lemeshow goodness-of-fit test X^2 value was 4.16, $p = .740$
The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.*

A final seven binary logistic regression analyses were produced where the interaction between breadth of participation engagement levels and demographic groups served as the independent variables, and the quality of life variable served as the dependent variable. The

repeating nature of the data created an anomaly in the analysis: when a binary logistic regression was applied to the full dataset, the model lost all predictability power, thus a regression analysis was performed on each individual year of data (seven years). The Hosmer and Lemeshow goodness of fit test for median chi square value for the seven models was 4.376 with a Sig. of .485. A comprehensive review of the breadth of participation by engagement level is available in the appendices of this study (Appendix Q).

Heavy Users who identified with African American/Black had a median Exp(B) of 4.47. Heavy Users who identified as Asian/Pacific Islander had a median Exp(B) of 3.36. Moderate Users who identified as women had a median Exp(B) of 2.17. Moderate Users who identified as Asian/Pacific Islander had a median Exp(B) of 1.82. Light Users who identified as Hispanic/Latino/a had a median Exp(B) of 1.50. Light Users who identified as Asian/Pacific Islander had a median Exp(B) of 1.26. Non-Users who identified as women had a median Exp(B) of 0.42. See Table 4.25 below.

Table 4.25 - Definitely Improved/Enhanced Quality of Life by Breadth Logistic Regression Analysis (2011-2018)

Breadth	Exp(B)	Sig.
Heavy Users		
Heavy User*Women	2.47	0.101
Heavy User* African American/Black	4.47	0.021
Heavy User*Hispanic/Latino/a	3.57	0.071
Heavy User*Asian/Pacific Islander	3.36	0.000
Heavy User*Multiracial	4.06	0.130
Heavy User*LGBQ	1.06	0.911
Moderate Users		
Moderate User*Women	2.17	0.000
Moderate User*African American/Black	1.64	0.159
Moderate User*Hispanic/Latino/a	2.00	0.206
Moderate User*Asian/Pacific Islander	1.82	0.011
Moderate User*Multiracial	0.92	0.900
Moderate User*LGBQ	0.93	0.869
Light Users		
Light User*Women	1.04	0.613
Light User*African American/Black	1.28	0.103
Light User*Hispanic/Latino/a	1.50	0.000
Light User*Asian/Pacific Islander	1.26	0.019
Light User*Multiracial	1.07	0.648
Light User*LGBQ	0.77	0.104
Non-Users		
Non-User*Women	0.42	0.000
Non-User*African American/Black	0.96	0.913
Non-User*Hispanic/Latino/a	1.25	0.419
Non-User*Asian/Pacific Islander	0.79	0.347
Non-User*Multiracial	0.78	0.636
Non-User*LGBQ	0.57	0.060

Note. The Hosmer & Lemeshow goodness-of-fit test median X^2 value was 4.376, $p = .485$.

The Exp(B) is the median odds ratio for the annual analysis from 2011-2018.

Summary

A total of 195,847 student responses were used to produce the findings in this study. Of these students, slightly more than half ($n = 110,978$ student) provided information related to the depth of their participation. For breadth of participation, a total of 142,258 students provided information related to their participation in campus recreation programs.

Students indicated they participated an average of twice per week ($SD = 1.92$) for depth and in an average of two programs per week ($SD = 1.73$) for breadth. For depth of participation, Heavy Users increased by 2.9 percentage points between 2010-2011 and 2017-2018. For breadth of participation, the largest increase was found to be in the percentage of students classified as Light Users, which increased by 4.4 percentage points in the same time frame.

Several key findings were related to student participation and gender. Students identifying as women participated an average of 2.19 times per week, while students identifying as men indicated they participated an average of 2.62 times per week. The average rate of participation for students identifying as transgender decreased by 0.46 weekly participations between 2010-2011 and 2017-2018. For breadth of participation, students identifying as women engaged in 1.89 programs per week, while students identifying as men engaged in 2.45 programs per week. Both had the largest percentage of their population represented in the Light User Group for breadth, with women having 73.0% in Light Users and men having 73.7% as Light Users.

Student participation by depth and breadth was also examined by racial group. Students identifying as white indicated an average of 2.37 participations in 2.08 programs per week, students identifying as African American/Black indicated an average of 2.28 participations in 2.27 programs per week, students identifying as Hispanic/Latino/a indicated an average of 2.35

participations in 2.23 programs per week, students identifying as Asian/Pacific Islander indicated an average of 2.33 participations in 2.10 programs per week, and students identifying as Multiracial indicated an average of 2.36 participations in 2.11 programs per week. Light Users made up the largest percentage of each racial group for both depth and breadth of participation.

Students identifying as LGBQ indicated participating with campus recreation an average of 2.40 time per week and in an average of 1.78 programs. Students indicating they were not LGBQ indicated participating an average of 2.80 times in an average of 2.08 programs per week.

Findings related to the rate of participation for depth and breadth were also produced for students who indicated they were first generation college students. First generation students indicated they participated with campus recreation an average of 2.70 times per week. For program engagement (breadth), first generation students indicated weekly participation in 2.08 programs per week. The average depth of participation for first generations increased by 0.21 participations per week, but decreased for breadth of participation, where the average number of programs participated in each week dropped by 0.25 programs.

To answer the second research question guiding the study, the importance of campus recreation on a student's recruitment and retention was explored. Overall, the results varied by gender, race, and sexual orientation when it came to campus recreation's impact on recruitment and retention. The analysis found that students identifying as women had a Exp(B) of 0.89 for recruitment and an Exp(B) of 0.88 for retention. For race, students identifying as African American/Black had an Exp(B) of 1.43 for Recruitment and a Exp(B) of 1.84 for Retention. Students identifying as Hispanic/Latino/a had a Exp(B) of 1.18 for recruitment and a Exp(B) of 1.51 for retention. Students identifying as Asian/Pacific Islander had an Exp(B) of 1.35 for recruitment and a Exp(B) of 1.70 for Retention. While not statistically significant, students

identifying as Multiracial had a Exp(B) of 0.98 for recruitment and an Exp(B) of 1.17 for retention. Students identifying as LGBQ had an Exp(B) of 0.61 for recruitment and a Exp(B) of 0.64 for retention, both of which were statistically significant.

With regard to the role campus recreation had on improving or enhancing a student's academic performance, the study found several statistically significant odds-ratios. Students who identified as African American/Black had an Exp(B) of 1.29 as a whole, an Exp(B) of 1.89 as Heavy Users for depth, and an Exp(B) of 4.58 as Heavy Users for breadth. Students who identified as Hispanic/Latino/a had an Exp(B) of 1.37 as a whole, an Exp(B) of 1.93 as Heavy Users for depth, and an Exp(B) of 6.52 as Heavy Users for breadth. Students who identified as LGBQ had an Exp(B) of 0.76, an Exp(B) of 0.74 as Light Users for depth, and an Exp(B) of 0.79 as Light Users for breadth.

The same analysis looked at how campus recreation improved or enhanced a student's connection to campus. The following variables were found to be statistically significant. Students who identified as women had an Exp(B) of 0.86 as a whole, an Exp(B) of 0.70 as Light Users for Depth, but an Exp(B) of 3.41 as Heavy Users for breadth. Students who identified as African American/Black had an Exp(B) of 2.08 as a whole, an Exp(B) of 2.53 as Heavy Users for depth, and an Exp(B) of 3.41 as Heavy Users for breadth. Students who identified as Hispanic/Latino/a had an Exp(B) of 1.87 as a whole, an Exp(B) of 3.06 as Heavy Users for depth, and an Exp(B) of 7.40 as Heavy Users for breadth. Students who identified as Asian/Pacific Islander had an Exp(B) of 1.32 as a whole, an Exp(B) of 3.06 as Heavy Users for depth, and an Exp(B) of 3.45 as Heavy Users for breadth.

The study explored how participation with campus recreation improved/enhanced the quality of life for students identifying with historically marginalized populations. Students who

identified as African American/Black had an Exp(B) of 1.42, an Exp(B) of 1.88 as Heavy Users for depth, and an Exp(B) of 4.47 as Heavy Users for breadth. Students who identified as Hispanic/Latino/a had an Exp(B) of 1.58 as a whole, an Exp(B) of 2.42 as Heavy Users for Depth, and an Exp(B) of 3.57 as Heavy Users for breadth. Students who identified as LGBQ had an Exp(B) of 0.73, an Exp(B) of 0.62 as Light Users for depth, and an Exp(B) of 0.77 as Light Users for breadth.

Chapter five will review the literature guiding this study, summarize the study's results, discuss the study's findings, suggest application of findings to the work of campus recreation practitioners, and offer recommendations for future research.

CHAPTER 5: DISCUSSION

The purpose of this study was to improve the understanding of how college students who identify with historically marginalized populations engage with campus recreation and the impact campus recreation has on their experience as students. Using a conceptual framework that blended Astin's Theory of Student Involvement (Astin, 1984) and the definition of identity as constructed by Strayhorn (2010), with Forrester's (2015) contribution to the literature, the study sought to answer the following three research questions:

1. How have college students who identify with historically marginalized populations engaged with campus recreation over the past eight years?
2. How have campus recreation facilities and programs influenced the recruitment and retention of students who identify with historically marginalized populations over the past eight years?
3. What relationships exist between participation with campus recreation and the academic success, connection to the campus community, and quality of life as reported by students who identify with historically marginalized populations?

This quantitative study utilized survey data procured by the NIRSA/NASPA Knowledge Consortium through the distribution of the Campus Recreation and Wellness Benchmark (CRWB) survey from 2010-2011 to 2017-2018. A total of 171 US colleges or universities distributed the CRWB survey at least once on their campuses, producing 219,169 student responses during the consortium's existence. The raw data produced by these institutions were merged, cleaned, organized, and interacted to form a novel dataset. The dataset was then analyzed using a variety of descriptive and inferential statistics.

This chapter includes a summary and discussion of the findings per each research question. Additionally, this chapter provides application of the study's findings for campus recreation and university administrators, as well as recommendations for future research.

Participation

The first research question guiding this study asked, “How have college students who identify with historically marginalized populations engaged with campus recreation over the past eight years?” The existing literature provides ample and compelling evidence that college students in general participated with their campus recreation departments at impressive levels at the time the CRWB was administered. An estimated 75% of college students engaged with their campus recreation department at least once per year (Keer-Down, 2003; Henchy, 2011; Forrester, 2015). However, researchers have not examined participation rates related to historically marginalized populations, specially gender, race, sexual orientation, or as related to family education levels.

In 2015, Scott Forrester published an article in the *Recreational Sports Journal* in which he organized student engagement with campus recreation into four engagement levels: Heavy Users, Moderate Users, Light Users, and Non-Users (see Table 3.2). Using Astin's Theory of Student Involvement (1984), Forrester analyzed a single year of data resulting from the CRWB to assess the depth and breadth of student participation with campus recreation (Forrester, 2015). In regards to depth of participation – the frequency in which students participate with campus recreation on a weekly basis – Forrester (2015) found the largest proportion of students who participated with campus recreation fell into the Light Users engagement level (40%), but roughly one in five students were Non-Users (Forrester, 2015). For breadth of participation – the

number of campus recreation programs in which students expressed participating – Forrester (2015) found that the majority of all students (50%) were Light Users.

Expanding on Forrester’s (2015) findings, this study examined participation rates of students identifying with historically marginalized populations as organized into the same engagement levels, but also analyzed the number of weekly participations for both the depth and breadth of participation. Additionally, this study examined participation rates longitudinally by comparing rates in 2010-2011 with rates in 2017-2018 (note. longitudinal comparisons made for students identifying as LGBTQ compared 2011-2012 with 2017-2018 due to the lack of available data in 2010-2011).

Summary of the Findings

The overall proportion of students in each of the four engagement levels for depth of participation corroborated Forrester’s (2015) findings, yet the overall proportionality for breadth of participation was very different. It is believed this is due to the nature of the breadth variable and the method in which the aggregate of program participation was calculated. It was unclear as to how Forrester calculated this variable, however the current study used the “weekly” participation as the qualifier to keep it consistent with the depth variable. In doing so, the breadth variable used in this study was more restrictive than the breadth variable used in Forrester’s study. Despite this difference, the current study also found the majority of students in the dataset were considered Light Users for breadth of participation (72%), as did Forrester at 50% of all students (Forrester, 2015).

Findings from this study also revealed students identifying as women, transgender, or Lesbian, Gay, Bisexual, or Queer (LGBQ) participated less with campus recreation than students identifying as men or not LGBQ, both in regards to their depth and breadth of participation.

Additionally, a smaller proportion of the populations identifying as women, transgender, or LGBTQ reported participating with campus recreation in their depth or breadth of participation.

In addition, students identifying as African American/Black, Hispanic/Latino/a, or Asian/Pacific Islander participated at roughly the same rate as students identifying racially as White in both their depth and breadth of participation. However, for depth of participation, students identifying as African American/Black, Hispanic/Latino/a, or Asian/Pacific Islander had a larger proportion of their populations participate at some level when compared with students identifying as White. For breadth of participation, students identifying with racially marginalized populations had smaller proportions of their population participate at some level when compared with students who identified as white.

The study found no difference in either the rate of participation or the proportionality of the population participating with campus recreation with regard to family education level (first-generation students vs. not first-generation students).

When the analysis was performed for each historically marginalized group across the eight year span included in the dataset time (2010-2011 and 2017-2018), every population, either historically marginalized or not historically marginalized, – with the notable exception of students identifying as LGBTQ – increased in their depth of participation, yet decreased in their breadth of participation.

Discussion

This study corroborated Forrester's (2015) findings related to proportionality of student participation per the four engagement levels. Given the size of the dataset in this study, this finding strengthens the veracity of Forrester's finding that the mass majority of college students participate with their campus recreation department on a regular basis.

In regards to gender, the finding that students identifying as women participate at lower rates than men was interesting, yet not unexpected. According to Weaver, Forte, and McFadden (2017), campus recreation programs have the potential of impacting the recruitment of men at a higher rate than women. Furthermore, Stankowski, Trauntvein, and Hall (2017) found that students identifying as women were more likely to indicate a host of impediments to their participating with campus recreation. The findings of the current study compliment the research by clarifying the extent to which women and men participate with campus recreation relative to each other.

For students identifying with one of the historically marginalized races, the rate of participation and the proportionality of the populations per engagement level either exceeded or equaled that of students who identified racially as White. This finding was new as the prior research has not included how students from historically marginalized races participate with campus recreation.

Students identifying as LGBQ participated at the lowest overall rate among all historically marginalized populations included in this study. Additionally, this group's rate of participation decreased between 2011-2012 and 2017-2018, making it the only demographic group in the study to show a steady decrease across all engagement levels. This finding was surprising, yet only for the fact examining the participation rate for this demographic on a large scale was entirely unexplored prior to this study.

In 2015, the US Center for Disease Control (CDC), published its findings that society has embraced the notion that exercise is tied to healthy living. Given college campuses are an extension of society, finding that depth of participation had increased between 2010-2011 and 2017-2018 for all populations, with the exception of the LGBQ population, was anticipated.

However, finding that breadth of participation decreased across the same time period and for the same populations was surprising. According to Zizzi, Ayers, Watson II, and Keeler (2004), the opening of a new student recreation center increases the frequency of student participation with campus recreation services. Additionally, campus recreation facilities, programs, and services have expanded in their size and scope in the last decade (Kampf, Haines, & Gambino, 2018).

Recruitment and Retention

The second research question guiding this study asked, “How have campus recreation facilities and programs influenced the recruitment and retention of students who identify with historically marginalized populations over the past eight years?” College students have indicated the availability of campus recreation facilities and programs are important factors in their decision to attend a specific college or university (Kampf, Haines, & Gambino, 2018; Lindsey & Sessoms, 2006). Once attending their respective institutions, the more they participate with campus recreation, the more likely they are to be retained from their freshman to sophomore year (Huesman, Brown, Lee, Kellogg, & Radcliffe, 2009; Kampf & Teske, 2013). Additionally, higher education administrators believe that campus recreation plays an impactful role in the recruitment and retention of students (Weaver, Forte, & McFadden, 2017). While the literature contains ample evidence of campus recreation’s positive influence on recruiting and retaining college students as a whole, it is notably barren of studies that specifically explore the importance of campus recreation on recruitment and retention of students who identify with historically marginalized populations.

The CRWB survey asks, “When deciding to attend this college, how important were Campus Recreation facilities in your decision?” It also asks, “In deciding to continue at this college, how important are Campus Recreation facilities?” Each of these questions are

replicated, but with the word ‘facilities’ replaced with ‘programs’. Throughout the literature, campus recreation ‘facilities’ and ‘programs’ are inextricably linked. To account for this, a Spearman Rho correlation was performed to identify the relationship between the two aspects of campus recreation (facilities and programs) in the data procured by the CRWB survey. The results of this analysis found the two variables to be highly correlated: for recruitment the correlation coefficient was 0.729, (*Sig* = .000); for retention the correlation coefficient was 0.759 (*Sig* = .000). The two variables (facilities and programs) were interacted for each element (recruitment and retention) to produce two new variables. These new variables were transformed into a dichotomous variable, with 1 representing “important at some level” and 0 representing “not important”. The importance of campus recreation on recruitment and the importance of campus recreation on retention each served as a dependent variables. Gender, race, sexual orientation, and family education level served as the independent variable. Seven binary logistic regressions were performed per element – one for each year included in the dataset – to produce a median odds ratio for each independent variables. The median odds ratio was interpreted with non-marginalized populations serving as the reference group. The inferential analysis was repeated using the interaction between gender and race as the independent variables.

Summary of the Findings

Students identifying as women were roughly 12% less likely to indicate campus recreation was an important part of their decision to attend and to continue at their college/university when compared with students identifying as men. However, students identifying as women and as either African American/Black, Hispanic/Latino/a, or Asian/Pacific Islander were between 18% and 28% more likely to indicate campus recreation was important to their decision to attend and between 47% and 71% more likely to indicate campus recreation was

important to their decision to continue at their college/university when compared with students who identified as women and as White.

Students identifying as African American/Black were 43% more likely to indicate campus recreation was important in their decision to attend and 84% more likely to indicate campus recreation was important in their decision to continue at their college/university when compared with students identifying as White. Students identifying as both men and as African American/Black were 92% more likely to indicate campus recreation was important in their recruitment and 2.26 times more likely to indicate campus recreation was important to their retention when compared with students identifying as both men and as White. Students identifying as Hispanic/Latino/a were 18% more likely to indicate campus recreation was important in their decision to attend and 51% more likely to indicate campus recreation was important in their decision to continue at their college/university when compared with students identifying as White. Students identifying as both men and as Hispanic/Latino/a were 38% more likely to indicate campus recreation was important to their recruitment and 76% more likely to indicate campus recreation was important to their retention when compared with students identifying as both men and as White. Students identifying as Asian/Pacific Islander were 35% more likely to indicate campus recreation was important in their decision to attend and 70% more likely to indicate campus recreation was important in their decision to continue at their college/university when compared with students identifying as White. Students identifying as both men and as Asian/Pacific Islander were 61% more likely to indicate campus recreation was important to their recruitment and 1.08 times more likely to indicate campus recreation was important to their retention when compared with students identifying as both men and as White.

Students identifying as LGBQ were 39% less likely to indicate campus recreation was important to their decision to attend and 36% less likely to indicate campus recreation was important to their decision to remain at their college/university when compared with students who identified as not LGBQ.

Discussion

The finding that women place less importance on campus recreation in their recruitment decision than men assists in explaining why women were found to participate less with campus recreation than men. If women find campus recreation less important prior to attending, they are less likely to participate once at their respective institutions. Subsequently, their decreased rate of participation relates to their lower likelihood of finding campus recreation important for retention, and thus confirms the findings of Huesman, Brown, Lee, Kellogg, and Radcliffe (2009) and Kampf and Teske (2013). However, the findings related to women who identify as African American/Black, Hispanic/Latino/a, or Asian/Pacific Islander indicate these students are more likely to find campus recreation important for their recruitment and retention. This indicates that the decrease in likelihood of women, relative to men, is an opinion of students who identify as women and as White.

According to Lindsey, Sessoms, and Willis (2009), students who identified as African American were more likely to indicate campus recreation was important to their recruitment, retention, and likelihood for maintaining healthy lifestyles after college. This study was limited to the experience of students who identified as African American and used a small sample to reach its conclusion. Therefore, the current study's finding that students identifying with a historically marginalized race are more likely – some much more likely – to indicate campus recreation was important to their recruitment and retention when compared with students

identifying as White was expected. This result was enhanced when the demographics were interacted; men who identify with a historically marginalized race were far more likely to indicate importance when compared with men who identify as White.

While not surprising given the rate of participation, it was powerful to see the sizeable decrease in likelihood for students identifying as LGBTQ to find campus recreation important to their recruitment and retention when compared with students who do not identify as LGBTQ.

Academic Success, Connection to Campus, and Quality of Life

The third and final question guiding this study asked, “What relationships exist between participation with campus recreation and the academic success, connection to the campus community, and quality of life as reported by students who identify with historically marginalized populations?” These elements of the student experience have been deeply explored throughout the literature. Students who participate with campus recreation have higher average GPAs than students who do not (Belch, Gebel, & Maas, 2001; Becker, Cooper, Atkins, & Martin, 2009; Mayers, Wilson, & Potwarka, 2017; Sanderson, DeRousie, & Guistwite, 2018). Participating with campus recreation enhances a student’s personal and social diversity, thus improving their connection to their campus community (Bradley, Phillipi, & Bryant, 1992; Bryant & Bradley, 1993; Milton, 1993; Haines, 2001). Additionally, participating with campus recreation can impact key aspects tied to quality of life including, but not limited to, reduction in anxiety and improvement in self-esteem (Kanters, 2000; Simmons & Childers, 2013; Suttikun & Chang, 2016; Watson, Ayers, Zizzi, & Naoi, 2006). The relationship between campus recreation participation and academic success, connection to campus, and quality of life have been explored by practitioners and researchers alike, yet prior to this study, these aspects of the student experience had not been examined for historically marginalized populations.

The core of the CRWB survey asks students to identifying the level in which participating with campus recreation has “improved/enhanced” a variety of desirable outcomes. A single question is specifically asked about “academic performance”, in which responses were transformed into a dichotomous (“definite” or “sometimes/not at all”) and served as a dependent variable. A factor analysis was performed on the remaining fifteen variables, which divided the group into two distinct factors, each representing connection to campus and quality of life (see Table 3.5 for a list of the variables included in each factor). Twenty one binary logistic regressions were run on each of the three dependent variables; seven logistic regressions using demographics (e.g. women, African American/Black) as independent variables, seven logistic regressions using an interaction between engagement levels by depth of participation and demographics (e.g. Heavy Users*African American/Black), and seven logistic regressions using interaction between engagement level by breadth of participation and demographics. The median of the seven logistic regression odds ratios were used to report the likelihood in which students who identify with historically marginalized populations indicated participating with campus recreation definitely had an impact on their academic performance, connection to campus, or quality of life when compared with students who did not identify with historically marginalized populations.

Summary of the Findings for Academic Success

The first regression model only used the demographics as independent variables; it had a goodness-of-fit median chi-square value of 5.02 ($Sig = .285$), therefore the model had a strong predictability power. In this model, students who identified as African American/Black were 29% more likely, and students who identified as Hispanic/Latino/a were 37% more likely, to indicate participating with campus recreation definitely improved/enhanced their academic

performance when compared with students who identified as White. Students who identified as LGBTQ were 24% less likely to indicate participating with campus recreation definitely improved/enhanced their academic performance when compared with students who did not identify as LGBTQ.

The second model for academic success included an interaction between engagement levels for depth of participation and demographics serving as the independent variable. The median chi-square value for the goodness-of-fit test was 4.65 (*Sig* = .561), which indicated the model had a strong predictability power. Students who identified as women had an increased likelihood of indicating participating with campus recreation improved/enhanced their academic performance if they were Heavy Users (99% more likely) or Moderate Users (30% more likely). Light Users were 23% less likely to indicate participating with campus recreation improved/enhanced their academic performance when compared with men at the same engagement level. For students identifying as African American, Heavy Users were 82% more likely, Moderate Users were 51% more likely, and Light Users were 19% more likely (yet not statistically significant) to indicate participating with campus recreation improved/enhanced their academic performance when compared with students identifying as White in the same engagement levels. For students identifying as Hispanic/Latino/a, Heavy Users were 93% more likely, Moderate Users were 73% more likely, and Light Users were 45% more likely to indicate participating with campus recreation improved/enhanced their academic performance when compared with students identifying as White in the same engagement levels. For students who identified as LGBTQ, the only statistically significant coefficients were the Light Users who were 26% less likely to indicate participating with campus recreation improved/enhanced their academic performance when compared with students who did not identify as LGBTQ.

The third model for academic success included an interaction between engagement levels for breadth of participation and demographics serving as the independent variable. The median chi-square value for the goodness-of-fit test was 4.33 ($Sig = .503$), which indicated the model had a strong predictability power. Students who identified as women had an increased likelihood to indicate participating with campus recreation improved/enhanced their academic performance based on increased levels of participation: Heavy Users were 2.24 times more likely, Moderate Users were 2.24 times more likely, and Light Users were 12% more likely to indicate participating with campus recreation improved/enhanced their academic performance when compared with men. For students identifying as African American, Heavy Users were 4.5 times more likely, Moderate Users were twice as likely, and Light Users were 23% more likely to indicate participating with campus recreation improved/enhanced their academic performance when compared with students identifying as White in the same engagement levels. For students identifying as Hispanic/Latino/a, Heavy Users were 6.52 times more likely, Moderate Users were 2.66 times more likely, and Light Users were 37% more likely to indicate participating with campus recreation improved/enhanced their academic performance when compared with students identifying as White in the same engagement levels. As with depth of participation, students who identified as LGBQ and who were Light Users were 21% less likely to indicate participating with campus recreation improved/enhanced their academic performance when compared with students who did not identify as LGBQ.

Discussion for Academic Success

Students who identified as women were less likely to indicate their participation with campus recreation improved/enhanced their academic performance when compared with men. However, women who participated at higher levels were more likely to indicate a positive impact

to their academic performance, specifically women who were Heavy Users of the various programs and services offered by campus recreation (breadth of participation). This finding corroborates the literature that found women who participated with campus recreation averaged higher GPAs than women who did not participate (Belch, Gebel, & Maas, 2001). Given the rate of participation expressed by women, this finding indicated a smaller number of women were participating at a high rate, from which their participation is positively impacting their academic performance.

Irrespective of participation rates, students who identified racially as African American/Black or Hispanic/Latino/a indicated that participating with campus recreation improves/enhances their academic success. More importantly, these rates spiked with an increase in both depth and breadth of participation, but especially breadth of participation. According to Lindsey (2012), 89.5% of students surveyed at a Historically Black College/University indicated participating with campus recreation benefited their study habits to some degree. In Lindsey's (2012) study, 148 out of 157 survey respondents identified as African American. The current study strengthens Lindsey's (2012) findings by extending the analysis to a variety of institutions and expands the total number of students providing survey responses across several years of data collection. Given the participation rates for students who identify as African American/Black and as Hispanic/Latino/a, these findings are particularly noteworthy as they provide convincing insights into campus recreation's impact on students that is largely absent in the existing literature.

Students who identify as LGBTQ were less likely to indicate their participation enhanced/improved their academic performance when compared with non-LGBTQ students. This finding was consistent across all engagement levels and for both depth and breadth of

participation. This finding was expected when considering how students identifying as LGBQ expressed participating – or lack of – with campus recreation. A positive relationship between college engagement rates and the improvement to indicators of academic success has been well established throughout the literature (Astin, 1997; Bowen, 1977; Boyer, 1987; Pace, 1990; Pascarella, Mayhew, Rockenbach, Bowman, Wolniak, & Terenzini, 2016; Tinto, 1975). This leads back to a question of why students who identify as LGBQ have not participated with campus recreation as much as students who do not identify as LGBQ?

Summary of the Findings for Connection to Campus

In the first logistic regression model, the demographics alone served as independent variables. The model's median chi-square value for the goodness-of-fit test was 2.99 (*Sig* = .564), which indicates the model had a strong predictability power. Students who identified as women and students who identify as LGBQ were less likely to indicate participating with campus recreation improved/enhanced their connection to campus. Women were 24% less likely and LGBQ students were 31% less likely to indicate impact when compared with men and students who were not LGBQ. With the exception of students identifying as Multiracial, all other racial categories had odds ratios that exceeded 1.000. Students who identified as African American/Black were twice as likely to indicate participating with campus recreation improved/enhanced their connection to campus when compared with White students. Students who identified as Hispanic/Latino/a were 87% more likely to indicate participating with campus recreation improved or enhanced their connection to campus when compared with White students.

The second model used the interaction between depth of participation engagement levels and the demographics to form a new independent variable. As with academic success, students

identifying as women or as LGBQ were less likely to indicate an improved/enhanced connection to campus regardless of their engagement level. Women who were Light Users were 30% less likely to indicate an improved/enhanced connection to campus when compared with men who were Light Users. LGBQ students who were Light Users were 32% less likely to indicate an improved/enhanced connection to campus when compared with non-LGBQ students. For students identifying as African American, Heavy and Moderate Users were 2.5 times more likely and Light Users were 93% more likely to indicate participation with campus recreation improved/enhanced their connection to campus when compared with White students from the same engagement levels. For students who identified as Hispanic/Latino/a, Heavy Users were three times more likely, Moderate Users were two times more likely, and Light Users were 2.15 times more likely to indicate participating with campus recreation improved/enhanced their connection to campus when compared with White students from the same engagement levels.

The third model replicated the second model, but with breadth of participation replacing depth of participation in the interacted independent variables. The goodness-of-fit median chi-squared value for this model was 4.16 (*Sig* = .740), indicating strong predictability power. Women who participated as Heavy Users were 3.4 times more likely and Moderate Users were 2.1 times more likely to indicate participation with campus recreation improved/enhanced their connection to campus when compared with men at the same engagement levels. Students who identified as African American/Black and Heavy Users were 5.4 times more likely and Moderate Users were 2.3 times more likely to indicate participation with campus recreation improved/enhanced their connection to campus when compared with students who identified as White at the same engagement levels. Students who identified as Hispanic/Latino/a and Heavy Users were 7.4 times more likely and Moderate Users were 3.5 times more likely to indicate

participation with campus recreation improved/enhanced their connection to campus when compared with students who identified as White at the same engagement levels. Students who identified as LGBQ and were Light Users were 37% less likely to indicate participation with campus recreation improved/enhanced their connection to campus when compared with non-LGBQ students who were also Light Users.

Discussion for Connection to Campus

Connecting students with their campus community through social engagement is central to the efforts of student affairs practitioners (Bradley, Phillipi, & Bryant, 1992; Bryant & Bradley, 1993; Milton, 1993; Tinto 1993). The majority of campus recreation departments report within a division of student affairs (Milton, Roth, & Fiser, 2011). Campus recreation facilities, programs, and services provide ample opportunity for meaningful student engagement (Watson, Ayers, Zizzi, & Naoi, 2006; Simmons and Childers, 2013). Despite the availability of these services, students who identified as women and students who identified as LGBQ were less likely to indicate participating with campus recreation improved/enhanced their connection to campus when compared with men and non-LGBQ students. For students who identified as women, a notable deviation were Heavy and Moderate Users for breadth of participation. Women who participated in campus recreation programs several times per week were more likely to indicate their participation connected them to campus when compared with men participating at the same level. This increased likelihood indicates that women engaging in campus recreation services, such as group fitness classes, intramural programs, and/or with informal recreation, feel more connected to their campus community due to their participation than men who engaged in similar ways.

The results of this study make a compelling case that students who identify racially as African American/Black or Hispanic/Latino/a are far more likely to connect with their campus community through participation with campus recreation than students who identify as White. This likelihood improves with increased rates of participation, most notably when students who identify with these historically marginalized races engage with campus recreation programs on a weekly basis. African American/Black and Hispanic/Latino/a students face unique and numerous challenges when developing a sense of belonging within university communities (Hurtado & Carter 1997; Strayhorn, Lo, Travers, & Tillman-Kelly, 2015). Given this reality, it is powerful to find African American/Black students and Hispanic/Latino/a students are exponentially more likely than white students to feel their participation helps connect them to their campus community.

Students who identify as LGBTQ were far less likely to indicate their participation with campus recreation improved/enhanced their connection to campus. Even at the higher levels of depth or breadth of participation, the likelihood did not increase in a statistically significant way. Historically, these students struggle with this aspect of college life, therefore it was disappointing to see their participation with campus recreation did not alter their connection to campus (Evans, Nagoshi, Nagoshi, Wheeler, & Henderson, 2017; Vaccaro & Newman, 2016).

Summary of the Findings for Quality of Life

In the first logistic regression model, student demographics served as the independent variable. The median chi-squared value of the goodness-of-fit test was 4.441 (Sig = .492). The model was found to have a strong predictability power. For this model, three out of the six demographics were statistically significant: African American/Black, Hispanic Latino/a, and LGBTQ. Students who identified as African American/Black were 42% more likely to indicate

participating with campus recreation improved/enhanced their quality of life when compared with students who identified as White. Students who identified as Hispanic/Latino/a were 58% more likely to indicate participating with campus recreation improved/enhanced their quality of life when compared with students who identified as White. Students who identified as LGBQ were 27% less likely to indicate participating with campus recreation improved/enhanced their quality of life when compared with students who did not identify as LGBQ.

The second model used the interaction between demographics and the four engagement levels for depth of participation as independent variables. The goodness-of-fit test had a median chi-square value of 4.16 (*Sig* = .740), thus indicating the model had a strong predictability power. Students who identified as women and as Heavy Users were 81% and Moderate Users were 26% more likely to indicate participation with campus recreation increased their quality of life than men at the same level. However, women who were Light Users were 33% less likely than men who were Light Users to indicate such. Students who identified as African American/Black and as Heavy Users were 88% more likely, Moderate Users were 75% more likely, and Light Users were 36% more likely (yet not statically significant) to indicate participating with campus recreation improved/enhanced their quality of life than White students at the same engagement levels. Students who identified as Hispanic/Latino/a and who were Heavy Users were 2.4 times more likely, Moderate Users were 56% more likely, and Light Users were 62% more likely to indicate participating with campus recreation improved/enhanced their quality of life than White students at the same engagement levels. Students who identified as LGBQ and who were Light Users were 48% less likely to indicate participating with campus recreation improved/enhanced their quality of life when compared with students who did not identify as LGBQ.

The third model used the interaction between the demographics and the breadth of participation engagement level as the independent variables. The median chi-square value for the model's goodness-of-fit test was 4.376 (*Sig* = .485), again indicating the model had a strong predictability power. Unlike with other models, the majority of independent variables in this model lacked statistical significance. Students who identified as women and who were Moderate Users were 2.17 times more likely than men at the same engagement level to indicate participating with campus recreation improved/enhanced their quality of life. Students who identified as African American/Black and who were Heavy Users were 4.47 times more likely than White students who were Heavy Users to indicate participating with campus recreation improved/enhanced their quality of life. And students who identified as Hispanic/Latino/a and who were Light Users were 50% more likely than White students who were Light Users to indicate participating with campus recreation improved/enhanced their quality of life. All interacted independent variables related to students who identified as LGBQ were not statistically significant.

Discussion for Quality of Life

Participating with campus recreation has been shown to improve a student's wellness and quality of life (Forrester, 2015; Kanters, 2000; Simmons & Childers, 2013; Suttikun & Chang, 2016; Watson, Ayers, Zizzi, & Naoi, 2006). Given this understanding, it is powerful to find students who identified as women were less likely than students who identified as men to indicate participating with campus recreation improved their quality of life. However, this changed with the rate in which women participated with campus recreation. The higher the rate of participation, specifically when it came to participating in campus recreation programs, the higher the likelihood of women indicating an impact on their quality of life when compared with

men. Due to the variables that make up the quality of life factor (see Table 3.5), this was an important finding as it suggests women should engage at high levels in order to benefit most from participating.

College students identifying as African American/Black and Hispanic/Latino/a attending predominately white institutions experience unique distress, thus detracting from their quality of life (Constantine, Wilton, & Caldwell, 2003). As with the other dependent variables in this study, students who identify racially as African American/Black or Hispanic/Latino/a were far more likely to indicate their participation with campus recreation had a positive impact on their quality of life, when compared to White students. These likelihoods increased as the students' rate of engagement increased, especially for breadth of participation where the rates were exponentially higher. This implies that when students who identify with historically marginalized races participate at the highest levels possible, they are far more likely to associate the benefits of doing so when compared with students who identify as White. Given the cultural struggles many of these students face in a college environment, these findings indicate campus recreation programs and services are an active agent for improving what might otherwise be a more negative reality for these students (Constantine, Wilton, & Caldwell, 2003).

Students who identified as LGBQ were far less likely to indicate their participation with campus recreation improved/enhanced their quality of life, when compared with students who did not identify as LGBQ. This finding held across all engagement levels for both depth and breadth of participation. This, like connection to campus, was disappointing to see given the struggles many in the LGBQ community face on a daily basis (Evans, Nagoshi, Nagoshi, Wheeler, & Henderson, 2017; Vaccaro & Newman, 2016)..

Discussion Summary

Four notable demographic groups emerge from the findings due to their statistical significance and the increased or decreased likelihoods per dependent variable, relative to the reference group representing non-historically marginalized populations: women, African American/Black, Hispanic Latino/a, and LGBTQ.

Students identifying as women were found to participate with campus recreation at lower rates than men. Students identifying as women were less likely than men to indicate campus recreation was an important factor in their decision to attend or remain at their college/university, however, students identifying as women and as one of the historically marginalized races were more likely to indicate campus recreation was an important factor in their recruitment and retention when compared with white women. Women were less likely than men to indicate participating with campus recreation improved/enhanced their academic performance, connection to campus, or quality of life. Yet, women who were Heavy or Moderate Users were more likely to indicate participation positively impacted these elements of their student experience, when compared with men of the same engagement levels. While the existing literature shows women are more likely to indicate impediments to their participating with campus recreation, this study found that women who did participate with campus recreation were more likely to link that participation to their academic success than women who did not participate (Belch, Gebel, & Maas, 2001; Stankowski, Trauntvein, & Hall, 2017). Combined with the literature, these findings indicate that women should seek to participate frequently in order to benefit from doing so at higher rates than men.

Students who identify racially as African American/Black or Hispanic/Latino/a were found to participate with campus recreation at nearly the same rates as students who identify

racially as White. Students who identified as African American/Black or Hispanic/Latino/a were more likely than White students to indicate campus recreation was important to their recruitment and retention. Students who identified as African American/Black or Hispanic/Latino/a were more likely to indicate participating with campus recreation improved/enhanced their academic performance, connection to campus, and quality of life, when compared with White students. These results indicate that while African American/Black or Hispanic/Latino/a students participate with campus recreation at similar rates as White students, their participation is more likely to resonate positively in regards to their recruitment, retention, academic performance, connection to campus, and quality of life. Students identifying as African American/Black or Hispanic/Latino/a face an array of social, cultural, and personal challenges within the context of higher education (Constantine, Wilton, & Caldwell, 2003; Hurtado & Carter 1997; Strayhorn, Lo, Travers, & Tillman-Kelly, 2015). The findings of this study expand on Lindsey's (2012) findings and suggest that campus recreation serves as a positive force in combating such challenges among students who identify as African American/Black or Hispanic/Latino/a.

Students who identified as LGBQ participated with campus recreation at the lowest level of all populations examined in this study. Additionally, their rate of participation decreased between 2011-2012 and 2017-2018. Students who identified as LGBQ were far less likely to indicate campus recreation was important to their recruitment and retention when compared with students who did not identify as LGBQ. And lastly, students who identified as LGBQ were less likely to indicate participating with campus recreation improved/enhanced their academic performance, connection to campus, and quality of life, irrespective of their level of engagement for depth or breadth of participation. These findings indicate campus recreation plays a less pertinent role in the lives of students who identify as LGBQ when compared with students who

do not identify as LGBTQ. Students identifying as LGBTQ have endured longstanding institutional marginalization throughout higher education (Evans, Nagoshi, Nagoshi, Wheeler, & Henderson, 2017; Vaccaro & Newman, 2016). Given this reality, it was disappointing to see the benefits of campus recreation participation have not resonated with this group of students at the same rate as with student from other historically marginalized populations.

Application for Campus Recreation

Given the collegiate recreation industry's most recent pivot from recreation-based offerings to wellness/wellbeing-based offerings, the implications of this study's findings are extremely timely. College continues to be a place where historically marginalized students struggle to succeed academically, connect with their campus community, and experience a heightened quality of life while navigating Academia. The results in this study suggest these populations, specifically students who identify with historically marginalized races, are engaging with their campus recreation departments on a frequent basis, and this engagement has improved their student experience at a rate higher than that of their White counterparts. Campus recreation as a whole should use these findings to champion their programs and services, while bolstering their efforts to continue to serve these historically marginalized populations.

A growing body of literature projects an increase to the number of college students who identify with historically marginalized races over the next decade (McFarland et al., 2019). Given this projected change in enrollment demographics, the findings in this study should be noted by university administrators. Campus recreation leaders might use these findings to advocate for additional resources and/or plans for future expansions of facilities, programs, and services. Additionally, campus recreation practitioners should heed these findings and develop intentional ways to engage students who identify as women and as LGBTQ in order to extend the

positive outcomes associated with participation that are clearly being experienced by other segments of the population. Some suggested practices include the following:

- Begin by holding internal conversations with students who identify with historically marginalized population regarding their needs from campus recreation.
- Expand campus recreation facilities to include space that could be dedicated to providing historically marginalized population with more programs and services.
- Add new staff members to campus recreation departments and be intentional about hiring individuals who identify with historically marginalized populations.
- Partner with their women's studies departments, multicultural offices, and LGBTQ pride centers to offer specific programs for students who engage with those areas of campus.
- Provide "women's only" hours and/or reserved spaces throughout campus recreation facilities (weight rooms, climbing walls, sports courts) to engage students identifying as women at more frequent rates.
- Enhance intramural sports programs by providing new sports initiatives that engage non-traditional participants in instructional classes to learn the rules and technique of playing a sport.
- Modify outdoor recreation programs to market specifically to women and students identifying as LGBTQ to provide experiences that meet the student's level of interest and abilities.
- Using internal participation data, practitioners should identify programs that show higher rates of participation by students who identify as women or LGBTQ and actively plan to increase the number of offerings for those programs.

Future Research

This quantitative study provided large-scale, longitudinal quantitative data related to the way students who identify with historically marginalized populations engage with their campus recreation department, and the result of that engagement. Future studies should apply a qualitative or mixed methods approach to digging further into the experience of these students in order to answer the ‘why’ questions that derive from the current study. An example might be “why are students who identify as African American/Black twice as likely as White students to indicate participating with campus recreation improves/enhances their connection to campus?” A qualitative examination of the students’ experience with campus recreation would improve the practitioner’s approach to intentional programming in order to provide the highest level of quality for students who identify with historically marginalized populations.

Given the size, scope, and general complexity of the dataset developed from the NIRSA/NASPA Consortium, a host of follow-up studies could be performed using similar methodologies. One might include additional interaction variables that would apply class levels to the already existing independent variables. One might refine the engagement levels to include a continuous variable, like estimated time spent (total minutes) participating with campus recreation. Further application could include organizing the data by geographic regions in the country to determine if rates and coefficients change significantly from region-to-region. Any studies stemming from this dissertation would contribute to the growing body of literature related to the ways in which college students interact with their campus recreation departments and the impact their participation has on their development and experience with higher education.

Conclusion

The field of campus recreation has existed for over seventy years, beginning with the first national meeting of intramural directors in 1950 (Granholm, 2019). Since that time the field has expanded to include thousands of master-level practitioners working at every major college or university across the US (NIRSA, n.d.). Millions of college students engage with campus recreation facilities, programs, and services every year (Kampf, Haines, & Gambino, 2018; Stankowski, Trauntvein, & Hall, 2017). These inextricable elements of the traditional college experience have been deemed essential to improving the student's health and wellbeing (Downs, 2003). Their impact on the student's ability to succeed in the classroom, form meaningful relationships, and live a higher quality of life has been a central focus of practitioner scholarship for the past twenty years (Forrester, 2015). The instrument evidencing these research efforts has been the Campus Recreation and Wellness Benchmark, championed by the NIRSA/NASPA Consortium.

The existing literature was absent of a study that analyzed the impact of campus recreation participation on historically marginalized populations from a longitudinal lens and at a macro level. This study has filled this gap as it provided clear quantitative findings derived from a decade-worth of data collected from 139 college/universities across the US. This study's findings specified who participated with campus recreation, how campus recreation impacted recruitment and retention, and the impact participation had on academic success, connection to campus, and quality of life for historically marginalized populations.

Campus recreation as a field continues to face and address insecurities amidst the growing social scrutiny facing higher education in America. The findings of this study reinforce the positive outcomes achieved by campus recreation departments across the US. Students who

identify as African American/Black or Hispanic/Latino/a – especially students also identifying as men – are participating with campus recreation and that participation is improving and enhancing critical aspects of their student experience. Additionally, the findings provided suggestions for bolstering the impact on students identifying as women and as LGBTQ. Lastly, this study provided a guide for future research related to the student experience and the benefits of participating with campus recreation.

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APPENDICES

Appendix A Campus Recreation and Wellness Benchmark

Page - Consortium: Recreation and Wellness Survey

Q1 Which best describes you?

Student[Code = 1]

Faculty[Code = 2]

Staff[Code = 3]

Alumni[Code = 4]

Community member[Code = 5]

Required answers: 1

Allowed answers: 1

Q2 Do you utilize any of the on-campus recreation facilities, programs, or services?

Yes[Code = 1]

No[Code = 0]

Required answers: 1

Allowed answers: 1

Next Page: Sequential

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Please answer the following questions.

Q3 When deciding to attend this college, how important were **Campus Recreation facilities** in your decision?

Very important[Code = 4] [Numeric Value = 4]

Moderately important [Code = 3] [Numeric Value = 3]

Slightly important [Code = 2] [Numeric Value = 2]

Not at all important[Code = 1] [Numeric Value = 1]

Required answers: 0

Allowed answers: 1

Q4 When deciding to attend this college, how important were **Campus Recreation programs** (e.g., intramural sports, sport clubs, fitness) in your decision?

Very important[Code = 4] [Numeric Value = 4]

Moderately important [Code = 3] [Numeric Value = 3]

Slightly important [Code = 2] [Numeric Value = 2]

Not at all important[Code = 1] [Numeric Value = 1]

Required answers: 0

Allowed answers: 1

Q5 In deciding to continue at this college, how important are **Campus Recreation facilities**?

Very important[Code = 4] [Numeric Value = 4]

Moderately important [Code = 3] [Numeric Value = 3]

Slightly important [Code = 2] [Numeric Value = 2]

Not at all important[Code = 1] [Numeric Value = 1]

Required answers: 0

Allowed answers: 1

Q6 In deciding to continue at this college, how important are **Campus Recreation programs** (e.g., intramural sports, sport clubs, fitness)?

Very important[Code = 4] [Numeric Value = 4]

Moderately important [Code = 3] [Numeric Value = 3]

Slightly important [Code = 2] [Numeric Value = 2]

Not at all important[Code = 1] [Numeric Value = 1]

Required answers: 0 Allowed answers: 1

Q7 How important were recreation, sports, and/or fitness activities to you **prior** to enrolling at this college?

Very important[Code = 4] [Numeric Value = 4]

Moderately important [Code = 3] [Numeric Value = 3]

Slightly important [Code = 2] [Numeric Value = 2]

Not at all important[Code = 1] [Numeric Value = 1]

Required answers: 0 Allowed answers: 1

Q8 How important will recreation, sports, and/or fitness activities be to you **after** you leave this college?

Very important[Code = 4] [Numeric Value = 4]

Moderately important [Code = 3] [Numeric Value = 3]

Slightly important [Code = 2] [Numeric Value = 2]

Not at all important[Code = 1] [Numeric Value = 1]

Required answers: 0 Allowed answers: 1

Q9 How important was maintaining a healthy lifestyle to you **prior** to enrolling at this college?

Very important[Code = 4] [Numeric Value = 4]

Moderately important [Code = 3] [Numeric Value = 3]

Slightly important [Code = 2] [Numeric Value = 2]

Not at all important[Code = 1] [Numeric Value = 1]

Required answers: 0 Allowed answers: 1

Q10 How important will maintaining a healthy lifestyle be to you **after** you leave this college?

Very important[Code = 4] [Numeric Value = 4]

Moderately important [Code = 3] [Numeric Value = 3]

Slightly important [Code = 2] [Numeric Value = 2]

Not at all important[Code = 1] [Numeric Value = 1]

Required answers: 0 Allowed answers: 1

Display if Q1='Student'

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Display if Q2='Yes'

Q11 On average, how many times per week do you participate in on-campus recreational sports, programs, and/or activities?

Never[Code = 1]

1 time per week[Code = 2]

2 times per week[Code = 3]

3 times per week[Code = 4]

4 times per week[Code = 5]

5 times per week[Code = 6]

6 times per week[Code = 7]

7 times per week[Code = 8]

More than 7 times per week[Code = 9]

Required answers: 0 Allowed answers: 1

Q12 On average, how many minutes do you spend utilizing the on-campus recreational facilities or participating in programs or activities?

Less than 30 minutes per visit [Code = 1]

30 - 59 minutes per visit [Code = 2]

60 - 89 minutes per visit [Code = 3]

90 minutes or longer per visit [Code = 4]

Required answers: 0 Allowed answers: 1

How often do you participate in the following on-campus activities, programs, and/or services?

Q13 Intramural sports

5 or more times per week [Code = 6]

3 - 4 times per week [Code = 5]

1 - 2 times per week [Code = 4]

1 - 2 times per **month** [Code = 3]

1 - 2 times per **semester/quarter** [Code = 2]

Never [Code = 1]

Required answers: 0 Allowed answers: 1

Q14 Sport clubs

5 or more times per week [Code = 6]

3 - 4 times per week [Code = 5]

1 - 2 times per week [Code = 4]

1 - 2 times per **month** [Code = 3]

1 - 2 times per **semester/quarter** [Code = 2]

Never [Code = 1]

Required answers: 0 Allowed answers: 1

Q15 Aquatics/pool

5 or more times per week [Code = 6]

3 - 4 times per week [Code = 5]

1 - 2 times per week [Code = 4]

1 - 2 times per **month** [Code = 3]

1 - 2 times per **semester/quarter** [Code = 2]

Never [Code = 1]

Required answers: 0 Allowed answers: 1

Q16 Instructor-led group fitness or exercise classes

5 or more times per week [Code = 6]

3 - 4 times per week [Code = 5]

1 - 2 times per week [Code = 4]

1 - 2 times per **month** [Code = 3]

1 - 2 times per **semester/quarter** [Code = 2]

Never [Code = 1]

Required answers: 0 Allowed answers: 1

Q17 Weight training/lifting free weights

5 or more times per week [Code = 6]

3 - 4 times per week[Code = 5]
1 - 2 times per week[Code = 4]
1 - 2 times per month [Code = 3]
1 - 2 times per semester/quarter [Code = 2]
Never[Code = 1]

Required answers: 0 Allowed answers: 1

Q18 Cardio-vascular training (e.g., treadmill, elliptical, stationary bike)

5 or more times per week[Code = 6]
3 - 4 times per week[Code = 5]
1 - 2 times per week[Code = 4]
1 - 2 times per month [Code = 3]
1 - 2 times per semester/quarter [Code = 2]
Never[Code = 1]

Required answers: 0 Allowed answers: 1

Q19 Open recreation (e.g., pick-up basketball, volleyball, soccer)

5 or more times per week[Code = 6]
3 - 4 times per week[Code = 5]
1 - 2 times per week[Code = 4]
1 - 2 times per month [Code = 3]
1 - 2 times per semester/quarter [Code = 2]
Never[Code = 1]

Required answers: 0 Allowed answers: 1

Q20 Racquet sports (e.g., racquetball, squash, badminton, tennis)

5 or more times per week[Code = 6]
3 - 4 times per week[Code = 5]
1 - 2 times per week[Code = 4]
1 - 2 times per month [Code = 3]
1 - 2 times per semester/quarter [Code = 2]
Never[Code = 1]

Required answers: 0 Allowed answers: 1

Q21 Outdoor adventure activities and/or trips

5 or more times per week[Code = 6]
3 - 4 times per week[Code = 5]
1 - 2 times per week[Code = 4]
1 - 2 times per month [Code = 3]
1 - 2 times per semester/quarter [Code = 2]
Never[Code = 1]

Required answers: 0 Allowed answers: 1

Q22 Personal training

5 or more times per week[Code = 6]
3 - 4 times per week[Code = 5]
1 - 2 times per week[Code = 4]

1 - 2 times per month [Code = 3]	
1 - 2 times per semester/quarter [Code = 2]	
Never[Code = 1]	
	Required answers: 0 Allowed answers: 1

Q23 Fitness assessments or testing	
5 or more times per week[Code = 6]	
3 - 4 times per week[Code = 5]	
1 - 2 times per week[Code = 4]	
1 - 2 times per month [Code = 3]	
1 - 2 times per semester/quarter [Code = 2]	
Never[Code = 1]	
	Required answers: 0 Allowed answers: 1

Please indicate which times of the day are you most likely to utilize facilities:

Q24 During the week (Monday - Friday)	
Early morning (before 8 a.m.)[Code = 1]	
Morning (8 a.m. - 11 a.m.)[Code = 2]	
Mid-day (11 a.m. - 2 p.m.)[Code = 3]	
Afternoon (2 p.m. - 5 p.m.)[Code = 4]	
Early evening (5 p.m. - 8 p.m.)[Code = 5]	
Late evening (after 8 p.m.)[Code = 6]	
Never[Code = 7]	
	Required answers: 0 Allowed answers: 1

Q25 On the weekend (Saturday - Sunday)	
Early morning (before 8 a.m.)[Code = 1]	
Morning (8 a.m. - 11 a.m.)[Code = 2]	
Mid-day (11 a.m. - 2 p.m.)[Code = 3]	
Afternoon (2 p.m. - 5 p.m.)[Code = 4]	
Early evening (5 p.m. - 8 p.m.)[Code = 5]	
Late evening (after 8 p.m.)[Code = 6]	
Never[Code = 7]	
	Required answers: 0 Allowed answers: 1

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Display if (Q2='Yes')

Please indicate your level of agreement with the following statements:

Q26 Participating in Campus Recreation activities and programs has expanded my interest in staying fit and healthy.	
Strongly agree[Code = 5] [Numeric Value = 5]	
Somewhat agree[Code = 4] [Numeric Value = 4]	
Neither agree nor disagree[Code = 3] [Numeric Value = 3]	

Somewhat disagree[Code = 2] [Numeric Value = 2]
Strongly disagree[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
<i>Required answers: 0 Allowed answers: 1</i>

Q27 Campus Recreation activities and programs contribute to the quality of life at this institution.	
Strongly agree[Code = 5] [Numeric Value = 5]	
Somewhat agree[Code = 4] [Numeric Value = 4]	
Neither agree nor disagree[Code = 3] [Numeric Value = 3]	
Somewhat disagree[Code = 2] [Numeric Value = 2]	
Strongly disagree[Code = 1] [Numeric Value = 1]	
No basis to judge[Code = 99]	
<i>Required answers: 0 Allowed answers: 1</i>	

Q28 Campus Recreation offers "something for everyone."	
Strongly agree[Code = 5] [Numeric Value = 5]	
Somewhat agree[Code = 4] [Numeric Value = 4]	
Neither agree nor disagree[Code = 3] [Numeric Value = 3]	
Somewhat disagree[Code = 2] [Numeric Value = 2]	
Strongly disagree[Code = 1] [Numeric Value = 1]	
No basis to judge[Code = 99]	
<i>Required answers: 0 Allowed answers: 1</i>	

Q29 My recreational needs are met by Campus Recreation.	
Strongly agree[Code = 5] [Numeric Value = 5]	
Somewhat agree[Code = 4] [Numeric Value = 4]	
Neither agree nor disagree[Code = 3] [Numeric Value = 3]	
Somewhat disagree[Code = 2] [Numeric Value = 2]	
Strongly disagree[Code = 1] [Numeric Value = 1]	
No basis to judge[Code = 99]	
<i>Required answers: 0 Allowed answers: 1</i>	

Q30 I enjoy participating in Campus Recreation activities and/or utilizing facilities.	
Strongly agree[Code = 5] [Numeric Value = 5]	
Somewhat agree[Code = 4] [Numeric Value = 4]	
Neither agree nor disagree[Code = 3] [Numeric Value = 3]	
Somewhat disagree[Code = 2] [Numeric Value = 2]	
Strongly disagree[Code = 1] [Numeric Value = 1]	
No basis to judge[Code = 99]	
<i>Required answers: 0 Allowed answers: 1</i>	

Q31 Participation in recreational activities has provided me with skills/abilities that I will use after college.	
Strongly agree[Code = 5] [Numeric Value = 5]	
Somewhat agree[Code = 4] [Numeric Value = 4]	
Neither agree nor disagree[Code = 3] [Numeric Value = 3]	
Somewhat disagree[Code = 2] [Numeric Value = 2]	
Strongly disagree[Code = 1] [Numeric Value = 1]	

No basis to judge[Code = 99]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		

Q32 Overall, I would recommend Campus Recreation facilities, programs, and services to others.		
Strongly agree[Code = 5] [Numeric Value = 5]		
Somewhat agree[Code = 4] [Numeric Value = 4]		
Neither agree nor disagree[Code = 3] [Numeric Value = 3]		
Somewhat disagree[Code = 2] [Numeric Value = 2]		
Strongly disagree[Code = 1] [Numeric Value = 1]		
No basis to judge[Code = 99]		
	Required answers: 0	Allowed answers: 1

From your participation in Campus Recreation, do you feel you have increased or improved your:

Q33 Self confidence		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q34 Sense of adventure		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q35 Athletic ability		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q36 Concentration		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q37 Fitness level		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q38 Respect for others		
Definitely[Code = 3] [Numeric Value = 3]		

Somewhat[Code = 2] [Numeric Value = 2]	
Not at all[Code = 1] [Numeric Value = 1]	
	Required answers: 0 Allowed answers: 1

Q39 Multicultural awareness	
Definitely[Code = 3] [Numeric Value = 3]	
Somewhat[Code = 2] [Numeric Value = 2]	
Not at all[Code = 1] [Numeric Value = 1]	
	Required answers: 0 Allowed answers: 1

Q40 Sense of belonging/association	
Definitely[Code = 3] [Numeric Value = 3]	
Somewhat[Code = 2] [Numeric Value = 2]	
Not at all[Code = 1] [Numeric Value = 1]	
	Required answers: 0 Allowed answers: 1

Q41 Communication skills	
Definitely[Code = 3] [Numeric Value = 3]	
Somewhat[Code = 2] [Numeric Value = 2]	
Not at all[Code = 1] [Numeric Value = 1]	
	Required answers: 0 Allowed answers: 1

Q42 Balance/coordination	
Definitely[Code = 3] [Numeric Value = 3]	
Somewhat[Code = 2] [Numeric Value = 2]	
Not at all[Code = 1] [Numeric Value = 1]	
	Required answers: 0 Allowed answers: 1

Q43 Physical strength	
Definitely[Code = 3] [Numeric Value = 3]	
Somewhat[Code = 2] [Numeric Value = 2]	
Not at all[Code = 1] [Numeric Value = 1]	
	Required answers: 0 Allowed answers: 1

Q44 Problem solving skills	
Definitely[Code = 3] [Numeric Value = 3]	
Somewhat[Code = 2] [Numeric Value = 2]	
Not at all[Code = 1] [Numeric Value = 1]	
	Required answers: 0 Allowed answers: 1

From your participation in Campus Recreation, do you feel you have increased or improved your:

Q45 Feeling of well-being	
Definitely[Code = 3] [Numeric Value = 3]	
Somewhat[Code = 2] [Numeric Value = 2]	
Not at all[Code = 1] [Numeric Value = 1]	
	Required answers: 0 Allowed answers: 1

Q46 Time management skills		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q47 Group cooperation skills		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q48 Ability to get a good night's sleep		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q49 Leadership skills		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q50 Ability to multi-task		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q51 Stress management		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q52 Ability to develop friendships		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q53 Weight control		
Definitely[Code = 3] [Numeric Value = 3]		
Somewhat[Code = 2] [Numeric Value = 2]		
Not at all[Code = 1] [Numeric Value = 1]		
	Required answers: 0	Allowed answers: 1

Q54 Overall health

Definitely[Code = 3] [Numeric Value = 3]

Somewhat[Code = 2] [Numeric Value = 2]

Not at all[Code = 1] [Numeric Value = 1]

Required answers: 0 Allowed answers: 1

Q55 Academic performance

Definitely[Code = 3] [Numeric Value = 3]

Somewhat[Code = 2] [Numeric Value = 2]

Not at all[Code = 1] [Numeric Value = 1]

Required answers: 0 Allowed answers: 1

Display if Q1='Student'

Q56 In what other ways has your participation in Campus Recreation activities, programs, and services helped or enhanced your experience at this college/university?

[Code = 1] [Textbox]

Required answers: 0 Allowed answers: 1

Display if Q1='Student'

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Q57 Which of the following factors, if any, impede your use of campus recreation facilities, programs, and/or services? (Check all that apply)

Was not aware of offerings[Code = 1]

Do not like to exercise[Code = 2]

Injury or disability[Code = 3]

Price/not affordable [Code = 4]

No time[Code = 5]

Child care was not available [Code = 6]

Programs not offered at convenient times[Code = 7]

Parking was a problem[Code = 8]

Facilities are too spread out around campus[Code = 9]

Facilities do not have the right equipment[Code = 10]

Facilities are too crowded[Code = 11]

Lack of privacy[Code = 12]

Facilities are closed for events/activities that I do not wish to participate in[Code = 13]

Hours of operation are not convenient[Code = 14]

Lack of quality facilities[Code = 15]

Facilities are too outdated[Code = 16]

Do not know how to use the equipment[Code = 17]

I use facilities off campus.[Code = 18]

Other (please specify)[Code = 88] [Textbox]

None of the above[Code = 99]

Required answers: 0 Allowed answers: 19

Q58 Which of the following other recreational facilities do you currently use? (Check all that apply)

Local health clubs[Code = 1]

Facilities at your place of residence[Code = 2]
Community parks and recreational facilities[Code = 3]
Home equipment[Code = 4]
Outdoor (e.g., run, bike)[Code = 5]
Other (please specify)[Code = 6] [Textbox]
None of the above[Code = 7]
Required answers: 0 Allowed answers: 6

Q59 If you have a membership at a local health club or other public facility, what are your monthly dues?
\$0[Code = 0]
\$1 - \$24 per month[Code = 1]
\$25 - \$49 per month[Code = 2]
\$50 - \$74 per month[Code = 3]
\$75 - \$99 per month[Code = 4]
\$100 or more per month[Code = 5]
Not applicable[Code = 6]
Required answers: 0 Allowed answers: 1

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Q60 How old are you?
Younger than 16[Code = 15] [Numeric Value = 15]
16[Code = 16] [Numeric Value = 16]
17[Code = 17] [Numeric Value = 17]
18[Code = 18] [Numeric Value = 18]
19[Code = 19] [Numeric Value = 19]
20[Code = 20] [Numeric Value = 20]
21[Code = 21] [Numeric Value = 21]
22[Code = 22] [Numeric Value = 22]
23[Code = 23] [Numeric Value = 23]
24[Code = 24] [Numeric Value = 24]
25[Code = 25] [Numeric Value = 25]
26[Code = 26] [Numeric Value = 26]
27[Code = 27] [Numeric Value = 27]
28[Code = 28] [Numeric Value = 28]
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30[Code = 30] [Numeric Value = 30]
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39[Code = 39] [Numeric Value = 39]
40[Code = 40] [Numeric Value = 40]

41[Code = 41] [Numeric Value = 41]		
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60[Code = 60] [Numeric Value = 60]		
61[Code = 61] [Numeric Value = 61]		
62[Code = 62] [Numeric Value = 62]		
63[Code = 63] [Numeric Value = 63]		
64[Code = 64] [Numeric Value = 64]		
65+[Code = 65] [Numeric Value = 65]		
Required answers: 0		Allowed answers: 1

Q61 Are you a member of at least one student club or organization this semester/quarter?

Yes[Code = 1]

No[Code = 0]

Not applicable/Not offered at this institution[Code = 0] [N/A]

Required answers: 0 Allowed answers: 1

Q62 Are you a member of an intercollegiate (e.g., NCAA, NAIA) athletic team?

Yes[Code = 1]

No[Code = 0]

Not applicable/Not offered at this institution[Code = 0] [N/A]

Required answers: 0 Allowed answers: 1

Q63 Are you the first in your family to go to college (i.e., neither of your parents/guardians or siblings have attended any college)?

Yes[Code = 1]

No[Code = 0]

Not applicable/Not offered at this institution[Code = 0] [N/A]

Required answers: 0 Allowed answers: 1

Q64 Are you a member of a Greek organization?

Yes[Code = 1]

No[Code = 0]

Not applicable/Not offered at this institution[Code = 0] [N/A]

Required answers: 0 Allowed answers: 1

Q65 Are you involved in at least one intramural group, club sport, or organized fitness activity on campus this semester/quarter?

Yes[Code = 1]

No[Code = 0]

Not applicable/Not offered at this institution[Code = 0] [N/A]

Required answers: 0 Allowed answers: 1

Display if Q1='Student'

Q66 What is your gender identity?

Woman[Code = 1]

Man[Code = 2]

Transgender[Code = 3]

Other (please specify)[Code = 88] [Textbox]

Prefer not to respond[Code = 77]

Required answers: 0 Allowed answers: 1

Q67 With which category do you most identify?

African American/Black[Code = 1]

Asian/Pacific Islander[Code = 2]

Hispanic/Latino/a[Code = 3]

Indigenous/Native American/American Indian[Code = 4]

White[Code = 5]

Multiracial [Code = 6]

Other (please specify)[Code = 88] [Textbox]

Prefer not to respond[Code = 77]

Required answers: 0 Allowed answers: 1

Q68 Please indicate your current class standing:

First year/Freshman[Code = 1]

Sophomore[Code = 2]

Junior [Code = 3]

Senior[Code = 4]

Graduate student [Code = 5]

Professional student[Code = 6]

Non-degree seeking/Continuing education student[Code = 7]

Required answers: 0 Allowed answers: 1

Display if Q1='Student'

Q69 What is your current enrollment status?

Full time[Code = 1]

Less than full time[Code = 2]

	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		
Q70 How many credit hours are you taking this semester?		
Please enter a number only.[Code = 1] [Textbox - Numeric]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		
Q71 Did you transfer to this institution?		
No[Code = 0]		
Yes, from a two-year college[Code = 1]		
Yes, from a four-year college or university[Code = 2]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		
Q72 Where do you currently live?		
On campus (e.g., residence hall, apartment, family housing)[Code = 1]		
Fraternity or sorority housing[Code = 2]		
Off campus, alone or with friends/roommates[Code = 3]		
Off campus, with my parent(s)/guardian(s)[Code = 4]		
Off campus, with my spouse/partner/children[Code = 5]		
I am currently studying abroad.[Code = 6]		
Other (please specify)[Code = 88] [Textbox]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		
Q73 In which subject area is your major?		
Business[Code = 1]		
Computer Science[Code = 2]		
Education[Code = 3]		
Engineering[Code = 4]		
Health Sciences[Code = 5]		
Interdisciplinary [Code = 6]		
Liberal Arts/Humanities[Code = 7]		
Mathematics [Code = 8]		
Physical Sciences[Code = 9]		
Social Sciences[Code = 10]		
Technology[Code = 11]		
Visual and Performing Arts[Code = 12]		
I have more than one major[Code = 13]		
Undecided[Code = 14]		
Other (please specify)[Code = 88] [Textbox]		
Not applicable/I do not have a major.[Code = 99]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		
Q74 Are you an international student (holding a SEVIS visa group: F1, F2, J1, J2, BE, BP, B1, B2, WB, WP)?		
Yes[Code = 1]		

No[Code = 0]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		
Q75 Do you identify as lesbian, gay, bisexual, or queer (i.e., an umbrella term to refer to all LGBTIQ people)?		
Yes[Code = 1]		
No[Code = 0]		
	Required answers: 0	Allowed answers: 1
Q76 How many miles do you live from the on-campus Recreation Center?		
Less than 1 mile[Code = 1]		
1 - 5 miles[Code = 2]		
6 - 10 miles[Code = 3]		
11 - 15 miles[Code = 4]		
16 - 20 miles[Code = 5]		
More than 20 miles[Code = 6]		
	Required answers: 0	Allowed answers: 1
Next Page: Sequential		

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Q77 How many hours do you typically spend a week studying?		
0 hours[Code = 0]		
1 - 10 hours[Code = 1]		
11 - 20 hours[Code = 2]		
21 - 30 hours[Code = 3]		
31 - 40 hours[Code = 4]		
More than 40 hours[Code = 5]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		
Q78 Is the number of hours that you indicated in the last question more or less than you expected?		
More hours than I expected[Code = 1]		
About what I expected[Code = 2]		
Fewer hours than what I expected[Code = 3]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		
Q79 How many hours do you typically spend working for pay each week?		
0 hours[Code = 0]		
1 - 10 hours[Code = 1]		
11 - 20 hours[Code = 2]		
21 - 30 hours[Code = 3]		
31 - 40 hours[Code = 4]		
More than 40 hours[Code = 5]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		
Q80 What percentage of your college expenses are you personally responsible for?		

0%[Code = 1]		
1% - 25%[Code = 2]		
26% - 50%[Code = 3]		
51% - 75%[Code = 4]		
76% - 100%[Code = 5]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		

Q81 Are you currently employed by the Campus Recreation department?		
No[Code = 0]		
Yes, I am currently employed by the Campus Recreation department.[Code = 1]		
I am not currently employed by the Campus Recreation department, but have been in the past.[Code = 2]		
	Required answers: 0	Allowed answers: 1

Q82 What is your expected GPA for this semester/quarter?		
3.5 - 4.0[Code = 1]		
3.0 - 3.4[Code = 2]		
2.5 - 2.9[Code = 3]		
2.0 - 2.4[Code = 4]		
Below 2.0[Code = 5]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		

Q83 Have you ever been enlisted in any branch of the US military (active duty, veteran, national guard, or reserves)?		
Yes[Code = 1]		
No[Code = 0]		
	Required answers: 0	Allowed answers: 1

Q84 If you could start over again, would you go to the same institution you are now attending?		
Definitely would[Code = 4] [Numeric Value = 4]		
Probably would[Code = 3] [Numeric Value = 3]		
Probably would not[Code = 2] [Numeric Value = 2]		
Definitely would not[Code = 1] [Numeric Value = 1]		
Not sure[Code = 66] [N/A]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		

Q85 How likely is it that you will be enrolled at this college/university next semester/quarter?		
Extremely likely[Code = 4] [Numeric Value = 4]		
Somewhat likely[Code = 3] [Numeric Value = 3]		
Somewhat unlikely[Code = 2] [Numeric Value = 2]		
Extremely unlikely[Code = 1] [Numeric Value = 1]		
Not sure[Code = 66]		
Not applicable/Graduating[Code = 99]		
	Required answers: 0	Allowed answers: 1
Display if Q1='Student'		

Q86 Are you willing to answer additional survey questions about your satisfaction with Campus Recreation facilities, services, and programs?		
--	--	--

Yes[Code = 1] (Go To Page 8)

No[Code = 0] (Go To End)

Required answers: 1

Allowed answers: 1

Next Page: Conditional

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Display if Q2='Yes'

Please indicate your level of agreement with the following statements about recreation staff members:

Q87 Professional staff members are friendly.

Strongly agree[Code = 5] [Numeric Value = 5]

Somewhat agree[Code = 4] [Numeric Value = 4]

Neither agree nor disagree[Code = 3] [Numeric Value = 3]

Somewhat disagree[Code = 2] [Numeric Value = 2]

Strongly disagree[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0

Allowed answers: 1

Q88 Professional staff members are knowledgeable.

Strongly agree[Code = 5] [Numeric Value = 5]

Somewhat agree[Code = 4] [Numeric Value = 4]

Neither agree nor disagree[Code = 3] [Numeric Value = 3]

Somewhat disagree[Code = 2] [Numeric Value = 2]

Strongly disagree[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0

Allowed answers: 1

Q89 Professional staff members are available to answer questions.

Strongly agree[Code = 5] [Numeric Value = 5]

Somewhat agree[Code = 4] [Numeric Value = 4]

Neither agree nor disagree[Code = 3] [Numeric Value = 3]

Somewhat disagree[Code = 2] [Numeric Value = 2]

Strongly disagree[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0

Allowed answers: 1

Q90 Student staff members provide excellent customer services.

Strongly agree[Code = 5] [Numeric Value = 5]

Somewhat agree[Code = 4] [Numeric Value = 4]

Neither agree nor disagree[Code = 3] [Numeric Value = 3]

Somewhat disagree[Code = 2] [Numeric Value = 2]

Strongly disagree[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 1

Allowed answers: 1

Please indicate your level of agreement with the following statements:

Q91 Recreation facilities are clean.		
Strongly agree[Code = 5] [Numeric Value = 5]		
Somewhat agree[Code = 4] [Numeric Value = 4]		
Neither agree nor disagree[Code = 3] [Numeric Value = 3]		
Somewhat disagree[Code = 2] [Numeric Value = 2]		
Strongly disagree[Code = 1] [Numeric Value = 1]		
No basis to judge[Code = 99]		
	Required answers: 0	Allowed answers: 1

Q92 Recreation facilities provide a safe environment.		
Strongly agree[Code = 5] [Numeric Value = 5]		
Somewhat agree[Code = 4] [Numeric Value = 4]		
Neither agree nor disagree[Code = 3] [Numeric Value = 3]		
Somewhat disagree[Code = 2] [Numeric Value = 2]		
Strongly disagree[Code = 1] [Numeric Value = 1]		
No basis to judge[Code = 99]		
	Required answers: 0	Allowed answers: 1

Q93 Recreation facilities are well-maintained to encourage participation (e.g., temperature, ventilation).		
Strongly agree[Code = 5] [Numeric Value = 5]		
Somewhat agree[Code = 4] [Numeric Value = 4]		
Neither agree nor disagree[Code = 3] [Numeric Value = 3]		
Somewhat disagree[Code = 2] [Numeric Value = 2]		
Strongly disagree[Code = 1] [Numeric Value = 1]		
No basis to judge[Code = 99]		
	Required answers: 0	Allowed answers: 1

Q94 Fitness equipment is clean.		
Strongly agree[Code = 5] [Numeric Value = 5]		
Somewhat agree[Code = 4] [Numeric Value = 4]		
Neither agree nor disagree[Code = 3] [Numeric Value = 3]		
Somewhat disagree[Code = 2] [Numeric Value = 2]		
Strongly disagree[Code = 1] [Numeric Value = 1]		
No basis to judge[Code = 99]		
	Required answers: 0	Allowed answers: 1

Q95 Fitness equipment is well-maintained.		
Strongly agree[Code = 5] [Numeric Value = 5]		
Somewhat agree[Code = 4] [Numeric Value = 4]		
Neither agree nor disagree[Code = 3] [Numeric Value = 3]		
Somewhat disagree[Code = 2] [Numeric Value = 2]		
Strongly disagree[Code = 1] [Numeric Value = 1]		
No basis to judge[Code = 99]		
	Required answers: 0	Allowed answers: 1

Q96 Fitness equipment is available when I want to use it.		
Strongly agree[Code = 5] [Numeric Value = 5]		

Somewhat agree[Code = 4] [Numeric Value = 4]
Neither agree nor disagree[Code = 3] [Numeric Value = 3]
Somewhat disagree[Code = 2] [Numeric Value = 2]
Strongly disagree[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Please indicate your level of satisfaction with the following:

Q97 Number of weight machines
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q98 Number of free weights
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q99 Number of cardio machines
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q100 Adequate stretching areas
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q101 Cleanliness of locker rooms
Very satisfied[Code = 5] [Numeric Value = 5]

Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q102 Availability of facilities (e.g., gym, fields, courts) for free play and open recreation
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q103 Location of campus recreation facilities
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q104 Amount of indoor recreation space on campus
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q105 Amount of outdoor recreation space on campus
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Please rate your level of satisfaction on-campus recreational facilities hours of operation:

Q106 Hours of operation during the week (Monday - Friday).
Very satisfied[Code = 5] [Numeric Value = 5]

Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q107 Hours of operation during the weekend (Saturday - Sunday).
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q108 Comments about the hours of operation, facilities, or equipment:
[Code = 1] [Textbox]
Required answers: 0 Allowed answers: 1

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Page - Outdoors

How often do you participate in the following on-campus activities, programs, and/or services?

Q109 The Climbing Wall.
5 or more times per week[Code = 6] [Numeric Value = 5]
3-4 times per week[Code = 5] [Numeric Value = 4]
1-2 times per week[Code = 4] [Numeric Value = 3]
1-2 times per month[Code = 3] [Numeric Value = 2]
1-2 times per semester/quarter[Code = 2] [Numeric Value = 1]
Never[Code = 0] [N/A]
Required answers: 1 Allowed answers: 1

Q110 The Outdoor Program Equipment Rentals.
5 or more times per week[Code = 6] [Numeric Value = 5]
3-4 times per week[Code = 5] [Numeric Value = 4]
1-2 times per week[Code = 4] [Numeric Value = 3]
1-2 times per month[Code = 3] [Numeric Value = 2]
1-2 times per semester/quarter[Code = 2] [Numeric Value = 1]
Never[Code = 0] [N/A]
Required answers: 1 Allowed answers: 1

Please rate your level of satisfaction with the following:

Q111 Hours of operation of the climbing wall.
Strongly Agree[Code = 6] [Numeric Value = 5]

Somewhat Agree[Code = 5] [Numeric Value = 4]		
Neither agree nor disagree[Code = 4] [Numeric Value = 3]		
Somewhat disagree[Code = 3] [Numeric Value = 2]		
Strongly disagree[Code = 2] [Numeric Value = 1]		
No basis to judge[Code = 0] [N/A]		
	Required answers: 1	Allowed answers: 1

Q112 Types of educational/training programs offered at the Climbing Wall.		
Strongly Agree[Code = 6] [Numeric Value = 5]		
Somewhat Agree[Code = 5] [Numeric Value = 4]		
Neither agree nor disagree[Code = 4] [Numeric Value = 3]		
Somewhat disagree[Code = 3] [Numeric Value = 2]		
Strongly disagree[Code = 2] [Numeric Value = 1]		
No basis to judge[Code = 0] [N/A]		
	Required answers: 1	Allowed answers: 1

Q113 Hours of operation of the Outdoor Center.		
Strongly Agree[Code = 6] [Numeric Value = 5]		
Somewhat Agree[Code = 5] [Numeric Value = 4]		
Neither agree nor disagree[Code = 4] [Numeric Value = 3]		
Somewhat disagree[Code = 3] [Numeric Value = 2]		
Strongly disagree[Code = 2] [Numeric Value = 1]		
No basis to judge[Code = 0] [N/A]		
	Required answers: 1	Allowed answers: 1

Q114 Availability of outdoor equipment to rent.		
Strongly Agree[Code = 6] [Numeric Value = 5]		
Somewhat Agree[Code = 5] [Numeric Value = 4]		
Neither agree nor disagree[Code = 4] [Numeric Value = 3]		
Somewhat disagree[Code = 3] [Numeric Value = 2]		
Strongly disagree[Code = 2] [Numeric Value = 1]		
No basis to judge[Code = 0] [N/A]		
	Required answers: 1	Allowed answers: 1

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Aquatics

Please rate your level of satisfaction with the following:

Q115 Hours of operation of the pool		
Very satisfied[Code = 5] [Numeric Value = 5]		
Somewhat satisfied[Code = 4] [Numeric Value = 4]		
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]		
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]		
Very dissatisfied[Code = 1] [Numeric Value = 1]		
No basis to judge[Code = 99]		

Required answers: 0 Allowed answers: 1

Q116 Aquatics classes

Very satisfied[Code = 5] [Numeric Value = 5]

Somewhat satisfied[Code = 4] [Numeric Value = 4]

Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]

Somewhat dissatisfied[Code = 2] [Numeric Value = 2]

Very dissatisfied[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0 Allowed answers: 1

Q117 Cleanliness of the pool

Very satisfied[Code = 5] [Numeric Value = 5]

Somewhat satisfied[Code = 4] [Numeric Value = 4]

Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]

Somewhat dissatisfied[Code = 2] [Numeric Value = 2]

Very dissatisfied[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0 Allowed answers: 1

Q118 Availability of pool for different types of aquatics (free swim versus lap swim)

Very satisfied[Code = 5] [Numeric Value = 5]

Somewhat satisfied[Code = 4] [Numeric Value = 4]

Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]

Somewhat dissatisfied[Code = 2] [Numeric Value = 2]

Very dissatisfied[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0 Allowed answers: 1

Q119 Lifeguards/Other aquatics staff

Very satisfied[Code = 5] [Numeric Value = 5]

Somewhat satisfied[Code = 4] [Numeric Value = 4]

Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]

Somewhat dissatisfied[Code = 2] [Numeric Value = 2]

Very dissatisfied[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0 Allowed answers: 1

Display if (Q15='5 or more times per week' OR Q15='3 - 4 times per week' OR Q15='1 - 2 times per week' OR Q15='1 - 2 times per month' OR Q15='1 - 2 times per semester/quarter')

Group Fitness Classes (Instructor-led)

Please rate your level of satisfaction with the following:

Q120 Number of group fitness classes

Very satisfied[Code = 5] [Numeric Value = 5]

Somewhat satisfied[Code = 4] [Numeric Value = 4]

Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]

Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 0]
Required answers: 0 Allowed answers: 1

Q121 Variety of group fitness classes
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 0]
Required answers: 0 Allowed answers: 1

Q122 Days and times of group fitness classes
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 0]
Required answers: 0 Allowed answers: 1

Q123 Fitness class instructors
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 0]
Required answers: 0 Allowed answers: 1

Display if (Q16='5 or more times per week' OR Q16='3 - 4 times per week' OR Q16='1 - 2 times per week' OR Q16='1 - 2 times per **month**' OR Q16='1 - 2 times per **semester/quarter**')

Intramurals

Please rate your level of satisfaction with the following:

Q124 Number of team intramural sports offered
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q125 Number of individual/dual intramural sports offered

Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q126 Variety of team intramural sports offered
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q127 Variety of individual/dual intramural sports offered
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Display if (Q13='5 or more times per week' OR Q13='3 - 4 times per week' OR Q13='1 - 2 times per week' OR Q13='1 - 2 times per **month**' OR Q13='1 - 2 times per **semester/quarter**')

Sport Clubs

Please rate your level of satisfaction with the following:

Q128 Number of Sport Clubs offered
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]
Required answers: 0 Allowed answers: 1

Q129 Variety of Sport Clubs offered
Very satisfied[Code = 5] [Numeric Value = 5]
Somewhat satisfied[Code = 4] [Numeric Value = 4]
Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]
Somewhat dissatisfied[Code = 2] [Numeric Value = 2]
Very dissatisfied[Code = 1] [Numeric Value = 1]
No basis to judge[Code = 99]

Required answers: 0 Allowed answers: 1

Display if (Q14='5 or more times per week' OR Q14='3 - 4 times per week' OR Q14='1 - 2 times per week' OR Q14='1 - 2 times per **month**' OR Q14='1 - 2 times per **semester/quarter**')

Wellness/Fitness Centers

Please rate your level of satisfaction with the following:

Q130 Fitness assessments

Very satisfied[Code = 5] [Numeric Value = 5]

Somewhat satisfied[Code = 4] [Numeric Value = 4]

Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]

Somewhat dissatisfied[Code = 2] [Numeric Value = 2]

Very dissatisfied[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0 Allowed answers: 1

Display if (Q23='5 or more times per week' OR Q23='3 - 4 times per week' OR Q23='1 - 2 times per week' OR Q23='1 - 2 times per **month**' OR Q23='1 - 2 times per **semester/quarter**')

Q131 Personal training

Very satisfied[Code = 5] [Numeric Value = 5]

Somewhat satisfied[Code = 4] [Numeric Value = 4]

Neither satisfied nor dissatisfied[Code = 3] [Numeric Value = 3]

Somewhat dissatisfied[Code = 2] [Numeric Value = 2]

Very dissatisfied[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0 Allowed answers: 1

Display if (Q22='5 or more times per week' OR Q22='3 - 4 times per week' OR Q22='1 - 2 times per week' OR Q22='1 - 2 times per **month**' OR Q22='1 - 2 times per **semester/quarter**')

Q132 Comments about any recreational activities, programs, or services you participate in:

[Code = 1] [Textbox]

Required answers: 0 Allowed answers: 1

Display if Q2='Yes'

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Q133 How do you learn about what is happening in the Recreation department? (Check all that apply)

College/university web page[Code = 1]

Posters/flyers [Code = 2]

Brochures[Code = 3]

Word of mouth[Code = 4]

Newspaper[Code = 5]

Direct mailings[Code = 6]

Social networking site (e.g., Facebook, Twitter, Friendster)[Code = 9]

Other (please specify)[Code = 88] [Textbox]

Not applicable[Code = 99]

Please rate your level of agreement with the following statements.

Q134 The recreation facilities, programs and services are effectively promoted.

Strongly agree[Code = 5] [Numeric Value = 5]

Somewhat agree[Code = 4] [Numeric Value = 4]

Neither agree nor disagree[Code = 3] [Numeric Value = 3]

Somewhat disagree[Code = 2] [Numeric Value = 2]

Strongly disagree[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0 Allowed answers: 1

Q135 The recreation publications - flyers, poster, and brochures - effectively promote activities and services.

Strongly agree[Code = 5] [Numeric Value = 5]

Somewhat agree[Code = 4] [Numeric Value = 4]

Neither agree nor disagree[Code = 3] [Numeric Value = 3]

Somewhat disagree[Code = 2] [Numeric Value = 2]

Strongly disagree[Code = 1] [Numeric Value = 1]

No basis to judge[Code = 99]

Required answers: 0 Allowed answers: 1

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Q136 If you were improving/expanding recreation facilities, which of the following would be important to you? (Check all that apply)

Multi-purpose courts (gymnasiums)[Code = 1]

Additional strength equipment (weights)[Code = 2]

Additional cardio equipment[Code = 3]

Additional racquetball courts[Code = 4]

Additional tennis courts[Code = 5]

Additional aquatic offerings [Code = 6]

Additional fields[Code = 7]

Additional open and/or park space[Code = 8]

Personal training[Code = 9]

Multi-purpose rooms for group fitness and other classes[Code = 10]

Mind/body offerings [Code = 11]

Indoor track[Code = 12]

Adding child care facilities [Code = 13]

Adding a social lounge area[Code = 14]

Adding a juice bar or food service area[Code = 15]

Ropes course[Code = 16]

Expand outdoor or seasonal activities[Code = 17]

Climbing wall[Code = 18]

Skate park[Code = 19]

Other (please specify)[Code = 88] [Textbox]

None of the above[Code = 99]

Required answers: 0		Allowed answers: 21
Q137 What additional recreational offerings (not listed above) would you like to see that are not currently available on campus?		
[Code = 1] [Textbox]		
Required answers: 0		Allowed answers: 1
Q138 What changes could be made to the recreation program that would increase your likelihood of utilizing on-campus recreational facilities, programs, and/or services?		
[Code = 1] [Textbox]		
Required answers: 0		Allowed answers: 1
Q139 Which best describes how often you visit the recreation web page?		
5 or more times a week [Code = 1]		
3 - 4 times per week [Code = 2]		
1 - 2 times per week [Code = 3]		
1 - 2 times per month [Code = 4]		
1 - 2 times per semester [Code = 5]		
Never [Code = 6]		
Required answers: 0		Allowed answers: 1
Next Page: Sequential		

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Display if (Q139='5 or more times a week ' OR Q139='3 - 4 times per week' OR Q139='1 - 2 times per week' OR Q139='1 - 2 times per month' OR Q139='1 - 2 times per semester')

Q140 What do you use the recreation web page for?	
Check hours when facilities are open [Code = 1]	
Find information about activities, programs, and services [Code = 2]	
Check schedule of events [Code = 3]	
Register for events and activities [Code = 4]	
Staff information [Code = 5]	
Apply for employment [Code = 6]	
Other (please specify) [Code = 88] [Textbox]	
Required answers: 0	
Allowed answers: 7	
Q141 Were you able to find the information that you were looking for on the recreation web page?	
Yes [Code = 1]	
No [Code = 0]	
Required answers: 0	
Allowed answers: 1	
Next Page: Sequential	

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Q142 Please explain what information you were looking for that you could not find.	
[Code = 1] [Textbox]	
Required answers: 0	
Allowed answers: 1	
Display if Q141='No'	
Next Page: Sequential	

Appendix B Campus Labs Access to Dataset

From: [Tim Hannon \(Campus Labs Support\)](#)
To: [Basso, Sean Christopher](#)
Subject: [Campus Labs request update] University of Tennessee-Knoxville Re: NIRSA data files
Date: Tuesday, December 11, 2018 3:10:37 PM

Tim Hannon (Campus Labs Support)

Dec 11, 3:10 PM EST

Hi Sean,



We have created an SFTP user account for you that will allow you to collect these files. To access this site, you can visit <https://transfer.campuslabs.com/> in any browser, or use an FTP client to connect to <ftp.campuslabs.com> on port: 22.

The credentials for this site will be sent to you separately via a secure email. You can also call us on our support line, listed in my signature below.

Thanks!

Tim Hannon
Technical Support Analyst
Campus Labs
298 Main Street, Suite 600
Buffalo, NY 14202
(716) 270-0000

Need help? Visit our Support Site! (<https://campuslabs.zendesk.com>)

Amy Feder (Campus Labs Support)

Dec 11, 2:32 PM EST

Hi Sean,

I'm creating a ticket with my colleague Tim Hannon. He will provide you with the information to access your files!

Amy L Feder, M.S.

Director, Campus Support
Campus Labs
298 Main Street
Buffalo, NY 14202
t: 716.270.0000

Need help? Visit our Support Site! (<https://campuslabs.zendesk.com>)

Appendix C IRB Approval



December 17, 2018

Sean Christopher Basso
UTK - Recreation Complex - Recreation Complex

Re: UTK IRB-18-04859-XM

Study Title: Expanding Forrester: A Comprehensive Review of the NASPA Assessment and Knowledge Consortium Study for Campus Recreation

Dear Sean Christopher Basso:

The Human Research Protections Program (HRPP) reviewed your application for the above referenced project and determined that your application is eligible for **exempt** review under 45 CFR 46.101. Category 4: Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded in a de-identified manner.

Your application has been determined to comply with proper consideration for the rights and welfare of human subjects and the regulatory requirements for the protection of human subjects. This letter constitutes full approval of your application (Version 1.3) as submitted. It has been dated and stamped IRB approved 12/17/2018.

In the event that volunteers are to be recruited using solicitation materials, such as brochures, posters, web-based advertisements, etc., these materials must receive prior approval of the IRB.

Any alterations (revisions) in the protocol must be promptly submitted to and approved by the UTK Institutional Review Board prior to implementation of these revisions. You have individual responsibility for reporting to the Board in the event of unanticipated or serious adverse events and subject deaths.

Sincerely,

Colleen P. Gilrane, Ph.D.
Chair

Institutional Review Board | Office of Research & Engagement
1534 White Avenue Knoxville, TN 37996-1529
865-974-7697 865-974-7400 fax irb@utk.edu

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Flagship Campus of the University of Tennessee System

Appendix D Survey Response Rate by Demographic

Survey Participants Frequency by Demographic Groupings

Groups	n	% of Group
Survey Participants		
All	195,847	100
Gender		
Man	57,452	38.2
Woman	90,676	60.3
Transgender	317	0.2
Other	1,897	1.3
Total	150,342	100.0
Race		
White	106,191	72.2
African American/Black	7,772	5.3
Hispanic/Latino/a	11,617	7.9
Asian/Pacific Islander	14,459	9.8
Multiracial	4,414	3
Native American	825	0.6
Other	1,886	1.3
Total	147,164	100.0
Sexual Orientation		
Not LGBTQ	95,484	92.9
LGBTQ	7,267	7.1
Total	102,751	100.0
Family College		
Not 1st Generation	107,074	79.7
1st Generation	27,311	20.3
Total	134,385	100.0
Gender*Race		
Man*White	39,423	70.8
Man*Black	2,639	4.7
Man*Latin	4,364	7.8
Man*Asian	6,627	11.9
Man*Multiracial	1,502	2.7
Man*Native American	291	0.5
Man*Other	855	1.5
Total Man	55,701	100.0
Woman*White	64,854	73.2
Woman*Black	4,946	5.6
Woman*Latin	7,107	8.0
Woman*Asian	7,591	8.6
Woman*Multiracial	2,778	3.1
Woman*Native American	474	0.5
Woman*Other	857	1.0
Total Woman	88,607	100.0

Trans*White	168	55.1
Trans*Black	26	8.5
Trans*Latin	13	4.3
Trans*Asian	37	12.1
Trans*Multiracial	33	10.8
Trans*Native American	21	6.9
Trans*Other	7	2.3
Total Trans	305	100.0
Other*White	451	52.9
Other*Black	23	2.7
Other*Latin	55	6.5
Other*Asian	77	9.0
Other*Multiracial	76	8.9
Other*Native American	25	2.9
Other*Other	145	17.0
Total Other	852	100.0
LGBTQ*Gender		
Not LGBTQ*Man	36,379	38.5
Not LGBTQ*Woman	57,205	60.5
Not LGBTQ*Trans	44	0.0
Not LGBTQ*Other	880	0.9
Total Not LGBTQ	94,508	100.0
LGBTQ*Man	2,330	32.4
LGBTQ*Woman	4,257	59.2
LGBTQ*Trans	202	2.8
LGBTQ*Other	404	5.6
Total LGBTQ	7,193	100.0
Family College*Gender		
Not 1st Generation*Man	41,463	39.0
Not 1st Generation*Woman	63,189	59.5
Not 1st Generation*Trans	198	0.2
Not 1st Generation*Other	1,366	1.3
Total Not 1 st Generation	106,216	100.0
1st Generation*Man	9,693	35.8
1st Generation*Woman	16,950	62.7
1st Generation*Trans	89	0.3
1st Generation*Other	316	1.2
Total 1 st Generation	27,048	100.0
Sexual Orientation*Race		
Not LGBTQ*White	63,471	68.9
Not LGBTQ*Black	5,076	5.5
Not LGBTQ*Latin	8,579	9.3
Not LGBTQ*Asian	10,647	11.6
Not LGBTQ*Multiracial	2,687	2.9
Not LGBTQ*Native American	447	0.5
Not LGBTQ*Other	1,193	1.3
Total Not LGBTQ	92,100	100.0
LGBTQ*White	4,623	66.0

LGBQ*Black	402	5.7
LGBQ*Latin	756	10.8
LGBQ*Asian	613	8.8
LGBQ*Multiracial	426	6.1
LGBQ*Native American	68	1.0
LGBQ*Other	113	1.6
Total LGBQ	7,001	100.0
Family College*Race		
Not 1st Generation*White	77,798	75.5
Not 1st Generation*Black	4,897	4.7
Not 1st Generation*Latin	5,395	5.2
Not 1st Generation*Asian	10,206	9.9
Not 1st Generation*Multiracial	3,031	2.9
Not 1st Generation*Native American	470	0.5
Not 1st Generation*Other	1,309	1.3
Total Not 1 st Generation	103,106	100.0
1st Generation*White	15,700	59.5
1st Generation*Black	2,026	7.7
1st Generation*Latin	4,319	16.4
1st Generation*Asian	2,805	10.6
1st Generation*Multiracial	924	3.5
1st Generation*Native American	245	0.9
1st Generation*Other	364	1.4
Total 1 st Generation	26,383	100.0

Appendix E Depth of Participation by Demographic

Demographic	Weekly Participation Rate (0-8 times per week)			Engagement Level			
	Mean	SD	n	Non %	Light %	Moderate %	Heavy %
Survey Participants							
All	2.73	2.03	84,693	23.7	22.6	34.2	19.5
Gender							
Man	3.04	2.06	28,405	19.1	21.0	35.5	24.3
Woman	2.59	1.97	40,913	25.3	23.5	34.2	17.0
Transgender	2.17	2.14	145	37.2	22.1	26.9	13.8
Other	2.29	2.10	777	34.2	22.1	28.1	15.6
Total	2.77	2.02	70,240	22.9	22.5	34.6	19.9
Race							
White	2.78	2.07	48,060	23.7	21.5	33.7	21.0
African American/Black	2.68	1.92	3,805	21.2	26.7	36.1	16.0
Hispanic/Latino/a	2.73	1.95	6,086	22.2	22.9	36.3	18.6
Asian/Pacific Islander	2.81	1.79	7,140	17.0	26.5	39.6	16.9
Multiracial	2.75	2.06	2,162	24.1	22.5	33.4	19.9
Native American	2.88	2.13	331	22.1	21.5	35.6	20.8
Other	2.72	1.98	871	22.7	23.4	36.1	17.8
Total	2.77	2.02	68,455	22.8	22.5	34.7	20.0
Sexual Orientation							
Not LGBTQ	2.80	2.03	56,422	22.6	22.2	34.7	20.5
LGBTQ	2.40	1.96	3,993	29.1	23.3	32.5	15.0
Total	2.77	2.02	60,415	23.0	22.3	34.6	20.1
Family College							
Not 1st Generation	2.78	2.03	50,044	23.0	22.2	34.6	20.2
1st Generation	2.70	1.98	12,493	23.2	23.3	35.0	18.5
Total	2.76	2.02	62,537	23.1	22.4	34.7	19.9
Gender*Race							
Man*White	3.03	2.12	18,769	20.7	20.2	33.6	25.5
Man*Black	3.18	2.00	1,458	14.3	23.5	38.7	23.5
Man*Latin	3.07	2.00	2,519	17.5	20.8	37.8	23.8
Man*Asian	3.04	1.76	3,562	12.7	25.0	42.7	19.6
Man*Multiracial	3.10	2.15	778	20.1	19.4	33.9	26.6
Man*Native_American	3.01	2.17	152	21.1	21.1	34.2	23.7
Man*Other	2.91	1.98	435	20.0	20.7	38.2	21.1
Total	3.05	2.07	27,673	19.0	21.1	35.5	24.4
Woman*White	2.63	2.01	28,934	25.6	22.3	33.9	18.2
Woman*Black	2.36	1.80	2,305	25.4	28.9	34.6	11.1
Woman*Latin	2.48	1.87	3,518	25.6	24.4	35.1	14.9
Woman*Asian	2.58	1.80	3,511	21.2	27.8	36.7	14.2
Woman*Multiracial	2.57	1.99	1,323	25.9	24.2	33.6	16.3
Woman*Native_American	2.62	1.96	159	23.9	23.3	36.5	16.4
Woman*Other	2.53	1.82	361	22.2	29.9	34.9	13.0
Total	2.59	1.97	40,111	25.2	23.5	34.3	17.0
Trans*White	1.61	1.72	64	46.9	17.2	31.3	4.7

Trans*Black	2.87	2.72	15	33.3	20.0	13.3	33.3
Trans*Latin	2.29	1.70	7	28.6	14.3	57.1	0.0
Trans*Asian	2.21	2.04	24	29.2	41.7	12.5	16.7
Trans*Multiracial	2.61	2.50	18	27.8	33.3	22.2	16.7
Trans*Native_American	4.33	2.55	9	11.1	0.0	44.4	44.4
Trans*Other	1.00	1.73	3	66.7	0.0	33.3	0.0
Total	2.17	2.15	140	37.1	22.1	27.1	13.6
Other*White	2.17	1.99	199	35.7	21.6	28.1	14.6
Other*Black	3.20	2.49	10	20.0	20.0	40.0	20.0
Other*Latin	2.23	1.95	22	27.3	36.4	27.3	9.1
Other*Asian	2.83	2.10	24	20.8	20.8	41.7	16.7
Other*Multiracial	1.84	1.94	38	44.7	18.4	26.3	10.5
Other*Native_American	3.73	3.00	11	18.2	18.2	36.4	27.3
Other*Other	2.57	2.68	68	42.6	7.4	26.5	23.5
Total	2.17	2.15	140	35.5	19.4	29.0	16.1
Sexual Orientation*Gender							
Not LGBQ*Man	3.07	2.07	22,854	18.8	20.8	35.5	24.9
Not LGBQ*Woman	2.62	1.98	32,520	25.0	23.2	34.3	17.5
Not LGBQ*Trans	2.32	1.96	28	28.6	25.0	32.1	14.3
Not LGBQ*Other	2.37	2.16	452	33.8	20.4	29.2	16.6
Total	2.80	2.03	55,854	22.5	22.2	34.8	20.5
LGBQ*Man	2.63	1.99	1,317	25.8	20.3	35.8	18.1
LGBQ*Woman	2.32	1.91	2,339	29.7	25.3	31.7	13.4
LGBQ*Trans	2.18	2.23	96	39.6	18.8	26.0	15.6
LGBQ*Other	2.10	2.00	192	37.0	22.9	26.6	13.5
Total	2.41	1.96	3,944	29.0	23.3	32.7	15.0
Family College*Gender							
Not 1st Generation*Man	3.02	2.07	20,271	19.6	20.9	35.2	24.3
Not 1st Generation*Woman	2.62	1.98	28,664	25.1	23.1	34.3	17.5
Not 1st Generation*Trans	1.98	2.22	86	44.2	18.6	23.3	14.0
Not 1st Generation*Other	2.17	2.01	550	35.5	22.7	28.4	13.5
Total	2.78	2.03	49,571	23.0	22.2	34.6	20.2
1st Generation*Man	3.10	2.04	4,892	17.5	21.3	36.7	24.5
1st Generation*Woman	2.44	1.90	7,284	26.9	24.6	33.9	14.6
1st Generation*Trans	2.57	2.08	47	25.5	25.5	34.0	14.9
1st Generation*Other	2.66	2.25	132	29.5	18.2	30.3	22.0
Total	2.70	1.99	12,355	23.2	23.2	35.0	18.6
Sexual Orientation*Race				0.0	0.0	0.0	0.0
Not LGBQ*White	2.83	2.08	37,761	23.3	21.1	33.8	21.8
Not LGBQ*Black	2.68	1.92	2,939	21.3	26.4	36.2	16.1
Not LGBQ*Latin	2.70	1.95	5,026	22.8	22.6	36.3	18.3
Not LGBQ*Asian	2.81	1.79	6,195	17.1	26.1	39.9	16.9
Not LGBQ*Multiracial	2.81	2.06	1,653	22.7	23.1	33.2	20.9
Not LGBQ*Native American	2.98	2.16	241	21.2	21.2	34.4	23.2
Not LGBQ*Other	2.79	1.99	687	21.7	22.9	36.4	19.1
Total	2.81	2.03	54,502	22.4	22.2	34.9	20.6
LGBQ*White	2.32	1.96	2,432	31.5	22.6	31.2	14.6
LGBQ*Black	2.65	1.97	246	22.0	28.0	35.0	15.0

LGBQ*Latin	2.70	1.97	457	22.5	23.4	35.2	18.8
LGBQ*Asian	2.66	1.77	354	19.8	25.7	38.7	15.8
LGBQ*Multiracial	2.24	1.96	261	33.0	23.0	31.4	12.6
LGBQ*Native American	2.55	2.20	38	28.9	18.4	36.8	15.8
LGBQ*Other	2.22	2.04	63	33.3	23.8	28.6	14.3
Total	2.41	1.95	3,851	28.9	23.3	32.6	15.1
Family College*Race							
Not 1st Generation*White	2.80	2.07	35,783	23.6	21.2	33.9	21.3
Not 1st Generation*Black	2.64	1.94	2,457	22.3	26.4	35.8	15.5
Not 1st Generation*Latin	2.75	1.96	2,756	22.2	22.4	35.8	19.5
Not 1st Generation*Asian	2.79	1.78	5,083	17.3	26.6	39.5	16.6
Not 1st Generation*Multiracial	2.74	2.09	1,489	24.7	22.0	33.0	20.3
Not 1st Generation*Native American	2.94	2.19	186	21.5	22.0	34.4	22.0
Not 1st Generation*Other	2.67	1.95	608	23.2	23.7	36.3	16.8
Total	2.79	2.03	48,362	22.8	22.1	34.7	20.3
1st Generation*White	2.66	2.04	6,692	25.6	22.2	33.1	19.1
1st Generation*Black	2.75	1.90	984	18.8	28.5	36.2	16.6
1st Generation*Latin	2.72	1.94	2,305	22.3	22.6	36.8	18.3
1st Generation*Asian	2.86	1.81	1,383	16.1	26.0	39.5	18.4
1st Generation*Multiracial	2.78	1.98	449	21.4	24.7	35.9	18.0
1st Generation*Native American	2.82	1.94	97	19.6	21.6	41.2	17.5
1st Generation*Other	2.76	2.05	166	22.3	24.7	33.7	19.3
Total	2.71	1.98	12,076	23.1	23.4	35.0	18.6

Appendix F Breadth of Participation by Demographic

Demographic	Weekly Participation Rate (0-10 programs per week)			Engagement Level			
	Mean	SD	n	Non %	Light %	Moderate %	Heavy %
Survey Participants							
All	2.08	1.73	142,258	19.9	72.1	6.8	1.2
Gender							
Man	2.45	1.83	45,763	14.8	73.7	9.9	1.7
Woman	1.89	1.58	68,573	21.4	73.0	4.8	0.7
Transgender	2.56	2.85	221	31.7	48.9	10.0	9.5
Other	1.82	1.96	1,281	29.7	62.3	5.2	2.9
Total	2.11	1.71	115,838	18.9	73.1	6.8	1.1
Race							
White	2.08	1.62	81,798	17.9	75.0	6.4	0.7
African American/Black	2.27	2.01	5,967	22.1	66.3	9.0	2.5
Hispanic/Latino/a	2.23	1.88	8,968	20.4	69.0	8.7	1.9
Asian/Pacific Islander	2.10	1.97	11,524	22.0	68.4	7.0	2.5
Multiracial	2.11	1.77	3,452	20.2	71.8	6.5	1.5
Native American	2.44	2.12	570	20.0	66.1	10.7	3.2
Other	2.31	2.06	1,391	20.4	66.6	9.9	3.0
Total	2.11	1.71	113,670	18.8	73.2	6.9	1.1
Sexual Orientation							
Not LGBTQ	2.08	1.68	74,617	18.7	74.0	6.2	1.1
LGBTQ	1.78	1.73	5,369	26.3	67.7	4.5	1.5
Total	2.06	1.68	79,986	19.3	73.6	6.1	1.1
Family College							
Not 1st Generation	2.08	1.65	83,304	18.7	74.0	6.5	0.8
1st Generation	2.23	1.96	19,999	20.6	68.7	8.3	2.4
Total	2.11	1.72	103,303	19.0	73.0	6.8	1.1
Gender*Race							
Man*White	2.39	1.72	31,132	14.5	75.1	9.4	1.0
Man*Black	2.85	2.05	2,157	12.7	70.0	14.0	3.3
Man*Latin	2.63	1.99	3,555	14.7	70.7	11.8	2.8
Man*Asian	2.48	2.10	5,479	16.1	70.8	9.6	3.5
Man*Multiracial	2.44	1.91	1,217	16.4	72.0	9.0	2.6
Man*Native_American	2.80	2.22	227	17.2	63.4	16.3	3.1
Man*Other	2.54	2.08	657	15.7	69.4	11.4	3.5
Total	2.45	1.83	44,424	14.7	73.7	9.9	1.7
Woman*White	1.89	1.51	49,188	19.8	75.2	4.5	0.5
Woman*Black	1.92	1.88	3,678	27.4	64.5	6.1	1.9
Woman*Latin	1.96	1.75	5,307	23.9	68.1	6.8	1.2
Woman*Asian	1.74	1.74	5,863	27.3	66.7	4.6	1.5
Woman*Multiracial	1.91	1.61	2,135	21.9	72.5	4.9	0.7
Woman*Native_American	1.99	1.70	299	22.7	69.9	6.0	1.3
Woman*Other	2.07	1.91	621	24.5	65.2	8.7	1.6
Total	1.89	1.58	67,091	21.3	73.1	4.9	0.7
Trans*White	1.50	1.90	110	42.7	50.9	4.5	1.8

Trans*Black	3.60	2.95	20	20.0	50.0	15.0	15.0
Trans*Latin	2.91	2.59	11	18.2	63.6	9.1	9.1
Trans*Asian	3.68	3.54	28	14.3	53.6	10.7	21.4
Trans*Multiracial	3.33	3.26	27	33.3	33.3	18.5	14.8
Trans*Native_American	6.29	2.95	14	0.0	35.7	28.6	35.7
Trans*Other	0.75	0.96	4	50.0	50.0	0.0	0.0
Total	2.58	2.88	214	31.8	48.6	9.8	9.8
Other*White	1.69	1.93	314	33.4	59.6	3.5	3.5
Other*Black	3.13	3.42	16	31.3	50.0	0.0	18.8
Other*Latin	1.37	1.83	35	45.7	48.6	2.9	2.9
Other*Asian	1.54	1.90	52	34.6	57.7	3.8	3.8
Other*Multiracial	1.96	1.86	54	27.8	61.1	11.1	0.0
Other*Native_American	2.67	2.99	18	27.8	50.0	11.1	11.1
Other*Other	2.25	2.51	91	25.3	58.2	9.9	6.6
Total	1.84	2.13	580	32.2	58.1	5.3	4.3
Sexual Orientation*Gender							
Not LGBTQ*Man	2.38	1.77	29,258	14.7	75.0	8.8	1.5
Not LGBTQ*Woman	1.87	1.56	43,939	21.2	73.6	4.5	0.7
Not LGBTQ*Trans	4.68	3.60	38	15.8	36.8	21.1	26.3
Not LGBTQ*Other	1.99	2.02	599	26.0	64.8	5.5	3.7
Total	2.08	1.67	73,834	18.7	74.1	6.2	1.0
LGBTQ*Man	2.00	1.86	1,727	20.8	72.0	5.0	2.3
LGBTQ*Woman	1.66	1.57	3,176	27.6	67.7	4.0	0.7
LGBTQ*Trans	1.79	2.11	140	39.3	50.0	7.9	2.9
LGBTQ*Other	1.52	1.95	267	39.3	53.9	4.1	2.6
Total	1.77	1.71	5,310	26.3	67.9	4.4	1.4
Family College*Gender							
Not 1st Generation*Man	2.39	1.76	33,149	14.9	74.5	9.4	1.2
Not 1st Generation*Woman	1.87	1.53	48,415	20.9	74.1	4.5	0.5
Not 1st Generation*Trans	2.08	2.82	132	40.9	46.2	4.5	8.3
Not 1st Generation*Other	1.69	1.76	926	30.1	63.6	4.4	1.8
Total	2.08	1.65	82,622	18.6	74.1	6.5	0.8
1st Generation*Man	2.68	2.09	7,561	14.2	70.6	11.6	3.6
1st Generation*Woman	1.93	1.78	11,957	24.6	67.8	6.2	1.4
1st Generation*Trans	3.34	2.89	68	17.6	52.9	16.2	13.2
1st Generation*Other	2.28	2.49	204	25.0	61.8	6.4	6.9
Total	2.22	1.95	19,790	20.6	68.8	8.3	2.3
Sexual Orientation*Race							
Not LGBTQ*White	2.05	1.55	49,573	17.4	76.4	5.6	0.6
Not LGBTQ*Black	2.24	1.97	3,924	22.1	67.0	8.6	2.3
Not LGBTQ*Latin	2.23	1.88	6,609	20.4	69.2	8.6	1.8
Not LGBTQ*Asian	2.05	1.92	8,568	21.8	69.4	6.4	2.4
Not LGBTQ*Multiracial	2.05	1.69	2,146	20.4	72.5	6.1	1.1
Not LGBTQ*Native American	2.47	2.05	328	17.4	68.9	11.0	2.7
Not LGBTQ*Other	2.26	1.91	896	18.9	69.6	9.4	2.1
Total	2.08	1.67	72,044	18.6	74.2	6.2	1.0
LGBTQ*White	1.63	1.51	3,317	26.7	69.3	3.3	0.7
LGBTQ*Black	2.23	2.24	318	26.1	62.3	7.5	4.1

LGBQ*Latin	2.12	1.97	589	23.6	66.7	7.3	2.4
LGBQ*Asian	1.84	1.89	499	26.1	66.9	4.8	2.2
LGBQ*Multiracial	1.89	1.80	328	25.6	66.8	6.4	1.2
LGBQ*Native American	2.81	2.63	48	22.9	56.3	12.5	8.3
LGBQ*Other	2.03	2.34	80	28.8	58.8	7.5	5.0
Total	1.78	1.72	5,179	26.2	67.9	4.5	1.4
Family College*Race							
Not 1st Generation*White	2.07	1.58	60,605	17.6	75.6	6.2	0.5
Not 1st Generation*Black	2.18	1.85	3,765	21.8	68.3	8.3	1.6
Not 1st Generation*Latin	2.14	1.77	4,143	20.2	70.9	7.7	1.3
Not 1st Generation*Asian	2.04	1.89	8,156	22.0	69.2	6.7	2.1
Not 1st Generation*Multiracial	2.03	1.71	2,381	20.7	72.7	5.4	1.3
Not 1st Generation*Native American	2.47	2.04	339	18.6	66.7	12.4	2.4
Not 1st Generation*Other	2.20	1.95	975	21.0	67.2	9.4	2.4
Total	2.08	1.65	80,364	18.5	74.2	6.5	0.8
1st Generation*White	2.13	1.80	11,142	20.2	70.9	7.4	1.5
1st Generation*Black	2.47	2.27	1,554	22.5	62.2	10.9	4.4
1st Generation*Latin	2.29	1.99	3,337	20.5	67.6	9.3	2.5
1st Generation*Asian	2.38	2.23	2,202	20.6	66.4	8.5	4.5
1st Generation*Multiracial	2.27	1.93	698	20.2	68.2	9.5	2.1
1st Generation*Native American	2.48	2.39	145	24.1	62.1	7.6	6.2
1st Generation*Other	2.67	2.39	256	19.1	63.3	12.5	5.1
Total	2.23	1.95	19,334	20.5	68.8	8.3	2.4

Appendix G Results of Logistic Regression Analysis for Recruitment

		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	MEDIAN
Exp(B)	Woman	0.89	0.89	0.91	0.87	0.89	0.90	0.90	0.89
	Black	1.27	1.54	1.53	1.64	1.40	1.43	1.33	1.43
	Latin	1.29	1.22	1.18	1.16	1.33	0.97	1.06	1.18
	Asian	1.60	1.58	1.69	1.30	1.22	1.18	1.35	1.35
	Multiracial	0.87	0.92	1.08	0.99	0.98	0.87	1.41	0.98
	LGBQ	0.62	0.68	0.52	0.63	0.56	0.61	0.54	0.61
Sig	Woman	0.012	0.000	0.014	0.000	0.000	0.003	0.017	
	Black	0.034	0.000	0.000	0.000	0.000	0.000	0.004	
	Latin	0.000	0.001	0.002	0.034	0.000	0.639	0.552	
	Asian	0.000	0.000	0.000	0.000	0.000	0.004	0.000	
	Multiracial	0.294	0.276	0.557	0.917	0.835	0.168	0.002	
	LGBQ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	MEDIAN
Hosmer-Lemmeshow Goodness of Fit									
	Chi-Square	3.295	4.143	1.419	4.495	9.092	2.103	6.377	4.143
	Sig	0.510	0.387	0.922	0.481	0.105	0.835	0.271	

Appendix H Results of Logistic Regression Analysis for Retention

		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	MEDIAN
Exp(B)	Woman	0.85	0.88	0.88	0.82	0.90	0.01	0.99	0.88
	Black	1.66	2.13	1.89	1.79	1.94	0.00	1.66	1.79
	Latin	1.52	1.69	1.51	1.42	1.72	0.00	1.20	1.51
	Asian	1.79	2.17	2.17	1.57	1.63	0.00	1.70	1.70
	Multiracial	1.04	1.22	1.17	1.28	1.03	0.45	1.28	1.17
	LGBQ	0.64	0.68	0.62	0.68	0.61	0.00	0.68	0.64
Sig	Woman	0.002	0.000	0.004	0.000	0.002	0.896	0.865	
	Black	0.000	0.000	0.000	0.000	0.000	1.838	0.000	
	Latin	0.000	0.000	0.000	0.000	0.000	1.239	0.074	
	Asian	0.000	0.000	0.000	0.000	0.000	1.457	0.000	
	Multiracial	0.816	0.028	0.259	0.033	0.774	1.095	0.040	
	LGBQ	0.000	0.000	0.000	0.000	0.000	0.612	0.000	
		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	MEDIAN
Hosmer-Lemmeshow Goodness of Fit									
	Chi-Square	0.977	4.978	0.857	1.261	1.228	1.560	1.141	1.228
	Sig	0.913	0.290	0.973	0.939	0.942	0.816	0.888	

Appendix I Results of Logistic Regression Analysis for Academic Performance

		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
Exp(B)	Woman	1.02	0.93	1.03	0.95	0.98	0.99	1.00	0.99
	Black	1.29	1.18	1.19	1.43	1.18	1.33	1.31	1.29
	Latin	1.78	1.36	1.91	1.37	1.53	1.31	1.03	1.37
	Asian	0.97	1.13	1.10	0.98	0.92	0.92	0.85	0.97
	Multiracial	0.79	1.06	0.73	0.93	1.07	0.74	0.93	0.93
	LGBQ	0.78	0.76	0.69	0.77	0.78	0.71	0.62	0.76
Sig	Woman	0.792	0.044	0.536	0.302	0.521	0.819	0.974	
	Black	0.070	0.026	0.104	0.000	0.035	0.003	0.033	
	Latin	0.000	0.000	0.000	0.000	0.000	0.001	0.777	
	Asian	0.801	0.051	0.300	0.752	0.146	0.243	0.035	
	Multiracial	0.203	0.607	0.052	0.591	0.509	0.038	0.616	
	LGBQ	0.085	0.002	0.001	0.010	0.001	0.000	0.000	
		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
Hosmer-Lemmeshow Goodness of Fit									
	Chi-Square	7.353	16.851	1.660	2.940	3.619	7.528	5.026	5.026
	Sig	0.118	0.002	0.797	0.568	0.460	0.110	0.285	

Appendix J Results of Logistic Regression Analysis for Academic Performance per Depth Engagement Level

		2011- 2012	2012- 2013	2013- 2014	Exp(B) 2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
Heavy Users									
	Women	2.38	1.92	2.17	1.97	1.99	2.01	1.92	1.99
	African American/Black	1.85	2.42	1.93	1.82	1.39	1.63	1.63	1.82
	Hispanic/Latino/a	2.90	1.85	2.62	1.77	2.40	1.76	1.93	1.93
	Asian/Pacific Islander	1.06	1.83	1.48	1.49	1.42	1.49	1.09	1.48
	Multiracial	0.75	1.91	0.94	1.18	1.43	1.33	1.06	1.18
	LGBQ	1.06	1.11	1.02	0.77	0.99	1.23	0.83	1.02
Moderate Users									
	Women	1.30	1.26	1.28	1.33	1.30	1.35	1.38	1.30
	African American/Black	1.55	1.55	1.51	1.41	1.65	1.25	1.49	1.51
	Hispanic/Latino/a	1.76	1.73	2.40	1.36	1.74	1.42	0.92	1.73
	Asian/Pacific Islander	1.52	1.21	1.16	0.98	1.06	0.94	0.87	1.06
	Multiracial	0.87	0.91	0.72	0.91	1.23	0.72	1.17	0.91
	LGBQ	1.02	0.71	1.05	0.86	0.97	0.61	0.75	0.86
Light Users									
	Women	0.78	0.78	0.81	0.72	0.78	0.76	0.72	0.78
	African American/Black	1.19	1.14	1.13	1.32	1.19	1.39	1.51	1.19
	Hispanic/Latino/a	1.74	1.47	1.88	1.16	1.45	1.24	0.99	1.45
	Asian/Pacific Islander	0.67	1.19	1.05	0.83	0.84	0.90	0.76	0.84
	Multiracial	0.66	1.01	0.72	0.97	1.03	0.71	0.71	0.72
	LGBQ	0.79	0.75	0.62	0.78	0.74	0.63	0.64	0.74
Non-Users									
	Women	0.60	0.57	0.68	0.46	0.58	0.56	0.59	0.58
	African American/Black	1.09	0.52	0.61	1.24	0.53	1.28	0.76	0.76
	Hispanic/Latino/a	1.40	0.85	1.03	1.01	1.01	0.94	0.40	1.01
	Asian/Pacific Islander	0.82	0.91	0.52	0.60	0.55	0.50	0.47	0.55

Multiracial	0.81	0.86	0.66	0.57	0.59	0.44	0.76	0.66
LGBQ	0.33	0.66	0.51	0.66	0.49	0.74	0.29	0.51

				Sig.			
	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018
Heavy Users							
Women	0.000	0.000	0.000	0.000	0.000	0.000	0.000
African American/Black	0.130	0.000	0.018	0.007	0.109	0.031	0.120
Hispanic/Latino/a	0.000	0.002	0.000	0.002	0.000	0.003	0.010
Asian/Pacific Islander	0.872	0.001	0.063	0.011	0.009	0.015	0.630
Multiracial	0.474	0.012	0.878	0.555	0.157	0.348	0.842
LGBQ	0.867	0.632	0.944	0.296	0.978	0.340	0.485
Moderate Users							
Women	0.003	0.000	0.000	0.000	0.000	0.000	0.000
African American/Black	0.065	0.001	0.028	0.028	0.000	0.210	0.088
Hispanic/Latino/a	0.000	0.000	0.000	0.033	0.000	0.018	0.693
Asian/Pacific Islander	0.067	0.094	0.314	0.886	0.566	0.585	0.292
Multiracial	0.692	0.681	0.252	0.701	0.243	0.214	0.564
LGBQ	0.942	0.063	0.803	0.434	0.788	0.005	0.097
Light Users							
Women	0.002	0.000	0.001	0.000	0.000	0.000	0.000
African American/Black	0.433	0.264	0.498	0.064	0.138	0.031	0.034
Hispanic/Latino/a	0.000	0.001	0.000	0.278	0.000	0.095	0.966
Asian/Pacific Islander	0.090	0.063	0.738	0.098	0.047	0.310	0.022
Multiracial	0.204	0.942	0.272	0.872	0.839	0.157	0.207
LGBQ	0.302	0.046	0.014	0.124	0.011	0.002	0.007
Non-Users							
Women	0.000	0.000	0.000	0.000	0.000	0.000	0.000
African American/Black	0.825	0.007	0.130	0.457	0.029	0.405	0.504
Hispanic/Latino/a	0.090	0.397	0.871	0.971	0.958	0.765	0.079

Asian/Pacific Islander
Multiracial
LGBQ

0.628	0.549	0.067	0.066	0.002	0.006	0.017
0.669	0.561	0.322	0.202	0.121	0.089	0.542
0.018	0.046	0.014	0.152	0.001	0.194	0.000

Hosmer-Lemeshow
Chi-Squared
Sig.

2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
1.726	4.868	4.039	7.533	4.355	9.34	4.645	4.645
0.943	0.561	0.775	0.274	0.000	0.229	0.703	

Appendix K Results of Logistic Regression Analysis for Academic Performance per Breadth Engagement Level

		Exp(B)							
		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
Heavy Users									
	Women	2.08	1.84	6.85	3.16	3.57	2.24	2.17	2.24
	African American/Black	5.32	4.58	#####	2.45	3.30	3.77	4.59	4.58
	Hispanic/Latino/a	13.51	6.52	5.48	8.96	6.87	3.38	4.84	6.52
	Asian/Pacific Islander	1.68	3.70	3.26	1.71	2.65	2.98	3.57	2.98
	Multiracial	0.00	7.02	2.76	3.97	3.29	2.69	#####	3.29
	LGBQ	3.33	0.74	1.25	#####	1.45	16.44	4.78	3.33
Moderate Users									
	Women	2.24	2.42	2.66	1.46	2.28	2.20	1.74	2.24
	African American/Black	3.66	2.14	1.37	2.50	1.38	1.55	2.02	2.02
	Hispanic/Latino/a	2.06	1.86	2.66	3.38	3.02	3.15	2.60	2.66
	Asian/Pacific Islander	1.79	1.92	1.70	1.99	2.38	1.58	1.37	1.79
	Multiracial	0.81	3.12	0.85	2.34	1.25	0.95	1.76	1.25
	LGBQ	1.16	0.95	0.62	0.77	1.75	1.31	0.92	0.95
Light Users									
	Women	1.16	1.04	1.11	1.12	1.12	1.12	1.14	1.12
	African American/Black	1.19	1.11	1.12	1.40	1.23	1.33	1.31	1.23
	Hispanic/Latino/a	1.83	1.37	1.85	1.22	1.47	1.35	1.10	1.37
	Asian/Pacific Islander	1.04	1.13	1.05	0.96	0.91	0.94	0.86	0.96
	Multiracial	0.76	0.92	0.72	0.95	1.11	0.79	0.87	0.87
	LGBQ	0.82	0.83	0.78	0.85	0.79	0.67	0.67	0.79
Non-Users									
	Women	0.42	0.51	0.41	0.44	0.51	0.42	0.45	0.44

African American/Black	0.39	0.86	0.95	1.23	0.82	1.19	0.87	0.87
Hispanic/Latino/a	1.22	0.92	1.59	1.18	1.17	0.68	0.46	1.17
Asian/Pacific Islander	0.55	0.69	0.70	0.60	0.67	0.55	0.58	0.60
Multiracial	1.25	0.88	0.57	0.48	0.674	0.33	0.673	0.67
LGBQ	0.39	0.53	0.47	0.50	0.64	0.47	0.36	0.47

				Sig. 2014- 2015			
Heavy Users	2011- 2012	2012- 2013	2013- 2014		2015- 2016	2016- 2017	2017- 2018
Women	0.108	0.037	0.000	0.014	0.000	0.013	0.147
African American/Black	0.021	0.000	0.999	0.223	0.017	0.021	0.224
Hispanic/Latino/a	0.001	0.002	0.001	0.007	0.000	0.061	0.207
Asian/Pacific Islander	0.522	0.000	0.008	0.226	0.005	0.003	0.023
Multiracial	1.000	0.098	0.527	0.140	0.203	0.484	0.999
LGBQ	0.195	0.662	0.844	0.999	0.448	0.008	0.075

Moderate Users							
Women	0.000	0.000	0.000	0.014	0.000	0.000	0.006
African American/Black	0.001	0.001	0.337	0.002	0.208	0.156	0.098
Hispanic/Latino/a	0.002	0.007	0.000	0.000	0.000	0.000	0.058
Asian/Pacific Islander	0.141	0.002	0.061	0.001	0.000	0.049	0.329
Multiracial	0.761	0.002	0.764	0.077	0.544	0.917	0.312
LGBQ	0.774	0.871	0.256	0.521	0.100	0.445	0.855

Light Users							
Women	0.018	0.369	0.031	0.022	0.004	0.022	0.030
African American/Black	0.308	0.248	0.378	0.001	0.027	0.016	0.063
Hispanic/Latino/a	0.000	0.000	0.000	0.040	0.000	0.001	0.478
Asian/Pacific Islander	0.796	0.092	0.651	0.650	0.140	0.420	0.091

Multiracial	0.184	0.499	0.092	0.718	0.354	0.149	0.426
LGBQ	0.228	0.084	0.049	0.173	0.006	0.000	0.000

Non-Users

Women	0.000	0.000	0.000	0.000	0.000	0.000	0.000
African American/Black	0.117	0.421	0.880	0.409	0.337	0.503	0.703
Hispanic/Latino/a	0.359	0.647	0.007	0.484	0.234	0.118	0.056
Asian/Pacific Islander	0.141	0.015	0.211	0.013	0.004	0.003	0.014
Multiracial	0.654	0.626	0.295	0.068	0.194	0.034	0.337
LGBQ	0.044	0.003	0.027	0.014	0.012	0.003	0.000

	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
Hosmer-Lemeshow	3.097	18.11	4.326	0.804	3.14	9.469	8.285	4.326
Chi-Squared	0.685	0.003	0.503	0.992	0.755	0.092	0.218	
Sig.								

Appendix L Results of Logistic Regression Analysis for Connection to Campus

		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
Exp(B)	Woman	0.86	0.69	0.78	0.84	0.87	0.88	0.88	0.86
	Black	2.08	2.35	2.33	2.34	1.50	1.87	1.77	2.08
	Latin	2.60	2.05	3.37	1.87	1.87	1.61	1.65	1.87
	Asian	1.22	1.60	1.88	1.58	1.25	1.11	1.32	1.32
	Multiracial	0.85	1.59	1.15	1.56	1.05	1.34	0.87	1.15
	LGBQ	0.69	0.63	0.83	0.65	0.70	0.72	0.50	0.69
Sig	Woman	0.100	0.000	0.001	0.023	0.014	0.062	0.180	
	Black	0.000	0.000	0.000	0.000	0.000	0.000	0.003	
	Latin	0.000	0.000	0.000	0.000	0.000	0.000	0.004	
	Asian	0.348	0.000	0.000	0.000	0.007	0.322	0.020	
	Multiracial	0.614	0.003	0.597	0.021	0.777	0.126	0.596	
	LGBQ	0.116	0.003	0.280	0.021	0.003	0.021	0.000	
		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
Hosmer-Lemeshow Goodness of Fit		5.004	0.283	3.331	0.432	17.098	1.780	2.966	2.966
Sig		0.543	0.963	0.507	0.994	0.004	0.878	0.564	

Appendix M Results of Logistic Regression Analysis for Connection to Campus per Depth Engagement Level

		Exp(B)						Median	
		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	
Heavy Users		1.52	1.22	1.23	1.45	1.56	1.22	1.30	1.30
	Women	1.77	4.24	2.58	2.53	2.02	2.23	4.96	2.53
	African American/Black	5.39	2.98	5.32	1.92	3.06	3.46	2.56	3.06
	Hispanic/Latino/a	1.84	2.32	2.75	2.25	1.56	1.78	1.85	1.85
	Asian/Pacific Islander	0.63	1.63	1.70	2.85	1.24	2.70	1.96	1.70
	Multiracial	0.98	1.12	0.94	0.80	0.84	1.30	0.43	0.94
	LGBQ								
Moderate Users		1.16	0.88	0.98	0.96	1.06	1.27	1.24	1.06
	Women	2.52	3.20	3.63	2.64	1.71	1.52	1.79	2.52
	African American/Black	1.92	2.18	3.67	1.35	2.58	1.59	1.45	1.92
	Hispanic/Latino/a	1.64	1.72	1.73	1.73	1.56	1.06	1.21	1.64
	Asian/Pacific Islander	0.59	1.82	1.24	1.85	1.37	1.12	0.62	1.24
	Multiracial	0.63	0.49	1.09	0.80	0.76	0.63	0.52	0.63
	LGBQ								
Light Users		0.72	0.63	0.62	0.76	0.74	0.70	0.66	0.70
	Women	2.19	2.01	1.98	1.93	1.55	1.88	1.61	1.93
	African American/Black	2.57	2.15	3.09	2.27	1.46	1.10	1.73	2.15
	Hispanic/Latino/a	0.86	1.48	1.91	1.33	1.11	1.08	1.11	1.11
	Asian/Pacific Islander	0.66	1.45	0.74	0.94	0.95	1.45	0.00	0.94
	Multiracial	0.63	0.65	0.73	0.46	0.68	0.69	0.69	0.68
	LGBQ								
Non-Users		0.45	0.36	0.56	0.34	0.49	0.51	0.46	0.46
	Women								

African American/Black	1.08	0.98	0.74	2.86	0.89	2.61	0.00	0.98
Hispanic/Latino/a	2.09	1.41	1.58	1.54	0.73	1.20	0.50	1.41
Asian/Pacific Islander	0.45	1.70	0.76	0.47	0.67	0.58	0.98	0.67
Multiracial	2.86	1.42	0.85	0.84	0.42	0.34	1.75	0.85
LGBQ	0.22	0.41	0.79	0.95	0.45	0.55	0.14	0.45

				Sig.			
	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018
Heavy Users							
Women	0.008	0.080	0.120	0.007	0.000	0.113	0.109
African American/Black	0.300	0.000	0.008	0.002	0.006	0.005	0.000
Hispanic/Latino/a	0.000	0.000	0.000	0.017	0.000	0.000	0.006
Asian/Pacific Islander	0.180	0.000	0.000	0.000	0.013	0.009	0.014
Multiracial	0.537	0.181	0.329	0.002	0.555	0.004	0.088
LGBQ	0.961	0.724	0.886	0.574	0.536	0.355	0.114

Moderate Users							
Women	0.261	0.193	0.868	0.730	0.485	0.021	0.124
African American/Black	0.002	0.000	0.000	0.000	0.007	0.083	0.095
Hispanic/Latino/a	0.001	0.000	0.000	0.215	0.000	0.021	0.210
Asian/Pacific Islander	0.135	0.001	0.012	0.001	0.001	0.730	0.356
Multiracial	0.464	0.041	0.617	0.072	0.231	0.755	0.419
LGBQ	0.382	0.042	0.783	0.498	0.163	0.092	0.060

Light Users							
Women	0.008	0.000	0.000	0.010	0.000	0.000	0.004
African American/Black	0.008	0.000	0.008	0.003	0.010	0.002	0.145
Hispanic/Latino/a	0.000	0.000	0.000	0.000	0.004	0.656	0.060
Asian/Pacific Islander	0.687	0.005	0.003	0.066	0.426	0.629	0.577

Multiracial LGBQ	0.479	0.155	0.610	0.875	0.843	0.235	0.996
	0.243	0.091	0.336	0.023	0.055	0.112	0.204
Non-Users							
Women	0.000	0.000	0.000	0.000	0.000	0.000	0.002
African American/Black	0.921	0.953	0.617	0.008	0.779	0.011	0.997
Hispanic/Latino/a	0.010	0.249	0.069	0.363	0.286	0.598	0.495
Asian/Pacific Islander	0.436	0.024	0.644	0.207	0.212	0.194	0.974
Multiracial	0.057	0.384	0.827	0.817	0.234	0.294	0.363
LGBQ	0.142	0.051	0.589	0.922	0.060	0.167	0.054

Hosmer-Lemeshow Chi-Squared Sig.	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
	1.374	2.224	3.681	1.992	3.286	4.235	3.236	3.236
	0.967	0.898	0.596	0.92	0.857	0.645	0.862	

Appendix N Results of Logistic Regression Analysis for Connection to Campus per Breadth Engagement Level

		Exp(B)						Median	
		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	
Heavy Users									
	Women	2.17	2.40	3.85	3.08	3.41	3.84	6.30	3.41
	African American/Black	5.43	8.55	21.75	6.59	4.02	4.12	1.64	5.43
	Hispanic/Latino/a	20.88	9.33	6.14	9.51	7.40	5.41	14.41	9.33
	Asian/Pacific Islander	3.40	4.35	4.57	1.47	4.20	3.45	7.64	4.20
	Multiracial	0.00	9.06	0.00	2.79	5.33	10.32	9.52	5.33
	LGBQ	2.35	0.35	0.69	3.72	0.94	8.75	0.68	0.94
Moderate Users									
	Women	3.26	2.10	1.67	1.79	2.02	2.16	2.79	2.10
	African American/Black	5.45	3.88	3.22	1.66	1.91	2.28	1.68	2.28
	Hispanic/Latino/a	2.30	2.57	5.14	3.25	3.48	4.40	4.21	3.48
	Asian/Pacific Islander	2.40	2.45	2.37	3.34	2.22	0.95	0.90	2.37
	Multiracial	1.51	3.17	0.69	5.97	1.24	1.31	0.00	1.31
	LGBQ	0.96	0.75	0.61	0.35	1.19	1.11	0.86	0.86
Light Users									
	Women	0.82	0.69	0.76	0.90	0.92	0.88	0.86	0.86
	African American/Black	1.64	1.93	1.92	2.58	1.50	1.69	2.06	1.92
	Hispanic/Latino/a	2.62	1.80	3.05	1.44	1.67	1.54	1.63	1.67
	Asian/Pacific Islander	1.08	1.47	1.71	1.44	1.16	1.18	1.33	1.33
	Multiracial	0.74	1.26	1.52	1.43	1.06	1.45	0.90	1.26
	LGBQ	0.54	0.71	1.02	0.76	0.63	0.56	0.48	0.63
Non-Users									
	Women	0.51	0.40	0.49	0.51	0.57	0.47	0.66	0.51
	African American/Black	0.79	2.16	2.11	1.41	0.90	1.81	0.27	1.41
	Hispanic/Latino/a	1.65	1.85	2.46	2.68	1.15	0.92	0.88	1.65
	Asian/Pacific Islander	0.72	1.02	1.29	1.36	1.09	0.62	1.00	1.02

Multiracial	1.37	1.61	0.00	0.83	0.63	0.82	0.62	0.82
LGBQ	0.69	0.32	0.44	0.44	0.80	0.71	0.57	0.57

				Sig.			
	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018
Heavy Users							
Women	0.143	0.007	0.001	0.039	0.000	0.000	0.001
African American/Black	0.018	0.000	0.000	0.014	0.005	0.009	0.646
Hispanic/Latino/a	0.000	0.000	0.000	0.001	0.000	0.008	0.060
Asian/Pacific Islander	0.166	0.000	0.001	0.546	0.000	0.001	0.001
Multiracial	1.000	0.036	0.999	0.375	0.077	0.099	0.036
LGBQ	0.351	0.244	0.763	0.334	0.909	0.001	0.744
Moderate Users							
Women	0.000	0.000	0.004	0.006	0.000	0.000	0.000
African American/Black	0.000	0.000	0.002	0.265	0.039	0.021	0.376
Hispanic/Latino/a	0.003	0.000	0.000	0.001	0.000	0.000	0.008
Asian/Pacific Islander	0.059	0.000	0.016	0.000	0.001	0.885	0.845
Multiracial	0.609	0.003	0.724	0.000	0.662	0.687	0.999
LGBQ	0.950	0.529	0.383	0.170	0.666	0.807	0.811
Light Users							
Women	0.053	0.000	0.001	0.206	0.183	0.117	0.142
African American/Black	0.052	0.000	0.000	0.000	0.003	0.002	0.001
Hispanic/Latino/a	0.000	0.000	0.000	0.023	0.000	0.002	0.015
Asian/Pacific Islander	0.773	0.000	0.001	0.002	0.146	0.179	0.039
Multiracial	0.443	0.242	0.132	0.126	0.777	0.092	0.732
LGBQ	0.059	0.065	0.916	0.184	0.003	0.003	0.002
Non-Users							
Women	0.001	0.000	0.000	0.000	0.000	0.000	0.039
African American/Black	0.751	0.001	0.073	0.402	0.730	0.091	0.197
Hispanic/Latino/a	0.098	0.015	0.000	0.001	0.499	0.811	0.800

Asian/Pacific Islander
Multiracial
LGBQ

0.581	0.925	0.523	0.223	0.652	0.135	0.999
0.672	0.207	0.998	0.757	0.374	0.742	0.512
0.532	0.012	0.176	0.112	0.391	0.324	0.188

Hosmer-Lemeshow
Chi-Squared
Sig.

2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
1.983	9.448	3.356	4.026	4.639	2.957	4.788	4.026
0.851	0.092	0.645	0.673	0.461	0.049	0.571	

Appendix O Results of Logistic Regression Analysis for Quality of Life

		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
Exp(B)	Woman	0.94	0.89	1.01	0.95	0.98	0.89	0.93	0.94
	Black	1.42	1.32	1.50	1.69	1.06	1.36	1.50	1.42
	Latin	1.65	1.58	2.09	1.44	1.60	1.52	1.39	1.58
	Asian	0.97	1.38	1.42	1.50	1.14	1.15	1.15	1.15
	Multiracial	0.98	1.48	0.90	1.09	1.07	1.09	0.87	1.07
	LGBQ	0.75	0.75	0.79	0.64	0.73	0.68	0.52	0.73
Sig	Woman	0.416	0.020	0.841	0.437	0.703	0.044	0.296	
	Black	0.035	0.003	0.001	0.000	0.605	0.012	0.009	
	Latin	0.000	0.000	0.000	0.001	0.000	0.000	0.020	
	Asian	0.882	0.000	0.001	0.000	0.067	0.109	0.148	
	Multiracial	0.920	0.002	0.630	0.621	0.619	0.613	0.491	
	LGBQ	0.115	0.017	0.097	0.002	0.002	0.001	0.000	
		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
Hosmer-Lemeshow Goodness of Fit		3.152	8.891	9.920	0.555	4.190	5.004	4.411	4.411
Sig		0.369	0.113	0.078	0.968	0.522	0.543	0.492	

Appendix P Results of Logistic Regression Analysis for Quality of Life per Depth Engagement Level

		Exp(B)							
		2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
Heavy Users	Women	2.01	1.70	2.19	1.81	2.03	1.57	1.78	1.81
	African American/Black	1.39	2.57	2.58	1.88	1.15	1.56	2.84	1.88
	Hispanic/Latino/a	2.53	2.22	2.86	1.47	2.42	2.38	2.54	2.42
	Asian/Pacific Islander	1.66	2.75	1.82	2.09	1.91	1.80	1.46	1.82
	Multiracial	0.45	2.16	1.44	1.51	1.59	2.13	1.30	1.51
	LGBQ	0.87	1.04	1.16	1.01	1.15	1.26	0.53	1.04
Moderate Users									
	Women	1.39	1.20	1.27	1.29	1.25	1.17	1.26	1.26
	African American/Black	1.90	1.75	1.95	1.75	1.36	1.45	1.74	1.75
	Hispanic/Latino/a	1.19	1.56	2.43	1.12	1.96	1.58	1.10	1.56
	Asian/Pacific Islander	1.17	1.17	1.61	1.85	1.38	1.41	1.05	1.38
	Multiracial	1.55	1.85	0.89	1.32	1.31	1.08	0.65	1.31
	LGBQ	0.71	0.82	1.08	0.77	0.79	0.62	0.71	0.77
Light Users									
	Women	0.67	0.71	0.71	0.67	0.73	0.65	0.64	0.67
	African American/Black	1.22	1.12	1.48	1.70	1.15	1.36	1.46	1.36
	Hispanic/Latino/a	2.01	1.73	1.92	1.62	1.51	1.14	1.46	1.62
	Asian/Pacific Islander	0.74	1.37	1.28	1.17	0.98	0.93	1.05	1.05
	Multiracial	0.77	1.03	0.89	0.72	0.99	1.03	0.86	0.89
	LGBQ	0.72	0.66	0.52	0.54	0.63	0.62	0.46	0.62
Non-Users									
	Women	0.46	0.61	0.68	0.54	0.59	0.60	0.53	0.59
	African American/Black	1.23	0.63	0.34	1.31	0.35	1.17	0.68	0.68
	Hispanic/Latino/a	1.27	1.09	1.34	1.40	0.82	1.16	0.99	1.16
	Asian/Pacific Islander	0.48	1.32	0.62	0.49	0.42	0.57	1.00	0.57

Multiracial	1.80	1.19	0.38	0.90	0.26	0.42	0.54	0.54
LGBQ	0.59	0.65	0.98	0.38	0.51	0.41	0.45	0.51

				Sig.			
	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018
Heavy Users							
Women	0.000	0.000	0.000	0.000	0.000	0.000	0.000
African American/Black	0.486	0.000	0.001	0.015	0.582	0.091	0.002
Hispanic/Latino/a	0.000	0.000	0.000	0.096	0.000	0.000	0.001
Asian/Pacific Islander	0.181	0.000	0.011	0.000	0.000	0.002	0.061
Multiracial	0.196	0.007	0.390	0.205	0.107	0.019	0.452
LGBQ	0.726	0.870	0.647	0.961	0.552	0.346	0.083
Moderate Users							
Women	0.002	0.014	0.006	0.004	0.001	0.066	0.029
African American/Black	0.014	0.001	0.002	0.002	0.091	0.080	0.048
Hispanic/Latino/a	0.335	0.011	0.000	0.574	0.000	0.009	0.691
Asian/Pacific Islander	0.592	0.279	0.006	0.000	0.006	0.011	0.771
Multiracial	0.256	0.008	0.745	0.346	0.233	0.792	0.319
LGBQ	0.366	0.399	0.777	0.307	0.160	0.037	0.154
Light Users							
Women	0.000	0.000	0.000	0.000	0.000	0.000	0.000
African American/Black	0.504	0.453	0.075	0.006	0.402	0.117	0.158
Hispanic/Latino/a	0.000	0.000	0.000	0.006	0.000	0.460	0.124
Asian/Pacific Islander	0.336	0.007	0.190	0.239	0.849	0.603	0.773
Multiracial	0.539	0.891	0.761	0.350	0.982	0.911	0.698
LGBQ	0.297	0.054	0.026	0.018	0.010	0.024	0.003
Non-Users							
Women	0.000	0.000	0.001	0.000	0.000	0.000	0.000
African American/Black	0.699	0.143	0.066	0.487	0.040	0.710	0.526
Hispanic/Latino/a	0.374	0.709	0.141	0.354	0.394	0.593	0.978

Asian/Pacific Islander
Multiracial
LGBQ

0.321	0.153	0.305	0.091	0.005	0.097	0.993
0.236	0.582	0.184	0.833	0.064	0.235	0.397
0.323	0.130	0.943	0.061	0.044	0.022	0.058

Hosmer-Lemeshow
Chi-Squared
Sig.

2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
0.759	3.53	6.412	5.147	3.09	7.857	4.163	4.163
0.993	0.74	0.379	0.525	0.797	0.249	0.761	

Appendix Q Results of Logistic Regression Analysis for Quality of Life per Breadth Engagement Level

		Exp(B)						Median	
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	
Heavy Users									
	Women	1.95	2.04	2.87	2.90	2.04	3.15	2.47	2.47
	African American/Black	4.47	4.07	12.58	11.10	4.17	1.84	5.48	4.47
	Hispanic/Latino/a	11.32	6.07	2.84	3.57	5.43	2.16	2.71	3.57
	Asian/Pacific Islander	2.12	3.36	5.68	1.47	3.64	2.90	5.66	3.36
	Multiracial	0.00	8332210661.55	1.07	1.61	4.06	6.41	11.52	4.06
	LGBQ	1.34	0.95	3.20	0.00	1.06	19.46	0.42	1.06
Moderate Users									
	Women	2.54	2.42	2.43	1.68	2.17	1.64	1.72	2.17
	African American/Black	3.07	2.37	1.69	1.54	1.05	1.64	1.41	1.64
	Hispanic/Latino/a	1.62	1.46	2.56	1.85	2.34	3.43	2.00	2.00
	Asian/Pacific Islander	1.21	1.82	2.00	3.09	2.66	1.61	1.46	1.82
	Multiracial	0.45	3.25	0.64	2.64	1.14	0.92	0.82	0.92
	LGBQ	0.55	0.85	0.93	0.41	1.89	1.40	1.67	0.93
Light Users									
	Women	1.00	0.97	1.08	1.08	1.12	0.99	1.04	1.04
	African American/Black	1.23	1.14	1.43	1.80	1.05	1.28	1.60	1.28
	Hispanic/Latino/a	1.62	1.63	2.07	1.34	1.49	1.50	1.47	1.50
	Asian/Pacific Islander	1.14	1.42	1.30	1.53	1.07	1.26	1.14	1.26
	Multiracial	1.03	1.29	1.00	1.11	1.07	1.18	0.79	1.07
	LGBQ	0.81	0.78	0.86	0.77	0.70	0.53	0.54	0.77
Non-Users									
	Women	0.42	0.46	0.37	0.48	0.47	0.37	0.36	0.42
	African American/Black	0.76	1.08	1.09	0.96	0.78	1.45	0.66	0.96
	Hispanic/Latino/a	1.25	1.08	1.56	1.43	1.36	1.13	0.82	1.25
	Asian/Pacific Islander	0.29	0.78	0.88	0.79	0.94	0.31	0.86	0.79

Multiracial	1.25	0.94	0.71	0.50	0.77	0.78	0.96	0.78
LGBQ	0.61	0.57	0.43	0.38	0.59	0.63	0.25	0.57

				Sig.			
	2011- 2012	2012-2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018
Heavy Users							
Women	0.171	0.021	0.006	0.034	0.023	0.000	0.101
African American/Black	0.021	0.001	0.003	0.001	0.003	0.265	0.124
Hispanic/Latino/a	0.000	0.001	0.017	0.071	0.000	0.250	0.432
Asian/Pacific Islander	0.388	0.000	0.000	0.474	0.000	0.005	0.002
Multiracial	1.000	0.999	0.961	0.679	0.130	0.189	0.052
LGBQ	0.767	0.942	0.257	0.999	0.911	0.000	0.476
Moderate Users							
Women	0.000	0.000	0.000	0.005	0.000	0.004	0.025
African American/Black	0.004	0.000	0.138	0.262	0.876	0.159	0.510
Hispanic/Latino/a	0.072	0.152	0.000	0.068	0.000	0.000	0.206
Asian/Pacific Islander	0.687	0.011	0.025	0.000	0.000	0.079	0.329
Multiracial	0.447	0.001	0.562	0.069	0.768	0.900	0.799
LGBQ	0.372	0.678	0.869	0.152	0.064	0.384	0.270
Light Users							
Women	0.967	0.541	0.217	0.253	0.031	0.845	0.613
African American/Black	0.329	0.267	0.019	0.000	0.685	0.103	0.007
Hispanic/Latino/a	0.000	0.000	0.000	0.020	0.000	0.000	0.015
Asian/Pacific Islander	0.511	0.000	0.042	0.000	0.441	0.019	0.201
Multiracial	0.917	0.094	0.996	0.593	0.648	0.395	0.315
LGBQ	0.332	0.088	0.354	0.104	0.003	0.000	0.000
Non-Users							
Women	0.000	0.000	0.000	0.000	0.000	0.000	0.000
African American/Black	0.657	0.746	0.838	0.913	0.428	0.268	0.488
Hispanic/Latino/a	0.419	0.762	0.054	0.240	0.091	0.670	0.682

Asian/Pacific Islander
Multiracial
LGBQ

0.084	0.244	0.736	0.347	0.720	0.001	0.589
0.717	0.863	0.643	0.239	0.551	0.636	0.943
0.343	0.060	0.108	0.034	0.046	0.142	0.007

Hosmer-Lemeshow
Chi-Squared
Sig.

2011- 2012	2012-2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	Median
2.225	4.463	4.376	2.241	8.137	3.624	10.058	4.376
0.817	0.485	0.497	0.896	0.149	0.459	0.122	

Description of the Data

Campus Recreation & Wellness Benchmark Survey



NIRSA/NASPA Knowledge Consortium



2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018



Data Cleanse; Select 36 Questions

- 139 unique institutions of higher education
- Every region of the US
- 195,847 student survey responses
- 4,246,422 cells of data



Dataset

Dataset

Independent Variables

Dependent Variables

Participation

Depth	Non-Users	0 Participations
	Light Users	1-2 Participations
	Moderate Users	3-4 Participations
	Heavy Users	5+ Participations
Breadth	Non-Users	0 Programs
	Light Users	1-4 Programs
	Moderate Users	5-7 Programs
	Heavy Users	8-10 Programs

Demographics

Gender	Man
	Woman
	Transgender
Race	White
	African American/Black
	Hispanic/Latino/a
	Asian/Pacific Islander
	Multiracial
Sexual Orientation	Non-LGBTQ
	LGBTQ
Family College	Not a 1st Generation College Student
	1st Generation College Student

Depth of Participation

Weekly Participation Rate			Engagement Level			
(0-5+ times per week)			Non	Light	Moderate	Heavy
Mean	SD	n	%	%	%	%

Breadth of Participation

Weekly Participation Rate			Engagement Level			
(0-10 programs per week)			Non	Light	Moderate	Heavy
Mean	SD	n	%	%	%	%

Dataset

Independent Variables

Dependent Variables

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Sexual Orientation	Non-LGBTQ
	LGBTQ

Recruitment; Retention

Original		Dichotomous Transformation	
Facilities	Not at all important	Not Important	Importance of Campus Recreation on Recruitment; Retention
	Slightly important	Important at some level	
	Moderately important		
	Very Important		
Programs	Not at all important	Not Important	
	Slightly important	Important at some level	
	Moderately important		
	Very Important		

Academic Success

Original		Dichotomous Transformation
"Participation improved/enhanced my"	Definitely	Improved/Enhanced
	Somewhat	Did Not Improve/Enhance
	Not at all	

Dataset

Independent Variables

Dependent Variables

Participation

Depth	Non-Users	0 Participations
	Light Users	1-2 Participations
	Moderate Users	3-4 Participations
	Heavy Users	5+ Participations
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	Multiracial
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	LGBTQ

Connection to Campus

Original			Dichotomous Transformation	Interaction
"Participation improved/enhanced my"	Communication Skills	Definitely	Improved/Enhanced	Connection to Campus
		Somewhat	Did Not Improve/Enhance	
		Not at all	Did Not Improve/Enhance	
	Multicultural Awareness	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all	Did Not Improve/Enhance	
	Leadership Skills	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all	Did Not Improve/Enhance	
	Problem Solving Skills	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all	Did Not Improve/Enhance	
	Sense of Belonging/Association	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all	Did Not Improve/Enhance	
	Ability to Develop Friendships	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all	Did Not Improve/Enhance	
	Respect of Others	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all	Did Not Improve/Enhance	
	Ability to Multi-Task	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all	Did Not Improve/Enhance	

*Variables grouped by Factor Analysis & Forrester (2015)

Dataset

Independent Variables

Dependent Variables

Participation

Depth	Non-Users	0 Participations
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Sexual Orientation	Non-LGBTQ
	LGBTQ

Quality of Life

Original			Dichotomous Transformation	Interaction
"Participation improved/enhanced my"	Overall Health	Definitely	Improved/Enhanced	Quality of Life
		Somewhat	Did Not Improve/Enhance	
		Not at all		
	Feeling of Well-being	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all		
	Stress Management	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all		
	Ability to Get a Good Night Sleep	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all		
	Self Confidence	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all		
	Time Management	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all		
	Concentration	Definitely	Improved/Enhanced	
		Somewhat	Did Not Improve/Enhance	
		Not at all		

*Variables grouped by Factor Analysis & Forrester (2015)

Methods

- ▶ **RQ 1 – Campus Recreation Participation of Historically Marginalized Populations**
 - ▶ Descriptive Statistics
 - ▶ Mean, SD, N, and % per engagement level per demographic group.
 - ▶ Reported an aggregate of the 8 years (7 years for LGBTQ).
 - ▶ Reported a comparison of rates between earliest and latest available years in the dataset.
- ▶ **RQ 2 – Importance of Campus Recreation on Recruitment & Retention of Historically Marginalized Population**
 - ▶ Binary Logistic Regression
 - ▶ Reported median odds ratio per demographic across the 7 years included in the dataset.
 - ▶ Interacted demographic variables and reported odds ratio for full dataset.
- ▶ **RQ 3 – Impact of Participation on Academic Success, Connection to Campus, and Quality of Life for Historically Marginalized Populations**
 - ▶ Binary Logistic Regression
 - ▶ Reported median odds ratio per demographic across the 7 years included in the dataset.
 - ▶ Interacted engagement level for **both** depth and breadth of participation with demographics and reported median odds ratio across the eight years included in the dataset.

VITA

Sean Christopher Basso was born in Castro Valley, CA. He grew up in Modesto, CA where he graduated from Modesto High School. After high school he attended Sacramento State where he earned his Bachelor of Science in Criminal Justice. While at Sacramento State, Sean worked as a student official and supervisor for the Recreational Sports Program, where he co-engineered a power ranking system that transformed the flag football and 5-on-5 basketball leagues. In part for doing so, Sean received NIRSA's prestigious William N. Wasson Award. Sean attended graduate school at the University of Kentucky where he worked as an intramural sports graduate assistant and earned his Master's Degree in Sports Leadership. In 2009, Sean returned to Sacramento State to work as the inaugural Intramural Sports Coordinator with the campus recreation department, The WELL. In 2014, Sean relocated to the University of Tennessee, Knoxville after being hired as the Assistant Director of Programming, Education, and Evaluation for RecSports. Sean was admitted to the Ph.D. in Higher Education Administration in summer 2015. At the time of completing his doctorate, Sean served as the Associate Director of RecSports at the University of Tennessee, Knoxville.