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The Effect of University Campus Recreation Programs on Student Retention

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THE EFFECT OF UNIVERISTY CAMPUS RECREATION PROGRAMS ON

STUDENT RETENTION

By

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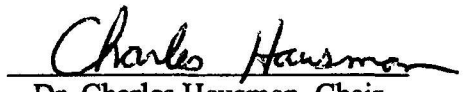

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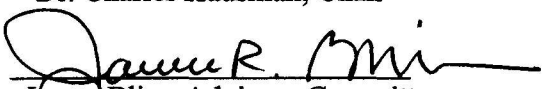

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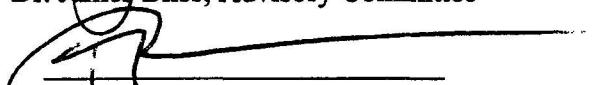

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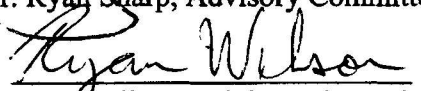

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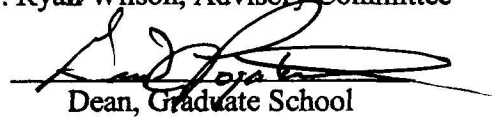

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THE EFFECT OF UNIVERISTY CAMPUS RECREATION PROGRAMS ON STUDENT RETENTION

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DEDICATION

This dissertation is dedicated to my husband Zach. Thank you for your love and support as I focused my energy towards this degree. I could not have completed this program without all the encouragement you provided.

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I would like to thank my husband, Zach, for his love and support. Thank you for your encouragement and emotional support throughout this process and never allowing me to settle for anything but the best. Without your support and giving me the added strength and determination to complete this dissertation I would have not been successful. I would also like to thank my friends and family for their support through this process.

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ABSTRACT

This study examined the effect campus recreation programs have on student retention for full-time freshman students at Eastern Kentucky University. Gender, first-generation, non-traditional students and participation in recreation programs were used as predictor variables for the purpose of this study. Data were collected from Eastern Kentucky University's campus recreation database on the utilization of general gym facility use, Adventure Programs, and Intramural Sports. The analysis of the results revealed that the retention rates of students who participated in campus recreation programs were higher than the students who did not participate in campus recreation programs had a higher retention rate than students who did not participate. Recommendations for policy implications and future research are provided.

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I. INTRODUCTION

Problem Statement

Retention rates are low at numerous colleges and universities throughout the United States (Bushong, 2009; Knapp, Kelly-Reid & Ginder, 2012; Sieben, 2011). College student retention continues to be a growing concern to universities, state and local governments, students and parents (Seidman, 2006). With federal and state appropriations being reduced, universities face increased levels of accountability for retention and enrollment numbers. Students and parents are scrutinizing the cost to attend college, and students have a genuine concern regarding the amount of federal student loan debt they will incur, particularly for students who do not complete their degree (Choy & Li 2006; Nguyen, 2012; Wei & Horn, 2013). For over a decade, retention of freshman continues to be a crucial concern amongst colleges and universities, and the U.S Department of Education is focusing on outcomes and results, specifically in retention and completion rates (Borrego, 2002). Due to this focus, higher education institutions and administrators must respond to the declining retention rates and address the concern at hand (Tinto, 2007; Aud et al., 2010). As Tinto (1987) indicates, approximately 75% of student who leave college do so within the first two years, and of those students, 85% do so voluntarily.

General Background

Colleges and universities are being held more accountable for student retention due to declining retention rates at many universities in the United States. Because of the higher level of accountability facing colleges, university administrators are focusing their efforts on ways to improve retention rates and are therefore looking to offer programs

with positive effects on retention. Not only are postsecondary institutions seeking to find programs with favorable outcomes, colleges and universities are increasingly becoming more competitive in recruiting efforts in addition to retaining students. Programs and activities offered through college campus recreation facilities are among those that can be offered that may have positive influences on student retention.

While there have been studies to determine the learning outcomes and social development associated with participation in club sport activities (Nesbitt, 1998; Haines & Fortman, 2008), there has been limited research conducted on the environment campus recreation programs provide as a whole. Research has shown that a relationship exists between the use of campus recreation facilities and student development (Dalgarn, 2001), higher retention rates of frequent users of campus recreation gym facilities (Belch, Gebel, & Mass, 2011), and the social benefits of intramural sports (Artinger et al., 2006). However, there is a gap in the research when looking at campus recreation programs in their entirety. As research indicates, the connection a student has to a college campus through various activities contributes to higher retention (Astin, 1984; Miller, 2011; Terenzini & Pascarella, 1977), yet the gap in the literature is seen when it comes to evaluating the impact of campus recreation centers as a whole and the specific effects the programs have on student retention and social belonging.

As Frauman (2005) indicates, college retention can be linked to participation in extracurricular activities, including those offered through campus recreation centers. While there is research in support of students using campus recreation facilities to increase college retention, social bonding and student development, there has not been a

study to date which effectively combines the numerous programs offered through campus recreation and draws conclusions based on the impact of the programs as a whole.

Rationale for Campus Recreation Programs

Over the past three decades, there has been substantial evidence that participation in extracurricular activities is linked to undergraduate success and student persistence (Bean, 1980; Buccholz, 1993; Miller, 2011; Tinto, 1975). Higher education student affairs professionals share a common understanding that the more a student is integrated into a college community the less likely they are to willingly leave the institution, consequently influencing attrition rates (Harris, 2006; Terenzini & Pascarella, 1977). In fact, numerous studies have shown that what happens once a student becomes assimilated into the college environment is more predictive of their persistence in college than other pre-entry activities (Pascarella & Terenzini, 1977; Terenzini & Pascarella, 1977). A critical part of the retention process is a student's feeling of belonging to a community (Wade, 1991). Thus, integrating students who participate in activities and programs into the campus community is an objective of campus recreation facilities, and it proves beneficial for university officials to understand the significance provided by recreation activities due to the programs enhancing the institutional goal of retention.

In order for a student to become assimilated and feel as though they are part of the university community, it is essential they develop both a sense of belonging and a sense of community. Creating the feeling of integration and sense of community amongst students can be accomplished through developing social networks, interactions between students and faculty, and opportunities for inclusion, such as recreation programs and student life activities (Harris, 2006). Creating a sense of community can also be achieved

through simply utilizing the campus recreation facility or gym. As noted by Dalgarn (2001), many users see a campus recreation facility as a place to meet new people, friends, and simply hang out, aiding in the development of social bonds and community.

In particular, first-year students build social bonds based on the connection they have with their community, and students need to feel as though they belong somewhere and are a part of something that gives their lives direction (Austin, Martin, Yoshino, Schanning, Ogle, & Mittelstaedt, 2010). As Flora and Flora (2013) indicate, the term community holds numerous definitions, all of which focus on groups of people. Often based on a shared sense of place, the concept of community also may include the relationships among the people, environment and place (Flora & Flora, 2013). Some see sense of community as shared common values or those doing similar things, not just those living in the same place. One goal of recreational activities at a university is the development of such a sense of community—building social relationships with people, having shared values or participating in similar activities.

Both notions of sense of community provide a foundation for understanding why fostering a sense of community is so important in the students' transition to college. Integration into a new community can either be successful for the student if he or she feels a connection with the place or a struggle if the student does not feel a sense of belonging. As Salamon (2003) points out, "strong connections emerge when trust is derived from knowing people and being able to count on them" (p. 187). Campus recreation programs provide students an environment where trust, communication and social relationships can all be cultivated aiding in students' sense of community and feeling of belongingness.

School setting and sense of belonging to a school are also determining factors in student motivation and academic success. Whether or not students feel accepted, included, respected or supported are all influential factors in the students' sense of belonging to a school and could potentially be the determining factors as to whether they choose to stay at a particular college. Therefore, it is critical for students to develop deep and meaningful relationships with peers and faculty in order to establish one's sense of belonging to a school and community (Chenoweth & Galliher, 2004). Campus recreation programs offered to students aid in fostering such relationships and sense of belonging amongst students.

As Miller (2011) indicates, students tend to have a stronger interest in continuing an association with a particular place as they become more attached. Fostering this sense of place, or place bonding, for an individual allows them to develop strong emotional ties between the location and themselves. In Miller's (2011) study, students indicated that the student recreation center on campus provided a strong emotional tie to the university for them. Reasons noted for this place bonding students felt towards the student recreation center included an increase in self-confidence, perceived overall happiness, leadership abilities, and personal development.

Jacobs and Archie (2008) have also provided evidence to illustrate that sense of community is shown to be a positive predictor of student persistence. For this reason, programming offered through campus recreation is positioned to help universities promote a greater sense of community. According to Austin et al. (2010), by giving attention to place and community, recreation programs truly have the potential to develop deep relationships with students to peers, the natural world around them, and the

institution. Salamon (2003) notes that, "only through repetitive informal interactions do people forge the shared meanings that foster a sense of community" (p. 183). With colleges and universities being held more accountable for student retention, developing programs such as those offered through campus recreation to foster sense of community is crucial.

Value of Recreational Sports on Campus

In order to provide a brief review of literature on the value of recreational sports on campus, Downs (2003) conducted a study for the National Intramural-Recreational Sports Association (NIRSA). This study was conducted with a two-fold purpose—to document the buying power of participants of recreation and to examine the value of recreational sports to participants. The study focused primarily on participants in recreational sports on college campuses due to the substantial number of colleges and universities that are NIRSA member organizations. Faculty and staff have membership options and access to campus recreation facilities in addition to the students. For the purpose of the Downs (2003) study, though, students were the specific focus and it included the following sports programs and activities: organized recreation teams and league sports, fitness class participants, workout center programs, exercise enthusiasts, organized sports clubs, aquatic enthusiasts, outdoor recreation enthusiasts, and other participants in recreation sports fitness programs.

Downs' (2003) study on the impact of participation in recreational sports programs and activities on college campuses discovered several key relationships between participation and college and personal success factors. Specifically, this study found that participation in recreational sports programs and activities is correlated with

overall college satisfaction and success and reinforced that participation in recreational sports is an important determinant of overall college satisfaction and success. The study also found that students who participated heavily in college recreational sports programs and activities were more socially oriented than other students. Students also agreed that participation in recreational sports resulted in the following benefits: improved emotional well-being, reduced stress, improved happiness, improved self-confidence, increased character, made students feel like part of the college community and was an important part of college social life.

Downs' (2003) study contributed to existing literature on the value of recreational sports on a college campus, and it is also added significance by focusing on self-reporting measures and assessing buying power of participants in recreational sports. The results of this study revealed several key relationships between participation in recreational sports programs and activities, as well as college and personal success factors. While there have been numerous other studies conducted on the value of recreational sports on college campuses, this study signifies the most comprehensive effort to examine the impact of participation in recreational sports programs and activities on college satisfaction and performance (Downs, 2003). This study included more than 2,600 students from sixteen colleges, all members of the NIRSA organization, making it the largest, representative group of college students ever studied with respect to the value of participation in recreational sports and programs. Previous research on the value of recreational sports on college campuses tended to focus on one specific college, whereas Downs' (2003) study had participants from sixteen colleges.

Theoretical Framework for Student Involvement in Recreation

There are two primary developmental social theories in which the empirical background supporting the impact campus recreation centers and retention is based—Astin's (1999) theory of involvement and Tinto's (1993) theory of integration. As Tinto (1975) suggests, creating a sense of community on a college campus is a way to help students feel a sense of belongingness and encourage their personal growth and academic development. In his theory of integration, Tinto (1993) identifies the significance of how creating a sense of belonging and commitment to the university is just as vital to university life as the academic aspects. Tinto (1993) provides theoretical background to the idea that a student not only needs to be integrated socially but academically as well while in college in order to have a significant commitment to the institution. Tinto's (1993) theory suggests that a sense of commitment may substantially increase the student's desire to persist at that college or university. Tinto's (1993) Interactionalist Model of Student Departure also suggests a process in which students are more likely to be persistent if they are successfully socialized. Students who are invested in recreational activities are more likely to continue their education at that particular institution (Tinto, 1993). Because of this, his model emphasized the need to better understand the connection between student involvement and its impact on student persistence.

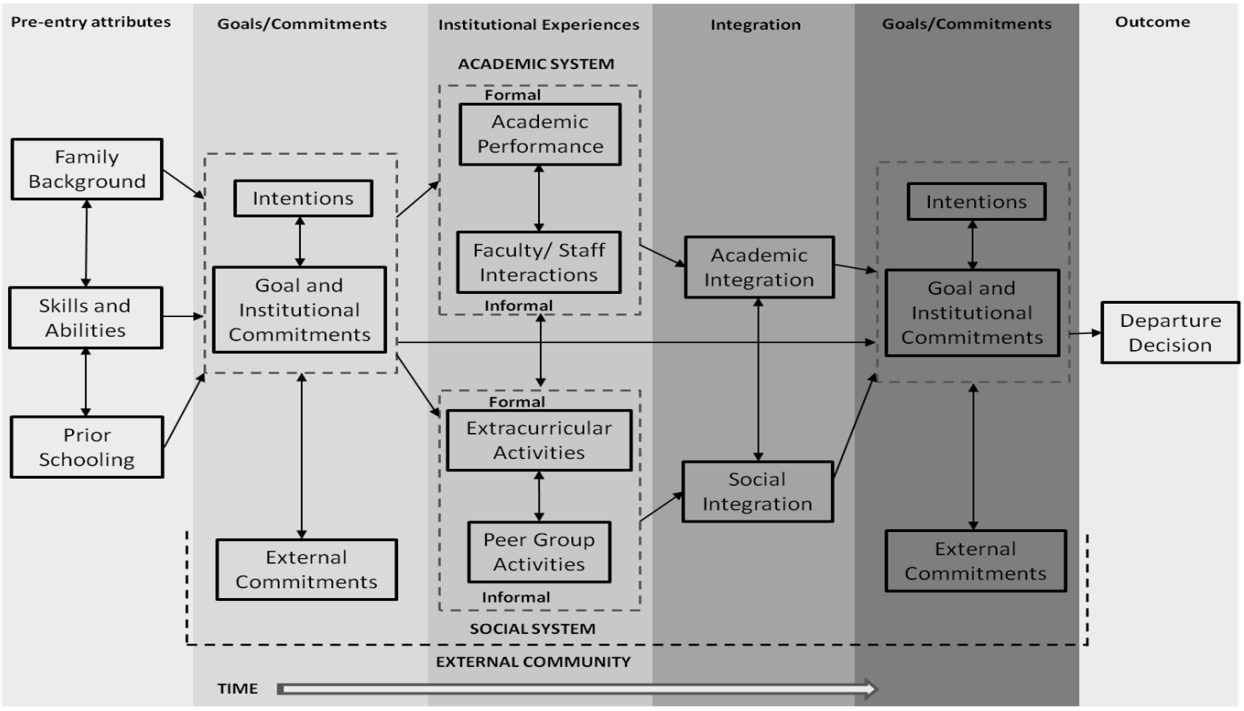

Figure 1. Tinto's Model of Student Departure

(Adapted from: Tinto 1993, 114)

Astin's (1999) Student Involvement Theory posits that the environment strongly influences the student's development and maturation into adulthood. His theory emerged from a longitudinal study of college student persistence which indicated that students who are involved in their university had higher rates of persistence, and those students who were not involved at their university were more likely to leave the school (Astin, 1975). As Astin indicates, what the student does and how he or she behaves define involvement more than what the student feels or thinks.

The major components of Astin's Involvement model, or the IEO Model, include I-inputs, E-environment, and O-outputs. The IEO model is useful when applying the process of assimilation to college. The input variable includes the underlying abilities and knowledge a student has when entering college. Environment includes any situation

a student may be in, whether work or participating in recreational activities or other factors, that may influence the student's level of engagement. The output variable is the result seen from the student's level of engagement, such as academic persistence or retention.

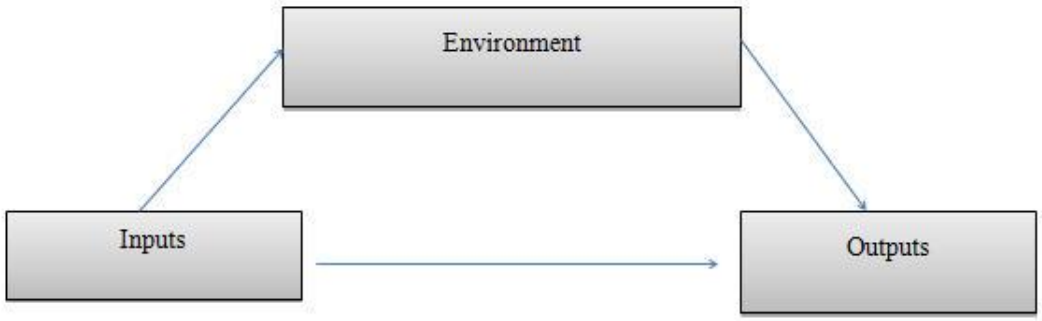

Figure 2. Astin's Input-Environment-Output (I-E-O) Model

The significance Astin's (1999) theory of involvement provides to research on the effects of campus recreation center usage is in relation to that of students becoming involved. Astin's theory asserts (1999) that the greater the student's involvement in activities at a university, the greater their personal and learning development throughout their college years. Students using campus recreation facilities and participating in programs offered through campus recreation are doing so on campus, thus increasing their interactions with other students. Students are using on campus recreational activities and facilities as an avenue to develop a sense of belonging and become involved, adding validity to Astin's (1999) theory of involvement. Participation in campus recreation activities not only allows for social interaction amongst students, it allows students to maintain a level of physical fitness and decrease levels of stress as well.

Both Astin's (1999) theory of involvement and Tinto's (1993) concept of integration are referred to as fundamental support for a college student persistence model (Milem & Berger, 1997). A crucial aspect of student retention is the students' sense of belonging and feeling integrated into a college community. Students who participate in campus recreational activities, such as club sports, intramurals and group fitness, tend to do so to create a sense of belonging and interact with fellow students. As Belch, Gebel & Maas (2001) indicate, the interaction amongst students can lead to strong social skills, integration into the college community, and higher retention rates for those who participate frequently.

Rationale for the Study

Rising student loan debt, increased tuition costs and the number of recent college graduates without jobs has led some to question the value of a college education (Choy & Li 2006; Gagliardi & Hiemstra, 2013; Nguyen, 2012; Seidman, 2006; Wei & Horn, 2013). However, looking at the long-term return on investments for those earning college certificates and degrees indicates that it does pay to get a college degree or credential now more than ever. In the Kentucky Council on Postsecondary Education's Policy Brief (Gagliardi & Hiemstra, 2013), the authors indicate that 56 percent of jobs in Kentucky will require some college in 2020. While this may be true for Kentucky, Carnevale and Smith (2012) indicate that 65 percent of jobs require some form of postsecondary education nationally. In fact, while every person should have a high school diploma or GED, those individuals with only a high school diploma or GED are twice as likely to be unemployed as someone with a bachelor's degree. Those without a

high school diploma are three times more likely to be unemployed compared to those who have earned a bachelor's degree (Gagliardi & Hiemstra, 2013).

Not only does earning a college degree or credential reduce the likelihood of being unemployed, college education also leads to higher earnings (Gagliardi & Hiemstra, 2013). According to the Bureau of Labor Statistics, in 2009, the median weekly earnings of workers with bachelor's degrees was $1,137, an amount 1.8 times the average earned by those with only a high school diploma and 2.5 times the earnings of high school dropouts. In 2011, earnings of high school graduates were 58 cents relative to those with more education at 87 cents. Furthermore, a new employee with some college earns approximately $2,700 more on average than someone with a high school degree, and those individuals with a bachelor's degree or higher earn $16,600 more (Quarterly Wage Indicator, 2011).

Higher levels of education are not only associated with lower unemployment rates and higher earnings, they are also associated with better health outcomes, less crime and less reliance on public assistance (Gagliardi & Hiemstra, 2013). A more educated population can help reduce the demands on state budgets and potentially increase revenue. With federal and state appropriations being reduced, universities face increased levels of accountability for retention and enrollment numbers. Therefore, in order for states to acquire the benefits from a more educated population, it is essential that colleges and universities continue to improve their efforts in postsecondary attainment (Gagliardi & Hiemstra, 2013).

Purpose of the Study

This study addresses and examines the effects of student recreation center programs on student retention through social belonging. Involvement in programs and activities offered through campus recreation on campus may help create a sense of belonging to the university, or sense of community, translating to an impact on student retention.

It is essential for university administrators to understand why college recreation centers are vital to student life as well as the overall benefits of campus recreation. Yet, there is a gap in the research on campus recreation facilities, the programs they offer, and the effects they have on student retention and social belonging. In order to enhance the college students' experience on campus and better understand how to serve the students, researchers need to further examine the importance of campus recreation facilities, recreational sports, and the correlation between campus recreation center use and institutional goals.

The purpose of this study is to determine the impacts that the use of one university campus recreation center use has on student retention. Specifically, this study examined the various programs offered through campus recreation at Eastern Kentucky University—including intramural sports, adventure programs, and general use of the gym facility—to examine the effect on retention through student engagement and social belonging.

Research Questions

The following research questions guided this study:

1. Controlling for student characteristics, is there a difference in retention rates between those who participate in campus recreation and those who do not participate?
2. What is the relationship between student characteristics and frequency in participation in campus recreation programs with retention?

Significance of the Study

While there is an applied body of research developed on the effects of campus recreation center use on students (Artinger et al., 2006; Blech, Gebel, & Mass, 2011Dalgarn, 2001; Downs, 2003), this study contributes to the general knowledge base on the field of campus recreation facilities and the recreation programs they can offer. Not only is it important to understand the importance campus recreation centers provide to student life, it is also essential to understand the overall benefits students gain from participation in these programs.

With many colleges and universities receiving less state appropriations and facing harsh economic climates, university administrators are scrutinizing programs to determine where resources should be allocated. The results of this study will provide valuable information to help administrators make informed, educated decisions regarding funding and resources allocated to programs based on their retention efforts and effectiveness. Not only does this study aim to fill gaps in existing literature, the goal also is to provide noteworthy information to the university that will assist in enhancing current

recreational programming. Results of this study will contribute to the overall body of literature on campus recreation facilities and their effect on student retention.

Study Limitations

There are limitations to the study that are important to note. One limitation to the study is the fact that the findings are specific to students at Eastern Kentucky University. Due to the limited scope of the study, the results cannot be generalized to other student populations. Although the study examines the various activities offered through campus recreation, the study is limited to measuring the effect of one campus recreation facility. Therefore, the results cannot be generalized to other campus recreation facilities across various postsecondary institutions.

Despite the limitations to this study, the findings offer beneficial information to university administrators and researchers examining campus recreation and the effects these programs have on student retention. The results of this study also provide valuable information to those involved in the decision-making of various student programs on campus, specifically in regards to allocating funds for campus recreation.

Definitions of Terms

Campus Recreation is defined as the facility and/or program opportunities available for students to participate in physical activities. These various activities include intramural sports, adventure programs, and general use of the gym facility.

Campus Recreation Program is defined as the program opportunities available for students to participate in physical activities. These various activities include intramural sports, adventure programs, and general use of the gym facility. This term is used synonymously with Campus Recreation Facility.

Campus Recreation Facility is defined as the venue in which students participate in physical activity. An example of this would be general use of the gym facility. This term is used synonymously with Campus Recreation Program.

Persistence is defined as the method in which a student remains enrolled in coursework from one academic term to the next sequential term of enrollment. The student continues to make satisfactory academic progress toward earning their college degree. An example of this would be a student's enrollment in the fall term continuing to the spring term.

Retention is defined as the process in which a student maintains continuous enrollment in coursework from one academic year to the next. The student also continues to make satisfactory academic growth toward earning their college degree. An example of retention is a student's fall term enrollment continuing to spring enrollment and into the subsequent fall term.

Sense of Belonging is defined as the connection or attachment a student feels towards their university. An example of sense of belonging is the students increased interaction or increased leadership potential at the university through their connection with the university.

Sense of Community is defined as the established relationship(s) a student feels with other students. An example of this would be the students' ability to establish and create relationships with other students.

Sense of Place is defined as the identity, dependence, and even possessiveness towards a specific location. For example, the campus recreation facility on campus could become the students only location utilized for recreational pursuits.

II. LITERATURE REVIEW

Review of Literature

As indicated in previous research, students who participate in recreational fitness activities do so in order to interact with their peers, ultimately creating a sense of belonging (Bucholz, 1993). The sense of a belonging a student gains from participation in recreation programs allows students to become more integrated into the university. According to Wade (1991), a critical part of the retention process is a student feeling that sense of connecting and belonging to a community. Professionals in the field of recreation have argued that participation in campus recreation programs have a positive effect on the students' social belonging and retention. One of the goals of this study it to add to the body of research that has been developed on the effects of college campus recreation centers on student outcomes.

The purpose of this study is to determine the effect of student recreation center programs on student retention. Specifically, this study examines the various programs offered through campus recreation at Eastern Kentucky University to assess the effect on retention through student engagement and social belonging. Additionally, this study hypothesizes that participation in campus recreation center programs aids students in stress reduction and physical fitness ultimately increasing student retention. This chapter reviews the literature pertaining to college retention and participation in campus recreation programs. Topics in the review of literature include the history of recreational sports, theories of involvement, benefits of participation in recreational sports, recruitment and retention, the perceived health and wellness benefits resulting from participation, and differences in retention rates by student characteristics.

History of Recreational Sports

It is important to review the history of campus recreation and how it has evolved in order to understand where it is today. Recreation on college campuses has been present almost since the inception of educational institutions in the United States, but not always with the approval of the administration (Webster, 1965; Means, 1952). Literature shows that intramural sports on campus began as a student-initiated, or sponsored athletic contests, as activities in which students could participate during their leisure time (Stewart, 1992). The athletic competitions were held during an era when physical education programs were not required as part of a college's general education courses and intercollegiate sports programs were not well developed. Students merely participated in the contests due to the fact that they were the only opportunities for student looking to participate in recreational sports on a college campus (Bourgeois et. al., 1995).

University administrators began to realize the need for recreational sports facilities for students to utilize during their leisure time, and the first recreational facility was opened in 1928 at the University of Michigan (Windschitl, 2008). This facility was designed strictly for men's participation in non-varsity club sports, intramural activities, and physical activity (Taylor, Canning, Brailsford, & Rokosz, 2003). Over the course of the next three decades, universities used this model when designing their campus recreational facilities with funding primarily coming from the general funds of the university and the athletic department (Taylor et al., 2003).

During the 1960s and 1970s, facilities were built closer to on-campus residential housing to enable more student participation. At this time, both men and women were

participating in campus recreation activities, and in many instances, student fees supported the construction of the facilities (Taylor et al., 2003). Because many facilities were being constructed with student fees, students made the decision they wanted these recreational facilities as part of their campus and imposed a referendum or fee upon themselves for the construction and the operation of the facilities (Bryant et al., 1994; Taylor et al., 2003; Wilson, 2009). Student lead decisions to provide recreational facilities on college campuses provide insight into the value of campus recreation and the importance of recruitment and retention to university administrators.

Beginning in the late 1980s, significant growth in the number of recreational facilities being built was seen, and the construction boom continued at a rapid pace (NIRSA, 2008). Many of the recreation facilities became the spotlight on college campuses due to their open and inviting architectural designs (Taylor et al., 2003). According to Huesman, Brown, Lee, Kellogg and Radcliffe (2009), campus recreation facilities are intentionally designed to invite a sense of community and social interaction as well as physical activity. Not only do the recreational facilities and programs serve as a recruiting tool for new students, but they also enhanced satisfaction with the college experience and contributed to institutional retention efforts (Banta, 1991).

Campus recreation facilities have become, and continue to be, a social gathering point for many students on a college campus. Not only does the rich environment that campus recreation facilities provide for student interaction make their usage a likely contributor to student success (Huesman et al., 2009), but as Bryant et al. (1995) indicate, campus recreation facilities facilitate social integration by creating large numbers of opportunities for members of a college community to interact.

Theories of Involvement

There are two primary developmental social theories in which the empirical background supporting the impact campus recreation centers and retention is based—Astin's (1999) theory of involvement, and Tinto's (1993) theory of integration. Astin's (1999) theory of involvement is part of the theoretical foundation for this particular study by hypothesizing that a student's environment has a strong influence on their development into adulthood. Not only does Astin's (1999) IEO model posit that the environment strongly influences the student's development and maturation into adulthood, it also helps to establish the relationship between participation in recreational activities with college life satisfaction and degree attainment. Astin's theory asserts (1999) that the greater the student's involvement in activities at a university, the greater their personal and learning development throughout their college years. As Astin indicates, what a student does and how they behave defines involvement more than what the student thinks or feels.

The premise of Astin's (1999) theory of involvement is that the greater the student's involvement in activities at the university, the greater their learning and personal development is throughout their years in college. Typically, students who are involved in more extracurricular activities tend to be students who have higher academic standards. Not only are the students high achievers through their involvement in organizations and clubs, they frequently interact with faculty members and spend considerably more time studying than do their lower achieving counterparts (Astin,1999). Astin's (1999) study on involvement emphasized that the amount of student learning and personal development gained from their involvement is directly linked to the amount and

quality of energy the student invests in those activities. He also argued that students living in on-campus housing are more likely to be fully invested in the campus community. As Astin (1999) indicates, the two main reasons for increased involvement amongst residential students are the likelihood of interacting with other students more frequently and the mere convenience of on-campus activities. Astin (1999) also stressed that further studies in this area needed to be conducted in order to take an in-depth look at the various forms of involvement including interaction with faculty, participation in recreational sports, involvement in student government and other activities students enjoy.

To further understand student's use of leisure time, Wade (1991) developed a study to examine how students at Pennsylvania State University chose to spend their discretionary time outside the structured classroom. A sample of 367 students (a 73% response rate) completed the surveys, 62% of whom were males. The survey instrument contained 19 questions classified in non-academic and academic categories. Of the 19 questions, three focused on academics—amount of time related to number of credits, amount of time dedicated to study, and number of hours spent at the library. The sixteen non-academic questions focused on time related to employment, religious service, volunteer activities, intramural sports, shopping, personal care, talking with friends, dating, cultural events, and time away from the university community. As indicated in the results, 82% of the students reported spending twenty or fewer hours per week on study, 25% of the students spent no time in the library, and males showed a tendency to enroll for more credits than females. Results also indicated that 47% of students reported watching television five or fewer hours per week, 15% watched no television, 43%

worked, and 86% of those reported working 20 or fewer hours per week. Of the sample population, 39% participated in intramural sports with 66% spending two or fewer hours per week in intramural sports, and 38% spent one to three hours per week dating.

Wade's (1991) study indicated that an essential and critical part of retention of undergraduate students was their feeling of belonging to a community. These findings were supported by Dalgarn (2001), who indicated that many students that participate in recreational or fitness activities do so as a way to enhance social relationships by interacting with other students. Additionally, Bailey (2005) supported this claim by affirming that increased participation in sports and fitness activities throughout a person's life can contribute to the development of community with other participants, consequently reducing the possibility of social exclusion.

Tinto (1975) suggested that creating a sense of community on a college campus is a way to help students feel a sense of belongingness and encourage their personal growth and academic development. In his theory of integration, Tinto (1993) contended that the significance of creating a sense of belonging and commitment to the university is just as vital to university life as the academic aspects. Tinto (1993) provided theoretical background on the concept that integration into academic life as well as social life while in college leads to significant commitment to that particular institution. Tinto (1993) further stated that a sense of commitment by the student may considerably increase their desire to persist at that specific institution. This aspect of student involvement provides a great benefit to the institution itself in that students who are invested in recreational activities are more likely to continue their education at that particular institution (Tinto, 1993). Tinto's (1993) Interactionalist Model of Student Departure also articulated a

process by which students are more likely to be persistent if they are successfully socialized. Because of this, his model emphasized the need to better understand the connection between student involvement and its impact on student persistence. Not only is this a benefit to the student, it is a viable way to retain students from an institutional perspective as well.

Recruitment

As recruitment of students has become more crucial to an institution's objectives (Taylor et al., 2003), and to its budget, recruitment efforts have also become highly competitive and expensive. Over the past decade, campus recreation programs and facilities have become a major component and spotlight in colleges' and universities' recruitment strategy. The recreation programs offered and the campus recreation facilities are considered to be key components of a student's decision to attend a certain institution (Haines, 2004; Kasin & Dzakira, 2001; Lamont, 1991; Zizzi, Ayers, & Watson, 2004). There is a common understanding that students give a high ranking to campus recreation programs, facilities for personal fitness, participation in team sports, and unstructured recreation when deciding which institution to attend (NIRSA, 2004). The literature shows that prospective students often rank access to recreational sport and fitness facilities for personal use higher than internships, cultural activities, part-time/full-time work, student clubs, student organizations, study abroad, Greek life and watching or participating in NCAA sports (NIRSA, 2004). However, the literature is less clear on the importance of campus recreation facilities to the student's decision to attend a particular institution. While this question necessitates more data, some studies have suggested that up to 30% of students base a significant portion of their decision to attend a particular

institution on the quality and availability of extracurricular facilities and programs (Bryant & Banta, 1995; Reynolds, 2007).

Health Benefits of Exercise

Stress Reduction

College can produce a stressful environment for students and having the proper coping mechanisms is crucial for students to succeed. Physical fitness has been shown to be a great stress reducer due to fact that exercise reduces both physiological stress and self-perceived psychological stress (Windschitl, 2008). Increasing physical fitness to reduce levels of stress is a method utilized by students. In fact, there has been significant research showing that physically active recreation can relieve stress, enhance creativity, and reenergize the body and mind (Fontaine, 2000; Kanters, 2000; Landers, 1997). Not only does use of campus recreation facilities help decrease stress levels for those who participate, coping with stress can lead to significant personal development amongst students (Kanters, 2000).

As Kanters (2000) indicates, using campus recreation to moderate stress effects student development in two different methods—through participation in physically active sports or aerobic activity and through the social support facilitated through participation. The results of this study indicated that students reporting a higher level of participation in recreational activities also reported lower levels of stress during final exams (Kanters, 2000). Results also showed that students who had a strong social support group indicated they had lower stress-related anxiety (Kanters, 2000). Kanters' (2000) findings support utilizing campus recreation facilities as a means of stress reduction and that working out with a friend can help decrease stress related anxiety. Not only does participation

decrease levels of stress, it supports the argument for a strong sense of belonging to the university as well (Kanters, 2000). These findings are critical for students seeking options regarding decreasing levels of stress they may incur during college.

In addition to the Kanters (2000) study, Iso-Ahola and Park (2000) examined the relationship between companionship and self-determination on stress levels using participants from a Taekwondo studio. Their study results showed a positive correlation between life stress and mental health problems and a negative relationship between leisure factors and mental health problems (Iso-Ahola & Park, 2000). Results of this study also indicated that physical health problems were not correlated to leisure factors and that general health issues are related to levels of stress, affirming that levels of stress can be lowered through leisure activities (Iso-Ahola & Park, 2000).

Fenzel (2001) conducted a study at a liberal arts university on the East Coast and found that many of the activities individuals participated in that lead to healthy lifestyles also have a positive effect on retention rates. In addition to the Student Development Survey used in this study, students completed several demographic items and scales of attitudes and behaviors, to include symptoms of anxiety. Participants of the study were defined as those who visited recreational facilities (n=114) and those who did not visit the recreational facilities (n=95). Results of this study showed that becoming involved in co-curricular activities during as early as the first six weeks of college provided significant benefits to the student (Fenzel, 2001).

Physical Fitness

As indicated in the first Surgeon General's report on physical health and wellness, participating in regular physical activity provides significant health benefits for

individuals of all ages (The Centers for Disease Control and Prevention, 1996). This initial report, which was not released until 1996, developed from the emerging concern of epidemiologists and other professionals in the health and wellness industry that greater emphasis and awareness needs to be placed on the benefits of physical activity. More specifically, as detailed in the landmark review of research, physical activity improves one's quality of life by improving psychological well-being as well as enhancing physical functions. Even ten years after the initial Surgeon General's report, the intent of the recommendations has not been fully realized (Haskell, Lee, Pate, Powell, Blair, Franklin, Macera, Heath, Thompson, & Bauman, 2005). Evidence still shows concern that adults in the United States are not active enough; therefore, an updated recommendation statement was issued. While fundamentally unchanged from the initial recommendation, the updated recommendation clarifies eight topics: (a) frequency of activity, (b) intensity of activity, (c) moderate and vigorous activity are complementary to one another, (d) clarification on aerobic activity in addition to routine activity, (e) physical activity above the minimum time provides significant health benefits, (f) consistency and clarity on length of time, (g) incorporating muscle strengthening activities, and (h) making minor wording changes to enhance clarity.

As the Surgeon General's report on physical activity (1996) indicates, the health benefits from participating in physical activity are obtainable even for those who may dislike vigorous exercise, and those who regularly participate could potentially reap additional benefits from maintaining or even increasing activity levels. Not only does participation in regular physical activity enhance one's physical functions, it also helps reduce depression, improve one's mood, as well as aid in the ability to perform daily

tasks. Despite the known benefits of lifetime physical activity, results from the National College Health Risk Behavior Survey indicated that only 36.7% of students reported they had participated in vigorous physical activity on three of more of the seven days preceding the survey (Douglas, Collins, & Warren, 1997).

Regular consistent physical activity has been shown to provide a variety of health enhancing benefits to include reducing the risk of developing cardiovascular disease, certain types of cancer, diabetes, and stroke (Miller, Ogletree, & Welshimer, 2002). In addition, physical activity improves general circulation and increased blood flow to the brain as well as raises levels of norepinephrine and endorphins, all of which helps improve one's mood and induce a calming effect after exercise (Taras, 2005). These benefits are vital to a student's good health, but they are particularly important when considering the challenges facing college students today (Windschitl, 2008).

Literature has also shown that physical activity increases students' overall health, which might increase the likelihood of a student returning. As Moskal, Dziuban, and West (1996) indicate, health problems such as heart disease, cancer, and diabetes had an effect on students' academic performance. Collins, Valerius, King and Graham (1997) found that physical activity enhanced physical, mental, and emotional capacity of the participants, and Crews and Landers (1987) showed physical activity reduced both physiological stress and self-perceived psychological stress. Additionally, Healthy People 2010 by the U.S. Department of Health and Human Services (2000) indicated that physical activity improved cardiovascular fitness.

Of the health and fitness benefits provided from participation in recreational activities, one of the most rudimentary benefits to a student is the momentary escape

from daily matters. Beyond the escape from daily life, a more beneficial aspect participation in recreational engagements provides students with is the opportunity to develop and enhance their mental, physical or emotional capacity (Collins, et al., 1997). Many students participate in a wide range of campus recreation programs due to the attraction of improved physical health, thus developing their physical capacity (Huesman et al., 2009). Other students, however, participate as a way to enhance social relationships by interacting with other students (Dalgarn, 2001).

According to Keating, Guan, Pinero, and Bridges (2005), the physical activity levels of college students can be attributed to four types of factors: personal, social, cognitive, and developmental. Therefore, a student's desire to take part in a form of physical activity can be influenced by one or a combination of the four factors. Of the various factors, a student's drive to lose weight, stay healthy, or workout on a regular basis is influenced by their personal factor. Social factors influence students to participate in group physical activity settings including intramural sports, fitness classes and other programs with peers (Keating, et al, 2005). It is important to recognize that cognitive factors may not be the conscious reason for student utilization of recreation, but it is important when considering student perception of recreation center use (Keating, et al., 2005). As with cognitive factors, developmental factors might not play into students' cognizant desire to use recreation facilities, but each student experiences a form of development as a result of their participation (Keating, et al., 2005).

Personal Development

Campus recreation sports, particularly intramural and club sports, provide students a strong avenue for interaction with their peers and others (Windschitl, 2008).

Not only does this interaction potentially provide freshmen the opportunity to informally develop support groups and friendships, it also allows the opportunity to seek advice from other students regarding the best classes to take or faculty to take classes from. Typically, staff and faculty members of the university are a visible part of the membership of campus recreation facilities, which in turn could provide students an opportunity for informal interaction. Campus recreation facilities offering diverse programming based on student, faculty, and staff needs can serve as a dynamic community ultimately establishing student engagement and belonging, thus developing an individual student's ability to connect to the environment around them and to the college community itself (Belch et al., 2001).

In 1996, a poll conducted at The Ohio State University (OSU) showed that 88.6% of undergraduates indicated that recreational sports and fitness activities were important to them (Haines, 2000). As Haines indicates, a feeling of physical well-being, sense of accomplishment, fitness, physical strength, and stress reduction were all benefits from participating in college recreational programs. This study also showed that students who participated in campus recreation programs gained mastery leadership skills. In addition, they were able to solve problems, achieve holistic wellness, work collaboratively in a group setting, enhanced their perceptions of diversity, and shape their views that participation in fitness and sports is important to them after graduation.

Differences in Retention Rates by Student Characteristics

First Generation and Retention

Research shows that first generation college students are at a higher risk for attrition resulting in lower student retention at higher education institutions (Dennis,

Phinney, & Chuateco, 2005; Longwell-Grice & Longwell-Grice, 2008; Strayhorn, 2009). Additionally, first generation college students tend to have fewer peer support systems, less of a connection to the university and campus life, higher anxiety levels from dealing with the new culture of campus life compared to non-first generation college students, and that family support for education may be lacking, all of which lower their probability of being retained (Ishitani, 2006; Lohfink & Paulsen, 2005; Lundberg, Schreiner, Hovaguimian, & Miller, 2007). Research has also shown that first generation college students potentially have less self-motivation to be successful in college compared to non-first generation students, ultimately lowering the likelihood of retention (Naumann, Debora & Gutkin, 2003). Collectively, these studies support the use of first generation status as a predictor variable and covariate in this research.

Non-Traditional Students and Retention

The concept of non-traditional students is complex and not easy to traditionally define (Kurantowicz & Nizinska, 2013). However, a general definition used is that adults over the age of 24, and those who are younger adults with children or married that return to college or attend college for the first time are referred to as non-traditional students (Schuetze & Slowey, 2002). Non-traditional students tend to participate less in extracurricular activities, and part of the lack of participation with the campus community is more than likely due to responsibilities of family and work (Noel-Levitz, 1993). As research indicates though, students that make connections to the institution are more likely to be retained and graduate (Astin, 1984; Miller, 2011; Terenzini & Pascarella, 1977). Therefore, non-traditional students are used as a predictor variable and covariate in this study.

Gender and Retention

Previous literature has also shown that a student's gender is important to student persistence and educational attainment. Women have made significant progress in gaining access to and completing postsecondary education (King 2000; Horn, Peter, & Rooney 2002). Research indicates females are attending college at higher rates than ever before and make up over half of the undergraduate student population since 1981 (Fiegener, 2008). The National Center for Education (2005) statistics also indicates that over the past two decades, the rates at which women enroll in undergraduate education and attained college degrees increased faster than those of their male counterparts. Additionally, Leppel's (2002) national study on gender differences in college persistence of men and women showed GPA and family income had a positive impact on both men's and women's persistence. For this reason, gender is used as the final covariate and predictor variable in this study.

Summary

Based on the literature reviewed, numerous studies exist showing the impact of student recreation centers on various aspects of students' lives. Most of the research provides overwhelming support of the benefits campus recreational programs provide students on college campuses. As indicated in previous research, a number of students at colleges and universities nationwide are participating in campus recreation sports and programs on a daily and even weekly basis. Although some may view these programs and activities merely as a way for students to spend their leisure time outside of the classroom, research makes it abundantly clear that participation in campus recreation programs can provide benefits in many areas of student life.

Some of the previously cited research explains the benefits of participation in campus recreation programs related to personal development, stress reduction, health benefits, student involvement and retention. In order to fully understand how campus recreation programs can influence student retention through social belonging and stress reduction, further examination of the relationship between these variables must occur. Looking at the type of students using campus recreation programs and facilities will help university administrations better understand the importance provided by campus recreation on college campuses.

III. METHODS

Methods

This chapter restates the purpose of the study as well as outlines the research design, context of the study, limitations of the study, and potential implications for policy, practice and future research. This chapter also contains descriptions of the following sections: campus overview, variables, data collection, and data analysis.

Purpose

The purpose of this study is to determine the effect a university campus recreation center use has on student retention. Specifically, this study looked at the various programs offered through campus recreation at Eastern Kentucky University to examine the effect on retention hypothetically through student engagement, social belonging and stress reduction.

Research Questions

The following questions were investigated:

1. Controlling for student characteristics, is there a difference in retention rates between those who participate in campus recreation and those who do not participate?
2. What is the relationship between student characteristics and frequency in participation in campus recreation programs with retention?

Context of the Study

Campus Overview

The university in this study is a regional, coeducational, public institution of higher education offering general liberal arts programs, pre-professional and professional training in education. The university also offers other fields of study at both the undergraduate and graduate levels. This postsecondary institution is located in the Southeast, accessible by a network of major highways from all parts of the state and surrounding states. It serves primarily rural counties in eastern Kentucky. The university seeks to provide both intellectual and cultural opportunities to help develop habits of scholastic curiosity and develop a deep understanding of democracy and the role its citizens play in maintaining vitality. The university also seeks to impart an understanding of humans, their aspirations, enable effective and efficient communication, and prepare productive and responsible citizens.

As a comprehensive public institution, the mission of the university is to prepare students to lead productive, responsible, and enriched lives. To accomplish this mission, the university emphasizes student success, regional stewardship, critical and creative thinking, and effective communication. The vision of the university is to be an accessible, nurturing, and academically rigorous center of learning and scholarship that transforms lives and communities and enables them to adapt and succeed in a dynamic, global society. Through its colleges and schools, the university seeks to offer quality instruction at a variety of degree levels in general education, the arts, the sciences, business, education, pre-professional and professional areas, and applied and technical disciplines.

Campus Recreational Facility and Programs Overview

Campus Recreation offers numerous events and activities housed in the state-of-the-art Fitness & Wellness Center to help students, faculty, and staff achieve the benefits of a healthy lifestyle. The facility includes the following: treadmills, ellipticals, rowing machines, stair steppers, bicycles, selectorized machines, free weights, two multipurpose sport courts, 1/8 mile four lane track, group exercise studio, full swing golf simulator, 36 foot rock wall, and bouldering wall.

Programs offered by campus recreation include the following: adventure programs, intramurals, group fitness, club sports, and general use of the gym facility. Adventure programs consist of outdoor trips ranging from an afternoon to a week (or more), team building, leadership development and workshops that teach students new skills. Adventure programs focus on education through experiential learning. Intramurals offer students the opportunity to compete on teams and individual/dual activities that allow for growth outside the classroom environment. Intramural sports offered include flag football, volleyball, softball, ultimate frisbee, tennis, basketball, water polo, dodgeball, outdoor/indoor soccer, table tennis, wiffleball, underwater hockey, golf, swim, and a triathlon. Club sports are all self-governed and function with moderate funding from both Campus Recreation and The Student Government Association (SGA). Most clubs hold tryouts in the fall and spring semesters. Group fitness classes, including yoga, cycling, kickboxing, and zumba, are offered in the groups fitness studio at the Fitness and Wellness Center. Sports clubs offered include the bassmasters club, skeet and trap club, ice hockey club, men's lacrosse club, women's rugby club, women's volleyball club, men's rugby club, equestrain club, women's soccer club, women's

basketball club, men's soccer club, paintball club, women's softball club, running club, climbing club, baseball club, fencing club, capoeira club, and ultimate club.

General use of the gym facility can be tracked using scanners, specifically the CSI Spectrum NG technology. This technology allows for general usage information to be tracked and stored in the campus recreation facility. Upon check-in, the initial information that is stored is the name of participant, time and date of check-in, student identification number, and membership status. At the administrative level, the system allows for much more information to be gathered such as previous visits, transaction listings, contact information, birthdates, and related accounts. This technology enables workers to scan the student identification cards of the individuals using the facility and allows the information to be stored where it can be used to study participation rates and other significant data and outcomes.

Participants

This research study includes all Eastern Kentucky University students who participated in any one or more of the campus recreation programs from the time period between the 2011-2012 academic year and the 2012-2013 academic year. The rationale for examining these particular time frames is that they represent the beginning of academic school years in order to analyze the effect of campus recreation on student retention.

Sample

The sample was extracted from existing data obtained from Eastern Kentucky University's Campus Recreation Database and Eastern Kentucky University's Banner system. Only full-time freshman students enrolled at the Richmond campus are analyzed.

A full-time student is defined as one enrolled in 12 or more credit hours. Students attending the 2011-2012 academic year who come back in the 2012-2013 academic year and students attending the 2012-2013 academic year who come back in 2013-2014 are designated as retained. For the purposes of this study, a non-traditional student is defined as 24 years old and older and a traditional student is defined as 24 years old and younger.

Data Collection

Data were collected from Eastern Kentucky University's Campus Recreation Database which houses data on all students who utilize the campus recreation facility and programs offered, as well as data from Eastern Kentucky University's Banner system. All data were imported into SPSS for analysis.

Research Design and Analysis

The statistical analysis used to investigate research question one is an ANCOVA. There are three separate ANCOVAs for each type of campus recreation activities in this study—gym facility use, Adventure Programs and Intramural Sports. The statistical analysis used to investigate research question two is a multiple regression. There are three separate multiple regressions, one for each of the type of campus recreation activities in this study—gym facility use, Adventure Programs and Intramural Sports. The null hypothesis is that retention rates will not be affected by participation in campus recreation programs. The alternate hypothesis is that participation in campus recreation programs does affect retention rates. A multiple regression includes more than one independent variable. In this study, four predictor variables are included. As a statistical analysis, multiple regression attempts to model the relationship between two or more

explanatory variables and a response variable by fitting a linear equation to observed data.

Variables

Three covariates were used in this study for research question one—first generation status, gender, and non-traditional students. Students were coded first-generation= 1 or non-first generation= 0. Gender was coded as male=1 and female= 0. Non-traditional students were coded non-traditional students=1 and traditional students=0. The covariates were chosen based on the impact they can have on student retention as demonstrated in previous research. The independent groups are 0= non-participant in recreational activities and 1= participant in recreational activities. There are three separate ANCOVAs, one for each of the recreation activities in this study. The dependent variable is retention for all three ANCOVAs in this study, coded as retained= 1 and not retained= 0.

Four predictor variables were used in this study for research question two—first generation status, gender, non-traditional student, and total number of participation in recreational activities. The fourth predictor changes in each regression—frequency of participation in gym use, frequency of participation in Adventure Programs and frequency of participation in Intramural Sports. First generation students were coded first-generation= 1, non-first generation= 0. Gender was coded as male=1 and female= 0. Non-traditional students were coded non-traditional students=1 and traditional students=0. Variables were chosen based on the impact they can have on student retention as outlined in prior research. The dependent variable for research question two is retention, coded as retained= 1 and not retained= 0.

Limitations of the Study

There are several limitations that need to be acknowledged regarding this study. One limitation to the study is the fact that the findings are specific to students at Eastern Kentucky University. Due to the limited scope of the study, the results cannot be generalized to other student populations. Although the study examines the various activities offered through campus recreation, the study is limited to measuring the effect of one campus recreation facility. Therefore, the results cannot be generalized to other campus recreation facilities across various postsecondary institutions.

Another limitation to the study that should be acknowledged is Intramural Sports. There is a record for each team that joined, but not on each game they played. Therefore, the data may not accurately reflect participation rates if student identification cards are not swiped or sign in rosters are not collected at each game.

Despite the limitations to this study, the findings offer beneficial information to university administrators and researchers examining campus recreation and the effects the programs have on student retention. The results of this study also provide valuable information to those involved in the decision-making process on various student programs on campus, specifically in regards to allocating funds for campus recreation.

IV. RESULTS

Results

The purpose of this study was to determine the effect a university campus recreation center use has on student retention. Specifically, this study looked at the various programs offered through campus recreation at Eastern Kentucky University to examine the effect on retention for students in the 2011-2012 academic year, and the 2012-2013 academic year. Full-time freshman students enrolled at the Richmond campus were analyzed.

This chapter reports the results from the data that were analyzed. The first section presents crosstabulations for gym facility participation data by gender, non-traditional status and first generation status. After that, a one-way Analysis of Co-Variance (ANCOVA) was employed with gym visit as the independent variable and gender, non-traditional, and first generation students as covariates. The purpose was to determine if participation in gym use effected retention after controlling for the three covariates. A multiple regression was run on the predictive ability of total number of participation in gym visits to explain retention when the three student characteristics assessed are included in the model.

The second and third sections present the results of Adventure Programs and Intramural Sports in the same order of crosstabulations by gender, non-traditional status and first generation status, followed by a one-way ANCOVA and multiple regression.

Differences in Gym Use by Student Characteristics

Differences in Gym Use by Gender

Gym Participation by Gender

To examine the gym facility participation by gender, a crosstabulation was created. The crosstabulation in Table 4.1 combines both academic year 2011-2012 (n= 2294) and academic year 2012-2013 (n= 2173), and shows the number of female freshman who visited the gym (51.9%) is greater than the number of males who visited the gym (48.1%).

Table 4.1

Crosstabulation: Gym Visits by Gender

			No Visit	Visited	Total
Gender	Female	Count	541	1840	2381
		% within Gender	22.7%	77.3%	100%
		% within Gym Visit	58.5%	51.9%	53.3%
	Male	Count	383	1703	2086
		% within Gender	18.4%	81.6%	100%
		% within Gym Visit	41.5%	48.1%	46.7%
	Total	Count	924	3543	4467
		% within Gender	20.7%	79.3%	100%
		% within Gym Visit	100%	100%	100%

Mean Gym Visits by Gender

The mean number of visits to the gym by gender was determined for both males and females. Specifically, females (M = 12.94, SD = 18.50) visited the gym less than males (M = 21.29, SD = 29.76) as displayed in Table 4.2.

Table 4.2

Mean Number of Gym Visits by Gender

Gender	M	N	SD
Female	12.94	2381	18.501
Male	21.29	2086	29.768
Total	16.84	4467	24.768

Differences in Gym Use by First-Generation Status

Gym Participation by First-Generation Students

To examine the gym facility participation by first generation status, a crosstabulation was created. The crosstabulation in Table 4.3 combines both academic year 2011-2012 (n= 2294) and academic year 2012-2013 (n= 2173), and shows the number of non-first generation freshman visited the gym (69.5%) more than the number of first generation freshman who visited the gym (30.5%).

Table 4.3

Crosstabulation: Gym Visits by First Generation Status

			No Visit	Visited	Total
First Generation Student					
	No	Count	570	2461	3031
		% within First Gen	18.8%	81.2%	100%
		% within Gym Visit	61.7%	69.5%	67.9%
	Yes	Count	354	1082	2086
		% within First Gen	24.7%	75.3%	100%
		% within Gym Visit	38.3%	30.5%	2.1%
	Total	Count	924	3543	4467
		% within First Gen	20.7%	79.3%	100%
		% within Gym Visit	100%	100%	100%

Mean Gym Visits by First-Generation Students

The mean number of visits to the gym by first generation students was determined for both first generation students and non-first generation students. Non-first generation students (M = 17.89, SD = 25.59) visited the gym more than first generation students (M = 14.62, SD = 22.77) as shown in Table 4.4.

Table 4.4

Mean Number of Gym Visits by First Generation Status

First Generation	M	N	SD
No	17.89	3031	25.595
Yes	14.62	1436	22.775
Total	16.84	4467	24.768

Differences in Gym Use by Non-Traditional Status

Gym Participation by Non-Traditional Status

To examine the gym facility participation by non-traditional generation status, a crosstabulation was created. The crosstabulation in Table 4.5 combines both academic year 2011-2012 (n= 2294) and academic year 2012-2013 (n= 2173), and shows the number of non-traditional freshman who visited the gym (1.2%) is less than the number of traditional freshman students who visited the gym (98.8%).

Table 4.5

Crosstabulation: Gym Visits by Non-Traditional Status

			No Visit	Visited	Total
Non-Traditional Student					
	No	Count	857	3502	4359
		% within Non-Trad	19.7%	80.3%	100%
		% within Gym Visit	92.7%	98.8%	97.6%
	Yes	Count	67	41	108
		% within Non-Trad	62.0%	38.0%	100%
		% within Gym Visit	7.3%	1.2%	2.4%
	Total	Count	924	3543	4467
		% within Non-Trad	20.7%	79.3%	100%
		% within group	100%	100%	100%

Mean Gym Visits by Non-Traditional Students

The mean number of visits to the gym by non-traditional students was determined for both non-traditional students and traditional students. Non-traditional students (M = 5.48, SD = 16.81) visited the gym less than traditional students (M = 17.12, SD = 24.87) as shown in Table 4.6.

Table 4.6

Mean Number of Gym Visits by Non-Traditional Status

Non-Traditional	M	N	SD
No	17.12	4359	24.869
Yes	5.48	108	16.81
Total	16.84	4467	24.768

Analysis of Co-Variance (ANCOVA) for Gym Use

Student's gym visits were compared by student's retention using a one-way Analysis of Co-Variance (ANCOVA). The ANCOVA investigates if gym visit participation effected retention after controlling for the three covariates. Therefore, the independent variable was gym visits, and the three covariates included in this model are gender, non-traditional status, and first generation status. Descriptive statistics in Table 4.7 shows those that visited the gym had a higher adjusted mean (.70) compared to those that did not visit the gym (.59). All assumptions of the ANCOVA were met.

Table 4.7

Percent Retained by Participation by Gym Visits or Not

Gym Visits	M	SD	N
No	.59	.492	924
Yes	.70	.459	3543
Total	.68	.468	4467

Collectively, the variables account for 2.6% of the variance in student retention [F = 29.35, (4, 4462), p = .000, η^2 = .026]. Gender exhibited the largest effect (Partial η^2 = .011) and accounted for the largest amount of variance in students' retention yet still a small amount. First generation was significant, but only accounted for a small amount of variance in retention (η^2 = .007). Non-traditional was also significant, but only accounted for a small amount of variance in retention (η^2 = .001). After controlling for gender, first-generation and non-traditional students, gym visitation significantly affected retention but explained only .9% of variance in student retention.

Table 4.8

Tests of Between-Subjects Effects: Gym Visits

Dependent Variable: Retention

Source	Type III *SS*	*df*	*MS*	*F*	Sig.	*Partial Eta Squared*
Corrected Model	25.068 [a]	4	6.267	29.35	.000	.026
Intercept	769.933	1	769.933	3605.43	.000	.447
Gender	10.721	1	10.721	50.20	.000	.011
First Generation	6.331	1	6.331	29.64	.000	.007
Non-Traditional	.874	1	.874	4.09	.000	.001
Gym Visit	8.913	1	8.913	41.74	.000	.009
Error	952.851	4462	.214			
Total	3021.000	4467				
Corrected Total	977.919	4466				

a. *R* Squared = .026 (Adjusted *R* Squared = .025)

The above significant test is a comparison of the estimated marginal or adjusted means. The estimated marginal means shown in Table 4.9 reveal that students who visit the gym have the highest mean (M=.699) compared to the adjusted mean of those who did not visit the gym (M=.587).

Table 4.9

Estimated Marginal Means: Gym Visits

Dependent Variable: Retention

			95% CI	
Gym Visits	*M*	*SE*	Lower Bound	Upper Bound
No	.587 [a]	.015	.557	.618
Yes	.699 [a]	.008	.684	.715

a. Covariates appearing in the model are evaluated at the following values: Gender = .47, First Generation Student = .32, Non-Traditional Student =.02.

Regression for Gym Visits

The statistical results in Table 4.10 answer question two, which sought to determine what factors were associated with retention. In order to determine what factors were associated with retention in college students, multiple regression analyses were conducted with student retention as the dependent variables. The predictor variables in the regression were gender, first generation student, non-traditional student and how many times the student visited the gym. Overall, the model was significant ($F=29.35$, $p<.000$). In other words, the four predictors explain retention better than chance alone. Collectively, the predictors explained 2.6% of the variance in retention (see Table 4.10).

Table 4.10

Regression: Retention

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Visited Gym in 2011-12 or 2013, Gender, First Generation Student, Non-Traditional Student[b]		Enter

a. Dependent Variable: Retention
b. All Requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.160[a]	.026	.025	.462

a. Predictors: (Constant), Visited the Gym in 2011-12 or 2013, Gender, First Generation Student, Non-Traditional Student

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.068	4	6.267	29.347	.000[b]
Residual	952.851	4462	.214		
Total	977.919	4466			

a. Dependent Variable: Retention.
b. Predictors: (Constant), Visited Gym in 2011-12 or 2013, Gender, First Generation Student, Non-Traditional Student

Table 4.10 (continued)

Coefficients

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	.657	.017		37.598	.000
	Gender	-.099	.014	-.105	-7.086	.000
	First Generation Student	-.081	.015	-.081	-5.445	.000
	Non-Traditional Student	.093	.046	.030	2.023	.043
	Visited Gym in 2011-12 or 2013	.112	.017	.097	6.461	.000

a. Dependent Variable: Retention

Differences in Adventure Program Participation by Student Characteristics

Adventure Program Participation Rate by Student Characteristics

To examine Adventure Programs (AP) participation by gender, first generations students and non-traditional students, Table 4.11 was created. Table 4.11 combines both academic year 2011-2012 and academic year 2012-2013, and shows participation numbers for females, males, non-traditional students and first-generation students by the type of Adventure Programs activities offered—trips, workshops, climbing competition, climbing wall and bouldering. Table 4.11 indicates the number of female students who participated in Adventure Programs is less than the number of males who participated, first generation student participation is lower in Adventure Programs, and non-traditional student participation is lower in Adventure Programs.

Table 4.11

Adventure Program Participation by Student Characteristics

Adventure Programs	Female	Male	Non-Traditional	First Generation
AP Trips	14 (0.31%)	15 (0.33%)	0	7
AP Workshops	18 (0.40%)	37 (0.82%)	0	9
Climbing Competition	5 (0.31%)	15 (0.33%)	0	4
Climbing Wall	284 (6.3%)	310 (6.9%)	5	176
Bouldering	16 (0.35%)	44 (0.98%)	0	19

Differences in Adventure Programs by Gender

Adventure Programs Participation by Gender

To examine the participation by gender in Adventure Programs, a crosstabulation was created. The crosstabulation in Table 4.12 combines academic year 2011-2012 and academic year 2012-2013 and includes all of the activities offered through Adventure Programs—trips, workshops, climbing competition, climbing wall and bouldering. Table 4.12 shows of all participants in Adventure Programs 47.9% were females and 52.1% were males.

Table 4.12

Crosstabulation: Adventure Program Participation by Gender

			No	Yes	Total
Gender	Female	Count	2098	294	2392
		% within Gender	87.7%	12.3%	100%
		% within AP	54.2%	47.9%	53.3%
	Male	Count	1773	320	2093
		% within Gender	84.7%	15.3%	100%
		% within AP	45.8%	52.1%	46.7%
	Total	Count	4871	614	4485
		% within Gender	86.3%	13.7%	100%
		% within AP	100%	100%	100%

Differences in Adventure Programs Participation by First-Generation Status

Adventure Programs Participation by First-Generation Students

To examine the Adventure Programs participation by first generation status, a crosstabulation was created. The crosstabulation in Table 4.13 combines academic year 2011-2012 and academic year 2012-2013 and includes all of the activities offered through Adventure Programs—trips, workshops, climbing competition, climbing wall

and bouldering. Table 4.13 shows of all participants in Adventure Programs 70.5% were non-first generation students and 29.5% were first generation freshman.

Table 4.13

Crosstabulation: Adventure Programs Participation by First Generation Status

			No	Yes	Total
First Generation Student					
	No	Count	2608	433	3041
		% within First Gen	85.8%	14.2%	100%
		% within AP	67.4%	70.5%	67.8%
	Yes	Count	1263	181	1444
		% within First Gen	87.5%	12.5%	100%
		% within AP	32.6%	29.5%	32.2%
	Total	Count	3871	614	4485
		% within Gender	86.3%	13.7%	100%
		% within AP	100%	100%	100%

Differences in Adventure Programs Participation by Non-Traditional Status

Adventure Programs Participation by Non-Traditional Students

To examine the Adventure Programs participation by non-traditional students, a crosstabulation was created. The crosstabulation in Table 4.14 combines academic year 2011-2012 academic year 2012-2013 and contains all of the activities offered through Adventure Programs—trips, workshops, climbing competition, climbing wall and

bouldering. Table 4.14 indicates of all participants in Adventure Programs, 0.8% were non-traditional students and 99.2% were traditional students.

Table 4.14

Crosstabulation: Adventure Program Participation by Non-Traditional Students

			No	Yes	Total
Non-Traditional Student					
	No	Count	3768	609	4377
		% within Non Trad	86.1%	13.9%	100%
		% within AP	97.3%	99.2%	97.6%
	Yes	Count	103	5	108
		% within Non Trad	95.4%	4.6%	100%
		% within AP	2.7%	0.8%	2.4%
	Total	Count	3871	614	4485
		% within Non Trad	86.3%	13.7%	100%
		% within AP	100%	100%	100%

Analysis of Co-Variance (ANCOVA) for Adventure Programs

Participation in Adventure Programs were compared by student's retention using a one-way Analysis of Co-Variance (ANCOVA). The ANCOVA investigates if participation in Adventure Programs effected retention after controlling for the three covariates. Therefore, the independent variable was AP participation and the three covariates included in this model are gender, non-traditional status, and first generation

status. Descriptive statistics in Table 4.15 shows those who participated in Adventure Programs had a higher adjusted mean (.77) compared to those who did not participate in Adventure Programs (.66). All assumptions of the ANCOVA were met.

Table 4.15

Percent Retained by Participation in Adventure Programs or Not

Adventure Programs Participant	M	SD	N
No	.66	.473	3871
Yes	.77	.421	614
Total	.68	.468	4485

Together, the variables account for 2.4% of the variance in student retention [F = 26.98, (4, 4480), p = .000, η^2 = .024]. Gender exhibited the largest effect (Partial η^2 = .010) and accounted for the largest amount of variance in students' retention. First generation was significant, but only accounted for a small amount of variance in retention (η^2 = .008). Non-traditional was not significant (η^2 = .000). Adventure Programs participation was significant but explained only .7% of the variance in retention.

Table 4.16

Tests of Between-Subjects Effects: Adventure Programs

Dependent Variable: Retention

Source	Type III *SS*	*df*	*MS*	*F*	Sig.	*Partial Eta Squared*
Corrected Model	23.106 [a]	4	5.776	26.98	.000	.024
Intercept	780.461	1	780.461	3645.31	.000	.449
Gender	10.083	1	10.083	47.09	.000	.010
First Generation	7.308	1	7.308	34.13	.000	.008
Non-Traditional	.325	1	.325	1.517	.218	.000
AP Participant	6.813	1	6.813	31.82	.000	.007
Error	959.168	4480	.214			
Total	3032.000	4485				
Corrected Total	982.273	4484				

b. *R* Squared = .024 (Adjusted *R* Squared = .023)

The above significant test is a comparison of the estimated marginal or adjusted means. The estimated marginal means shown in Table 4.17 reveal that students who participated in Adventure Programs have the highest mean (M=.699) compared to the adjusted mean of those who did not visit the gym (M=.587).

Table 4.17

Estimated Marginal Means: Adventure Programs

Dependent Variable: Retention

Adventure Program Participant	*M*	*SE*	95% CI Lower Bound	95% CI Upper Bound
No	.660 [a]	.007	.646	.675
Yes	.774 [a]	.019	.737	.811

a. Covariates appearing in the model are evaluated at the following values: Gender = .47, First Generation Student =.32, Non-Traditional Student =.02.

Regression for Adventure Programs

The statistical results in Table 4.18 answer question two, which sought to determine what factors were associated with retention. In order to determine what factors were associated with retention in college students, multiple regression analyses were conducted with student retention as the dependent variables. The predictor variables in the regression were gender, first generation student, non-traditional student and how many times the student participated in Adventure Programs. Overall, the model was significant ($F=19.89$, $p<.000$). In other words, the four predictors explain retention better than chance alone. Collectively, the predictors explained 1.7% of the variance in retention (see Table 4.18).

Table 4.18

Regression: Retention

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.132[a]	.017	.017	.464

b. Predictors: (Constant), Total # of Participation in AP, First Generation Student, Non-Traditional Student, Gender

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	17.145	4	4.286	19.896	.000[b]
Residual	965.128	4480	.215		
Total	982.273	4484			

c. Dependent Variable: Retention.
d. Predictors: (Constant), Total # of Participation in AP, First Generation Student, Non-Traditional Student, Gender

Table 4.18 (continued)

Coefficients

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	.744	.011		69.046	.000
	Gender	-.093	.014	-.105	-6.690	.000
	First Generation Student	-.088	.015	-.088	-5.911	.000
	Non-Traditional Student	.047	.045	.015	1.036	.043
	Total # of Participation in AP	.005	.002	.030	1.988	.000

b. Dependent Variable: Retention

Differences in Intramural Sports Participation by Student Characteristics

Individual Intramural Sport Participation by Student Characteristics

To examine Intramural Sport (IM) participation by gender, first generation students and non-traditional students, Table 4.19 was created. Table 4.19 contains intramural sports offered in academic year 2011-2012 as well as sports offered in academic year 2012-2013. Table 4.16 shows the number of participation by females, males, non-traditional students and first-generation students. Table 4.19 indicates the number of female students who participated in IM sports is less than the number of males who participated, first generation student participation is low in IM sports, and non-traditional student participation is low in IM sports.

Table 4.19

IM Sport Participation by Student Characteristics

IM Sport	Female	Male	Non-Traditional	First Generation
Flag Football 11	44 (1.9%)	158 (6.8%)	2 (0.08%)	52 (2.3%)
Sand Volleyball	40 (1.7%)	23 (1%)	0 (0%)	17 (0.7%)
Madden 11	0 (0%)	5 (0.2%)	0 (0%)	2 (0.08%)
Wiffleball 11	1 (0.04%)	36 (1.5%)	2 (0.08%)	11 (0.48%)
Volleyball Indoors 11	50 (2.1%)	50 (2.1%)	0 (0%)	29 (1.3%)
Indoor Soccer 11	33 (1.4%)	82 (3.5%)	0 (0%)	30 (1.3%)
Softball 11	16 (0.7%)	53 (2.3%)	0 (0%)	16 (0.7%)
Go Pink Dodgeball 11	0 (0%)	6 (0.02%)	0 (0%)	1 (0.04%)
Tennis 11	2 (0.08%)	4 (0.17%)	0 (0%)	1 (0.04%)
Battleship 11	7 (0.3%)	3 (0.13%)	0 (0%)	1 (0.04%)
Spring Basketball 11	0 (0%)	1 (0.04%)	0 (0%)	1 (0.04%)
2 Person Golf 11	0 (0%)	1 (0.04%)	0 (0%)	1 (0.04%)
Outdoor Soccer 12	0 (0%)	1 (0.04%)	0 (0%)	0 (0%)
Basketball Teams 12	56 (2.5%)	141 (6.5%)	2 (0.09%)	51 (2.3%)
Volleyball 12	92 (4.2%)	41 (1.9%)	0 (0%)	41 (1.9%)
Outdoor Soccer 12	44 (2.0%)	72 (3.3%)	0 (0%)	27 (1.2%)
Softball 12	22 (1%)	44 (2%)	0 (0%)	19 (0.9%)
Wiffleball 12	2 (0.09%)	33 (1.5%)	0 (0%)	11 (0.5%)
Dodgeball 12	12 (0.5%)	70 (3.2%)	0 (0%)	14 (0.6%)

Table 4.19 (continued)

IM Sport	Female	Male	Non-Traditional	First Generation
4 Person Golf 12	0 (0%)	0 (0%)	0 (0%)	0 (0%)
4 v 4 Flag Football 12	19 (0.8%)	49 (2.2%)	0 (0%)	18 (0.8%)
Indoor Soccer 12	26 (1.1%)	58 (2.6%)	1 (0.05%)	21 (0.9%)
MM Basketball 12	5 (0.23%)	38 (1.7%)	0 (0%)	12 (0.5%)
Summer Basketball 12	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Inntertube Water 12	3 (0.13%)	7 (0.32%)	0 (0%)	2 (0.09%)
7 v 7 Flag Football 12	38 (1.7%)	120 (5.5%)	0 (0%)	41 (1.9%)
Ultimate Frisbie 12	13 (0.59%)	55 (2.5%)	1 (0.05%)	21 (0.9%)
Sand Volleyball 12	39 (1.8%)	38 (1.7%)	1 (0.05%)	19 (0.8%)
Battleship 12	4 (0.18%)	3 (0.13%)	0 (0%)	3 (0.13%)
Texas Hold Em 12	1 (0.04%)	6 (0.27%)	3 (0.13%)	3 (0.13%)
Table Tennis 12	0 (0%)	8 (0.36%)	0 (0%)	3 (0.13%)
Dodgeball 12	0 (0%)	5 (0.23%)	0 (0%)	0 (0%)
Tennis 12	3 (0.13%)	11 (0.50%)	0 (0%)	6 (0.27%)
Swimming 12	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Recycle Olympics 12	0 (0%)	1 (0.04%)	0 (0%)	1 (0.05%)
Xbox 360 Madden 12	0 (0%)	11 (0.50%)	0 (0%)	3 (0.13%)
2 Person Golf 12	0 (0%)	3 (0.13%)	0 (0%)	2 (0.09%)

Differences in Intramural Sports Participation by Gender

Intramural Sports Participation by Gender

To examine the participation by gender in Intramural Sports, a crosstabulation was created. The crosstabulation in Table 4.20 combines academic year 2011-2012 and academic year 2012-2013 and includes all Intramural Sports offered during those years (see Table 4.19 for sports). Table 4.20 shows of all students who participated in Intramural Sports, 35.9% of females participated and 64.1% of males participated.

Table 4.20

Crosstabulation: Intramural Sports Participation by Gender

			No	Yes	Total
Gender	Female	Count	2042	345	2387
		% within Gender	85.5%	14.5%	100%
		% within IM	58.1%	35.9%	53.3%
	Male	Count	1474	615	2089
		% within Gender	70.6%	29.4%	100%
		% within IM	41.9%	64.1%	46.7%
	Total	Count	3516	960	4476
		% within Gender	78.6%	21.4%	100%
		% within IM	100%	100%	100%

Differences in Intramural Sport Participation by First-Generation Status

Intramural Sports Participation by First-Generation Students

To examine the Intramural Sports participation by first generation status, a crosstabulation was created. The crosstabulation in Table 4.21 combines academic year 2011-2012 and 2012-2013 and contains all of the Intramural Sports offered in both years (see Table 4.19 for list of sports). Table 4.21 shows of all participation in Intramural Sports, 27.1% were first generation students and 72.3% were non-first generation freshman.

Table 4.21

Crosstabulation: Intramural Sports Participation by First Generation Status

			No	Yes	Total
First Generation Student					
	No	Count	2343	695	3038
		% within First Gen	77.1%	22.9%	100%
		% within IM	66.6%	72.3%	67.9%
	Yes	Count	1173	266	1439
		% within First Gen	81.5%	18.5%	100%
		% within IM	33.4%	27.7%	32.1%
	Total	Count	3516	961	4477
		% within First Gen	78.5%	21.5%	100%
		% within IM	100%	100%	100%

Differences in Intramural Sports Participation by Non-Traditional Status

Intramural Sports Participation by Non-Traditional Students

To examine the Intramural Sports participation by non-traditional students, a crosstabulation was created. The crosstabulation in Table 4.22 combines academic year 2011-2012 academic year 2012-2013 and includes all of the Intramural Sports offered in the duration of those years (see Table 4.19 for sports). Table 4.22 shows of all participation in Intramural Sports, 0.8% were non-traditional students and 99.2% were traditional students.

Table 4.22

Crosstabulation: Intramural Sports Participation by Non-Traditional Students

			No	Yes	Total
Non-Traditional Student					
	No	Count	3416	952	4368
		% within Non Trad	78.2%	21.8%	100%
		% within IM	97.2%	99.2%	97.6%
	Yes	Count	100	8	108
		% within Non Trad	92.6%	7.4%	100%
		% within IM	2.8%	0.8%	2.4%
	Total	Count	3516	960	4476
		% within Non Trad	78.6%	21.4%	100%
		% within IM	100%	100%	100%

Analysis of Co-Variance (ANCOVA) for Intramural Sports

Participation in Intramural Sports was compared by student's retention using a one-way Analysis of Co-Variance (ANCOVA). The ANCOVA investigates if participation in Intramural Sports effected retention after controlling for the three covariates. Therefore, the independent variable was Intramural Sports participation and the three covariates included in this model are gender, non-traditional status, and first generation status. Descriptive statistics in Table 4.23 shows those that participated in Intramural Sports had a higher adjusted mean (.74) compared to those that did not participate in Intramural Sports (.66). All assumptions of the ANCOVA were met.

Table 4.23

Percent Retained by Participation in Intramural Sports and Not

Intramural Sports Participant	M	SD	N
No	.66	.473	3516
Yes	.73	.445	960
Total	.68	.468	4476

Collectively, the variables account for 2.2% of the variance in student retention [F = 25.15, (4, 4471), p = .000, η^2 = .022]. Gender exhibited the largest effect (Partial η^2 = .012) and accounted for the largest amount of variance in students' retention. First generation was significant, but only accounted for a small amount of variance in retention

(η^2 = .007). Non-traditional was not significant (η^2 = .000). After controlling for gender, first generation and non-traditional students, Intramural Sports participation was significant buy explained only .6% of the variance in student retention.

Table 4.24

Tests of Between-Subjects Effects: Intramural Sports

Dependent Variable: Retention

Source	Type III *SS*	*df*	*MS*	*F*	Sig.	*Partial Eta Squared*
Corrected Model	25.580 [a]	4	5.395	25.15	.000	.022
Intercept	862.069	1	780.461	4018.90	.000	.473
Gender	11.795	1	10.083	54.99	.000	.012
First Generation	6.696	1	7.308	32.49	.000	.007
Non-Traditional	.377	1	.325	1.76	.185	.000
IM Participation	5.392	1	6.813	25.14	.000	.006
Error	959.044	4471	.215			
Total	3025.000	4476				
Corrected Total	980.624	4465				

c. *R* Squared = .022 (Adjusted *R* Squared = .021)

The above significant test is a comparison of the estimated marginal or adjusted means. The estimated marginal means shown in Table 4.25 reveal that students who participated in Intramural Sports have the highest mean (M=.744) compared to the adjusted mean of those who did not participate in Intramural Sports (M=.657).

Table 4.25

Estimated Marginal Means: Intramural Sports

Dependent Variable: Retention

			95% CI	
Gym Visits	*M*	*SE*	Lower Bound	Upper Bound
No	.657 [a]	.008	.642	.673
Yes	.744 [a]	.015	.714	.773

a. Covariates appearing in the model are evaluated at the following values: Gender = .47, First Generation Student =.32, Non-Traditional Student =.02.

Regression for Intramural Sports

The statistical results in Table 4.26 answer question two, which sought to determine what factors were associated with retention. In order to determine what factors were associated with retention in college students, multiple regression analyses were conducted with student retention as the dependent variable. The predictor variables in the regression were gender, first generation student, non-traditional student and how many times the student participated in Intramural Sports. Overall, the model was significant ($F=25.30$, $p<.000$). In other words, the four predictors explain retention better than chance alone. Collectively, the predictors explained 2.2% of the variance in retention (see Table 4.26).

Table 4.26

Regression: Retention

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.149[a]	.022	.021	.463

c. Predictors: (Constant), Total # of Teams, First Generation Student, Non-Traditional Student, Gender

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	21.704	4	5.426	25.299	.000[b]
Residual	958.921	4471	.214		
Total	980.624	4475			

e. Dependent Variable: Retention.

f. Predictors: (Constant), Total # of Teams, First Generation Student, Non-Traditional Student, Gender

Table 4.26 (continued)

Coefficients

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	.736	.011		67.579	.000
	Gender	-.105	.014	-.112	-7.394	.000
	First Generation Student	-.085	.015	-.084	-5.698	.000
	Non-Traditional Student	.059	.045	.019	1.300	.194
	Total # of Participation IM Sports	.034	.007	.076	5.071	.000

c. Dependent Variable: Retention

Chapter five contains an overview of the significant findings from the multiple analyses from this study. Implications of findings are discussed in relation to suggestions of how to improve retention rates through participation in campus recreation programs.

V. DISCUSSION

Overview

This chapter presents the findings of the two research questions guiding this study, provides a summary of the study, a discussion of the variables assessed, and implications for practice and future research. The results of this study provide valuable information to help administrators make informed, educated decisions regarding funding and resources allocated to programs based on their retention efforts and effectiveness. Finally, this chapter concludes with defining the key points of the study and fills gaps in existing literature on retention and campus recreation.

Summary of the Study

The primary objective of this study was to determine whether participation in campus recreation programs at Eastern Kentucky University impacted student retention. The study was designed to determine the overall influence of participation in campus recreation programs, including general gym facility use, Adventure Programs and Intramural Sports, on retention of first year, full-time freshman students on Richmond's campus. The analysis of the results revealed a statistical significance in the retention rates of students who participated in campus recreation programs and offers reasoning to sustain program offerings. Given the current budget and allocation of state funding for higher education, it is important for colleges and universities to focus their efforts on programs that offer positive influence on student retention. In addition to establishing the relationship between campus recreation participation and retention, this study provides information on which programs have the largest impact on retention.

Interpretation of Results

An ANCOVA was employed for each of the campus recreation activities in this study—gym visits, Adventure Programs and Intramural Sports. The three covariates used for the purpose of this study were gender, first generation students and non-traditional students. The dependent variable in this study for all three ANCOVAs is retention.

Research Question 1

Crosstabluations were created for each of the covariates, gender, first generation students and non-traditional students. To examine participation by the covariates, crosstabluations were created for each campus recreation program: gym facility use, Adventure Programs and Intramural Sports. Data revealed that more females (51.9%) visited the gym than males (48.1%), but that males (52.1%) participate more in Adventure Programs than females (47.9%), and males (64.1%) participate in more Intramural Sports than females (35.9%). As previous research has shown, women are attending college at a higher rate and make up more than half of the undergraduate population since 1981 (Fiegener, 2008), therefore a possible explanation of the number of female gym visits as compared to males.

In examining gym use by first generation students, data revealed first generation students (30.5%) visit the gym considerably less than non-first generation students (69.5%), first generation students (29.5%) participate significantly less in Adventure Programs than non-first generation students (70.5%), and first generation students (27.7%) participate less in Intramural Sports than non-first generation students (72.3%).

These findings are consistent with previous research. First generation college students tend to have fewer support systems and less of a connection to the university and campus life (Ishitani, 2006; Lohfink & Paulsen, 2005; Lundberg, Schreiner, Hovaguimian, & Miller, 2007), consequently impacting their participation in campus recreation programs.

Furthermore, results from the crosstabulations revealed that non-traditional student (1.2%) visit gym significantly less than traditional students (98.8%), participation Adventure Programs by non-traditional students (0.8%) is substantially less than traditional students (99.2%), and non-traditional (0.8%) participation in Intramural Sports is considerably less than traditional students (99.2%). Consistent with previous research, non-traditional students tend to participate less in extracurricular activities and have a less participation with the campus community (Noel-Levitz, 1993). Less participation in extracurricular activities could contribute to why non-traditional students do not participate as frequently as other freshman students.

Three separate ANCOVAs were run for the different campus recreation activities examined in this study—gym facility use, participation in Adventure Programs and participation in Intramural Sports. The purpose of the ANCOVA was to determine if participation in the various campus recreation activities assessed effected retention after controlling for the three covariates, gender, first generation status and non-traditional status. Descriptive statistics for gym visits showed individuals who visited the gym had a higher adjusted mean (.70) compared to those who did not visit the gym (.59). Descriptive statistics for Adventure Programs indicated that those who participated in Adventure Programs had a higher adjusted mean (.77) compared to those who did not participate in Adventure Programs (.66). As with gym visits and Adventure Programs,

descriptive statistics for Intramural Sports showed those who participated had a higher non-adjusted mean (.74) compared to those who did not participate (.66).

Collectively, the results indicated that gender, first generation, and non-traditional students accounted for 2.6% of the variance in student retention for gym visits, 2.4% of variance in retention for Adventure Programs and 2.2% of variance in student retention for Intramural Sports. In combination, these data reveal that student participation in campus recreation programs is associated with student retention.

Research Question 2

Three separate multiple regression analyses for gym visits, Adventure Programs and Intramural Sports were assessed in this study. The predictive ability of total number of participation in the three campus recreation programs were assessed to explain student retention when the three student characteristics assessed are included in the model. Results indicate that the predictor variables in this study explain 2.6% of the variance for gym visits, 1.7% of the variance in retention for Adventure Programs and 2.2% of the variance in for Intramural Sports. In essence, gender, first generation status and non-traditional status were determined to have a significant effect upon retention rates.

Data revealed that retention rates were increased for students who participated in campus recreation programs offered at EKU as compared to those who did not participate. While this study only explains a small amount of the variance in student retention, it shows just how complex retention is as an issue. There are numerous programs out there whose intention is to aid in student retention thus making the issue of retention very complex. Even though this study explains a small percentage in variance in

retention at EKU, there are several studies in the literature supporting the finding of students being retained at a higher rate results if they participate in campus recreation programs. Research shows that campus recreation activities contributes to higher retention (Astin, 1984; Miller, 2011; Terenzini & Pascarella, 1977), and that college retention can be linked to participation in extracurricular activities, including those offered through campus recreation centers (Frauman, 2005). While this study explains a small amount of variance in retention at EKU, doubling or even tripling the number of freshman students who participate in campus recreation programs would have a substantial monetary impact on the university's budget. If participation in campus recreation programs increased student attrition, the amount of tuition dollars alone from those students who do not stop out would be considerable.

Implications for Policy and Practice

Results from this study show that campus recreation programs offered at EKU are effective at positively impacting student retention for those who participate. Increased student retention at colleges and universities is important and ultimately has a direct impact on state funding and how resources are allocated. Therefore, engaging students and promoting the facilities and programs offered through campus recreation is of value to higher education institutions. As Fenzel (2001) indicates, becoming involved in co-curricular activities during as early as the first six weeks of college provided significant benefits to the student. Not only would increased involvement in campus recreation activities benefit students in the first six weeks of college, universities would reap the benefits as well from seeing an increase in student retention. While this study explains a small amount of variance in retention, the tuition dollars from those students retained is

substantial. Based on EKU's current tuition and enrollment, the university would have a profit of approximately sixty million dollars if ten percent of students were retained. Therefore, it is recommended that EKU budget funds for campus recreation, even if only a small amount. Based on the results of this study, it is suggested that EKU would see a return on their investment with higher retention rates for students participating in campus recreation programs.

Participation in campus recreation activities were shown to positively impact student retention. Gender was the most powerful predictor in all three regressions and non-traditional students was the least powerful in the three regressions. Administrators should consider increased marketing efforts to grow participation numbers, specifically for first generation and non-traditional students. It would behoove campus recreation to offer programs targeted towards the needs and wants of first generation and non-traditional students. Previous literature has shown that non-traditional students tend to participate less in extracurricular activities due to responsibilities of family and work (Noel-Levitz, 1993) and that first generation college students tend to have fewer peer support systems and less of a connection to the university and campus life (Ishitani, 2006; Lohfink & Paulsen, 2005; Lundberg, Schreiner, Hovaguimian, & Miller, 2007). Therefore, offering programs that appeal to non-traditional students' work and family life, and programs that assist in building a support system for first generation college students could potentially help participation numbers and would benefit those students.

With increased accountably for colleges and universities to retain students, it is essential that institutions focus their efforts on ensuring students succeed. Furthermore, Kentucky's Council on Postsecondary Education indicate that 56 percent of jobs in

Kentucky will require some college in 2020 (Gagliardi & Hiemstra, 2013), and 65 percent of jobs will require some form of postsecondary education nationally (Carnevale & Smith, 2012). Therefore, universities should address retention rates in order to meet the demands of a more credentialed workforce. Not only is it important to develop a more credentialed workforce, but higher levels of education reduce the likelihood of being unemployed, lead to better health outcomes and higher earnings (Gagliardi & Hiemstra, 2013; Quarterly Wage Indicator, 2011). Participation in campus recreation programs is a small step in the right direction.

With the complexity of retention, how do you measure retention with so many programs targeted towards retention? Given what we know of the programs efforts, are they additive or duplicative? What evidence should university administrators use to make decisions regarding resource allocations? Should they look very specifically at programs when allocating funds, or should they make cuts across the board? Should a cost benefit analysis and effect size be taken into consideration? These are all questions that arise out of retention being so complex and questions that university administrators need to consider.

Future Research

This study indicated that Eastern Kentucky University's campus recreation programs positively impacts student retention and parallels other studies on student retention and campus recreation. This study also adds to the applied body of research developed on the effects of campus recreation center use on students (Artinger et al., 2006; Blech, Gebel, & Mass, 2011; Dalgarn, 2001; Downs, 2003) and contributes to the general knowledge base on the field of campus recreation. Additional research is needed

to specifically gather information about what programs and specific recreation activities aid is student retention.

Future studies might include qualitative design that can provide additional context on campus recreation programs. Methods such as focus groups, interviews or others would provide valuable information on student's opinions of what they would like offered at the gym, in Adventure Programs and Intramural Sports and why they participate or not. Specifically, focus groups or interviews with first-generation and non-traditional students would provide insight on what they would like offered and would be of value since the results of this study showed significantly low participation numbers. Additional research would also help the university better understand the student population and student demographics as far as gender, first generation and non-traditional students. A more in depth understanding of the students who attend the university, their interest and what programs and activities they would like offered may help the institution better meet their needs.

Additionally, more studies must be conducted in order to inform resource allocations due to decreased appropriations at the federal and state levels. Many post-secondary institutions are facing increased levels of accountability for retention and enrollment numbers as a result of the declining resources. Several states have even moved to outcome based funding and many states are likely to head in the same direction. With states heading towards the outcomes based funding model, student retention will become an even more important and a strategic focal point as it will be an indicator of awarded resources. Policymakers should compare retention rates by disaggregated student characteristics since rates vary so widely by these characteristics, and

postsecondary institutions serve very different populations. Otherwise, the rich get richer.

Another suggestion for future research would be to examine other variables for their effect on retention. This study looked at gender, first generation and non-traditional students, however, variables such as socioeconomic status, the students major, student's financial aid status, guardian's education level, and whether the student is employed on or off campus. These variables could potentially have an impact on a student's participation in campus recreation programs. Future research examining additional variables would help researchers understand other aspects of why students participate or do not participate in campus recreation programs.

This study examined the campus recreation programs of one regional comprehensive university in Kentucky. Results of similar studies could reveal key relationships between participation in campus recreation programs, as well as college and success factors. Studies examining campus recreation programs at various other institutions of a similar size would add to body of existing literature on campus recreation programs and student retention. Furthermore, there are other campus life experiences and events that could be included for a more comprehensive examination. Examples of these activities include athletics, Greek life, student life events and various other clubs and organizations.

While this study did not test Tinto's (1993) entire model, does the model of student departure capture the complexity of retention? There are numerous variables that need to be considered, therefore the model might need to be modified. The theory of

student departure needs to be more complex with social components and perhaps across the entire model. In addition, does Tinto's (1993) model work equally at other universities, such as a research one institution, compared to a rural, regional, highly first generation university? Future research is needed to see if results would be the same.

Conclusion

Use of information from this study could assist the institution in having a better understanding of the relationship between involvement in campus recreation programs and the students' college experience. Additionally, campus recreation programs offered and the campus recreation facilities are considered to be key components of a student's decision to attend a certain institution (Haines, 2004; Kasin & Dzakira, 2001; Lamont, 1991; Zizzi, Ayers, & Watson, 2004). Previous literature shows that prospective students often rank access to recreational sport and fitness facilities for personal use higher than internships, cultural activities, or student organizations (NIRSA, 2004). Therefore, ensuring the campus recreation facility provides students with the most updated equipment and current trends in programs could contribute to a student's choice to attend EKU, consequently impacting the university's enrollment numbers.

Promoting campus recreation programs during college visits and tours, highlighting the facility to potential students and marketing what all they have to offer could help in participation rates. Having special events during welcome week or student orientations to showcase the facility and programs would also be beneficial. Students are looking for ways to spend their free time, meet new people, try to stay in shape and stay physically active. As Bryant et al. (1995) indicate, campus recreation facilities facilitate social integration by creating large numbers of opportunities for members of a college

community to interact. Therefore, showcasing the facility and programs campus recreation offers during the first weeks of school would be ideal.

With rising student loan debt, increased tuition costs and the number of recent college graduates without jobs, it is essential for university administrators to understand why college recreation centers are vital to student life as well as the overall benefits of campus recreation. The long-term return on investment for students earning college degrees, credentialing or certificates is better—higher earnings, lower unemployment and better health outcomes. Participation in campus recreation programs is correlated with overall college satisfaction and success and reinforces that participation in recreational sports is an important determinant of overall college satisfaction and success (Downs, 2003). As this study shows, retention rates for those who participate in campus recreation are higher than those who do not participate. Campus recreation programs are aiding in student retention, serving a purpose and should be funded accordingly.

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Appendices

Appendix A: Institutional Review Board Approval

EASTERN KENTUCKY UNIVERSITY
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Graduate Education and Research
Division of Sponsored Programs
Institutional Review Board

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NOTICE OF IRB EXEMPTION STATUS
Protocol Number: 14-174
Institutional Review Board IRB00002836, DHHS FWA00003332

Principal Investigator: **Caelin Scott** Faculty Advisor: **Dr. Charles Hausman**

Project Title: **The Effect of University Campus Recreation Programs on Student Retention**

Exemption Date: 04/02/2014

Approved by: **Dr. Laura Newhart, IRB Chair**

This document confirms that the Institutional Review Board (IRB) has granted exempt status for the above referenced research project as outlined in the application submitted for IRB review with an immediate effective date. Exempt status means that your research is exempt from further review for a period of three years from the original notification date if no changes are made to the original protocol. If you plan to continue the project beyond three years, you are required to reapply for exemption.

Principal Investigator Responsibilities: It is the responsibility of the principal investigator to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects and follow the approved protocol.

Adverse Events: Any adverse or unexpected events that occur in conjunction with this study must be reported to the IRB within ten calendar days of the occurrence.

Changes to Approved Research Protocol: If changes to the approved research protocol become necessary, a description of those changes must be submitted for IRB review and approval prior to implementation. If the changes result in a change in your project's exempt status, you will be required to submit an application for expedited or full IRB review. Changes include, but are not limited to, those involving study personnel, subjects, and procedures.

Other Provisions of Approval, if applicable: None

Please contact Sponsored Programs at 859-622-3636 or send email to tiffany.hamblin@eku.edu or lisa.royalty@eku.edu with questions.

Vita

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Eastern Kentucky University

ACAMEMIC/PROFESSIONAL POSITIONS

Adjunct Faculty (2011-present), Recreation & Park Administration Department, Eastern Kentucky University, Richmond, KY.

Training Administrator (2013-present) Center for Career & Workforce Development, Eastern Kentucky University, Richmond, KY.

Coordinator (2010-2013), Department of Conferencing & Events, Division of Continuing Education & Outreach, Eastern Kentucky University, Richmond, KY.

Planner (2007-2010), Department of Conferencing & Events, Division of Continuing Education & Outreach, Eastern Kentucky University, Richmond, KY.

Research Assistant (2007), Department of Psychology, Eastern Kentucky University, Richmond, KY.

PROFESSIONAL CERTIFICATIONS AND AWARDS

Member of Inaugural class of the President's Leadership in Action Academy, Eastern Kentucky University, 2014
Leadership Madison County, Richmond, KY (Graduate, 2011-2012)
Outstanding Graduate Student Award, Department of Recreation & Park Administration, Eastern Kentucky University, 2009-2010
Assisted in Developing First Year Orientation Program—Colonel Outdoor Recreation Experience (CORE), Eastern Kentucky University, 2012
Certified Facilitator, Facilitation Center, Eastern Kentucky University
Earth Force Curriculum Training, Division of Natural Areas, Eastern Kentucky University
Environmental Education Certification, Eastern Kentucky University