

EXPLORING CORRELATIONS BETWEEN ADAPTIVE RECREATION
PARTICIPATION AND STUDENT SUCCESS

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ABSTRACT

Student retention has been a buzzword in collegiate recreation in the past few years. Many researchers have found that collegiate recreation participation has a correlation to student retention and cumulative grade point average (Kampf & Teske 2013; Forrester, 2015). Even with legal efforts Americans with Disabilities Act (2011) made to improve the rights of persons with disabilities there is not much literature surrounding this population. The purpose of this study was to explore a potential correlation between adaptive recreation participation and student retention and cumulative GPA. The ANOVA, $F(2,399) = 1.406, p = .246$, indicated there was no significant difference in cumulative GPA's across the three groups. Likewise the odds ratio results indicate that participating in the adaptive recreation group does not show statistical significance towards retention. While not statistically significant, the data does trend in favor of the adaptive recreation group, and illustrate a need for further research.

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CHAPTER I: INTRODUCTION

Rising costs in college education leave some wondering if it is worth it. Those who choose to bear the cost of attending a university must then face the statistics from the National Center for Education which show only 59% of students graduate from their first institution. In an effort to reduce the number of students who do not graduate from college, researchers have investigated the causes of student drop out. Student engagement is found to be critical in student perseverance. Research has demonstrated collegiate recreation fosters student engagement as it has been shown to correlate with increased student retention (Kampf, & Teske 2013). Further, adaptive recreation activities offered by collegiate recreation services have the potential to foster meaningful student engagement opportunities for students with disabilities due to the personal nature involved with providing special skills and training for these students. In 2013, 13.5% of persons with disabilities were found to have a college degree; while only 32.1 % had some college. In comparison to those who do not have a disability at 32.3% having earned a college degree and 32.1% had some college (Cornell, 2013). Thus, assessing student success and retention rates of adaptive recreation programs within college campuses will add to the fields of higher education, collegiate recreation, and disability research.

Universities have responded to the needs of students with disabilities in addition to federal law by developing departments devoted to ensuring accommodations are available for students. This department may supervise or serve as a resource to collegiate recreation administrators as they develop their adaptive recreation programs. Though these programs are inherently beneficial all university functions are assessed of their value

similar in manner to a corporation looking to increase profits. While profitability is an aspect involved in higher education, aspects that show worth to the students receiving their education justify costs of programs that may not generate profit. Alexander Astin and Vincent Tinto are two of the first researchers who studied student engagement outside of the classroom and the effect on grade point average (GPA) and retention. Other research has focused on the effects of collegiate recreation programming has been assessed to see if the student engagement principle holds true. Kampf and Teske (2013) are some of the researchers to focus on recreational sports relation to student success, and found university club sport participation correlated with students returning to school.

Student engagement in university programs, such as recreational sports, is related to positive student success (Kampf & Teske, 2013). As such, this study will focus on student engagement and student success among students with disabilities within adaptive collegiate recreation. More specifically, the researcher will focus on personal training programs in adaptive recreation. Overall well-being can be achieved during university programs, but the scope of personal training directly addresses physiological, psychological, and social needs. Accomplishing physiological goals is both a physical need attainment as well as it is psychological. Working with a trainer in a public environment creates a setting where a student with disabilities can feel integrated into society. This in addition to the collegiate recreation environment that was built for student use facilitates a social environment for students to engage in well-being opportunities that foster social needs.

Scope of the Study

This study will look at adaptive recreation participation records and compare users to non-users of the service. Personal training will be examined due to the characteristics that make it an ideal candidate for foster well-being through student engagement. Characteristics of a personal training program require a close relationship between the client and trainer. If needed, medical information is shared with the trainer so they can provide the appropriate exercises. A personal trainer also works with the client to set goals and achieve them, and goal setting is a quality of a person with good well-being (Ryan & Deci, 2010). The participants will be compared across the variables of GPA and retention, as these are indicators of student success. Variables that are known to play a role in retention and GPA will be controlled for in the statistical analysis.

Purpose Statement

The purpose of this study is to identify student success variables as they correlate with collegiate adaptive recreation programs.

Research Questions

1. Will students who participate in adaptive personal training recreation services have higher retention rates than non-users of adaptive recreation?
2. Will students who participate in adaptive personal training recreation services have GPA's than non-users of adaptive recreation?

Hypotheses

H¹: There will be a mean difference in GPA scores between the three sample groups (users of adaptive recreation, non-users of adaptive recreation, and the random sample).

H²: There is a mean difference in the 1-year retention rate between the three sample groups (users of adaptive recreation, non-users of adaptive recreation, and the random sample).

Limitations

1. The sample size of users of adaptive recreation will be relatively small.
2. This study focuses on one type of adaptive recreation service and other universities may provide a different type of service.
3. This study is only done at one university and would have greater significance if replicated at multiple universities.
4. It will be unknown if the students in the random sample participate in other collegiate recreation activities.

Definition of Terms

1. ADA: the Americans with Disabilities Act is legislation that mandates certain adaptations be made available at public locations
2. Adaptive Recreation: program focused on assisting students with disabilities participation with collegiate recreation activities.
3. Collegiate Recreation: the department within universities responsible for the provision of recreational opportunities to all students.
4. Disability: a physical or mental condition that limits an individual.

5. GPA: grade point average of classes taken in college.
6. NIRSA: Leaders in Collegiate Recreation: professional association comprised of collegiate recreation administrators who wish to provide users of collegiate recreation health and wellness benefits.
7. Physical Needs: the human needs required to maintain ones physical existence.
8. Psychological Needs: needs of a person that are fundamental to motivation and a happy state of being.
9. Retention Rates: rate at which students return to school between semesters.
10. Social Needs: needs that supplement psychological needs and is acquired with other individuals.
11. Student Success: variables that represent how well a student is doing in school, positive variables lead to and are required for degree attainment.
12. Well-Being: the state of an individual as it relates to living and health.

Significance of the Study

The link between well-being and student success and retention for students who participate in adaptive recreation is still relatively unknown. This research will add to the body of knowledge that surrounds collegiate recreation as well as the fields of higher education and disability research.

The findings from the present investigation will benefit collegiate recreation and other student affairs professionals alike by demonstrating a possible correlation between student involvement in adaptive recreation services and student success (GPA and Retention Rates). For disability researchers, this service will illustrate an important part

in equalizing opportunities. The results from the study could pave the way to a multi-school study, which could measure the impact of these services on a larger scale.

CHAPTER II: LITERATURE REVIEW

The idea that participating in collegiate activities results in greater success in school is one that has been discussed both directly and indirectly in Higher Education and Leisure Studies. Pioneers in the field of higher education have sought to determine what aids and decreases a student's ability to finish college. One of these pioneers Alexander Astin (1975) and his work "What matters in College" focused his findings on how student involvement on campus correlated to student retention. Another pioneer Vincent Tinto (1993) and his "Theory of Student Departure" looked at why students were leaving college. These researchers both independently concluded, being involved with campus administrators, joining the social culture of the university, and the student being comfortable with their self being are key factors that increased retention (Astin, 1975; Tinto, 1993). From these findings we can gather student involvement in campus activities is essential for student success, as campus activities present an environment where Astin and Tinto's conclusions can be accomplished. While these theories are dated, they are some of the core concepts that set the foundation for research in the field of student success.

Research on student success has inspired researchers in the field of collegiate recreation to study their student involvement in recreational sports as it correlates to student success variables (Danbert, Pivarnik, McNeil, & Washington, 2014; Kampf & Teske, 2013; McElveen & Rossow, 2014). However, there is a notable gap in the existing literature, none of the aforementioned studies focusing on collegiate recreation have specifically looked at adaptive recreation programs or students with disabilities. This in addition to report by Cornell (2013) funded by the United States Department of

Education which provides statistics revealing only 13% of persons with a disability have attained a bachelor's degree, while 31% have some college experience illustrates a need to explore a relationship between adaptive recreation services aid in degree attainment. While grade point average (GPA) and retention causation cannot be inferred from studies such as the aforementioned, it is implied the findings are due to the exposure and relationships build with university staff, as well as the social benefits found when using recreational services. Henchy (2013) found students perceived social benefits from collegiate recreation participation. Studies of this nature are important because they directly identify social and psychological outcomes of participation in recreational activities; which describe how students are joining the university culture and feel about themselves. However, in this field of study there is a lack in research that focuses on how adaptive recreation services impact the participants' success in college. Pingry O'Neill, Markward, and French (2012), examined predictors of graduation among student with disabilities took measured physical training availability in relation to graduation. The researchers found that students who qualified for this service were three and a half times more likely to graduate. While the scope of the physical training is different than adaptive recreation it is similar. The goal of the physical training program studied by Pingry O'Neill, Markward, and French was aimed at creating a personal exercise program that would increase range of motion and strength. The primary difference between the physical training program aforementioned article and the adaptive recreation service explored in this study is that students with a disability do not have to qualify to use this service. Another study elaborates on the importance of students with disabilities gaining self-determination skills as they lead to stronger psychological skills such as confidence

and goal setting (Summers, White, Zhang, & Gordon, 2014). At its core adaptive recreation attempts to improve a persons overall well being through psychological, social, and physical needs. Working directly with administrators to accomplish these goals is a unique process that is not similar to other programs that are structured in a way that does not foster adaptation. In an attempt to explore the impact of adaptive services at the collegiate level this study will seek to explore if relationships exist between adaptive recreation services, specifically adaptive personal training, and positive GPA and student retention attributes as this are of collegiate recreational sports has yet to be explored. According to a report by the Center for Disease Control and Prevention (2011) male college graduates live an average of five years longer than those who have only completed high school. Results from this study could validate adaptive recreation playing a role in degree attainment that leads to a longer life in addition to the other well-being characteristics benefited from adaptive recreation participation.

Comparing Student Involvement, Grade Point Average (GPA), and Retention

Before we delve into the uniqueness of adaptive recreation, we must first examine the major concepts of student involvement, GPA, and retention. Within higher education, the early focus has centered on what attributes help or decrease a student's ability to finish college. Pioneers such as Astin (1975) and Tinto (1975) were among the first to ask these important questions. According to Astin, students drop out of school for various reasons such as availability of financial aid, employment, characteristics, type of residence, and the campus environment. This information is important because the goal of university administrators is to keep students in school. While degree attainment is important for universities, ensuring students return from one semester to the next is most

important, as positive retention should result in a student attaining a degree. Another aspect of retention is that of funding, because most universities operating on tuition dollars and losing students means losing money. Campus environment is the focus of the present investigation as Astin uses the campus environment to describe students being involved in various programs the campus offers. Astin mentions honors programs and study abroad experiences as ways students are involved in the campus environment. Interestingly, Astin found that studying abroad was correlated to increase student drop out where as honors programs were not.

In support of the concept that student engagement with the college environment effects student retention, a study focused on the effects of first year college retention found that student engagement had a statistically significant effect on retention rates (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008). In this study they controlled for pre-college variables such as High School GPA and SAT scores, and used results from the National Survey of Student Engagement NSSE to measure student engagement. The researchers wanted to know if engagement only affected all students or just those with certain characteristics. This study is a great example of the current state of research regarding retention rates and GPA in higher education as Kuh et al. (2008) found that student engagement in campus activities and pre-college characteristics such as ACT score affect GPA. When analyzing for GPA improvement among those who engaged in campus activities the researchers found that students with lower ACT scores benefited most from student engagement. The findings revealed that student engagement positively correlated with all students (Kuh et al., 2008). Specifically, subjects who scored 20 on the ACT increased their GPA by .06 as they increased their participation in student

engagement activities. Whereas students who scored a 28 on the ACT only improved by .02 as they increased time spent on engaging on campus. Therefore the findings of Kuh et al. support the ideas represented in Astin's work, which found that being involved with the campus environment assists student's success. Furthermore, Kuh et al. (2008) used data from the National Survey of Student Engagement (NSSE), Kuh (2003) notes the NSSE is administered at over 600 different universities. Kuh et al. (2008) used variables in the survey that related to educationally purposeful activities when assessing student engagement. The NSSE also serves as a tool to assess the effectiveness of educational services, which is geared to help set best practices for higher education (Kuh, 2003). In order to best assess educational effectiveness the NSSE has grouped survey items to five benchmarks: level of academic challenge, student-faculty interaction, active and collaborative learning, enriching educational experiences, supportive campus environment (Kuh, 2003). Notably, these items closely relate to the conclusions of Astin and Tinto's early work, which further validates the importance of their research.

Vincent Tinto and Higher Education

Tinto (1993) focused his research interests on why students depart from college. Tinto examined various student demographics across all types of colleges in an effort to identify the reasons students drop out of college. The researcher found that variables such as high school GPA, and SAT scores the college accepts correlated with degree attainment, thus retention (Tinto). Tinto also discusses that failure to leave their previous high school or family life may lead to student departure from school. He further argues that not accepting the social norms of the school is related to student departure. Given the purpose and atmosphere of collegiate recreation centers, they can be an important catalyst

in providing a location for students to leave previous norms and accept those of the university. Collegiate recreation is a setting on the university campus that functions as a social gathering place, and offers an environment in which students can influence and adapt into the social norms of the college. Tinto does not argue that the student environment is the sole cure to preventing student departure, but using his two-type departure model, voluntary and involuntary, student environment is a large reason for the voluntary departure. Unlike voluntary departure or because the student wants to, involuntary departure is a situation where the student does not meet academic standards and is forced to leave the university (Tinto). Again this is another important aspect for the present investigation, as the researcher will look to find a relation between collegiate recreation services and increased GPA, which would suggest collegiate recreation aids in preventing involuntary separation from school. Likewise, if a correlation suggests collegiate recreation services are related to positive retention rates, which could be due to either voluntary or involuntary reasons.

Tinto continued his research on student involvement in a study where students enrolled in cohorts, several of the same courses together, and where encouraged to work together; whereas, the comparison group enrolled in classes without independently. The findings from Tinto's 1997 study indicates students who enrolled in the courses as a cohort where found to return to school at statistically significantly higher rates than the independent enrollees. Tinto's 1997 results support his earlier theories published in 1993 that involvement in the student environment is critical to success while at the university. Interpreting these results with the idea the NSSE benchmark of group collaboration is important in higher education validates why assessment of Tinto (1997) is important to

higher education. Validation of the findings indicated by Tinto is evident within the NSSE in because one of their benchmarks is involvement with groups in the classroom similar to the Tinto 1997; and the four out of the other five benchmarks relate to the student engagement ideas previously mentioned Tinto (1993). Currently, 23 years after Tinto's findings an instrument is still being used nationwide with a foundation in Tinto's work. Another article looked at a university where one of the deans began calling all freshmen students twice during their freshmen year, and from when the program began to the time of the article being written student retention increased from 88% to 95% (Brier, Hirschy & Braxton, 2008). Studies have also approached this issue from a qualitative standpoint and Mendoza, Malcolm, and Parish (2015) report on how students unable to be involved with campus activities report to be having a more difficult time with school than students who do participate in these extracurricular activities. The Mendoza et al. (2015) study is important because it highlights an area of involvement that has optional participation. Academic benchmarks and reasons for student retention are very important but are only two of five of the NSSE benchmarks level of academic challenge and active and collaborative learning (Kuh, 2003). This means that three out of the five benchmarks are likely to be met outside of the classroom. The present study will examine an aspect of student environment that is outside of the classroom, the adaptive collegiate recreation environment.

Astin (1975) and Tinto (1993) theories complement one another as they take opposing angles on increasing student retention. The researchers' contrasting approaches to studying retention provide a holistic approach to retention research. Where Astin (1975), describes what encourages students to remain enrolled in college, Tinto (1993),

discusses why students are departing from college. These researchers indicated a need for student involvement and recreation providers used this as their foundation for the services they offer. For collegiate recreation administrators ensuring that their services increase retention requires an understanding of these theories and how collegiate recreational sports is a part of these theories. Both Astin and Tinto assisted in the theoretical framework for the NSSE, as can be seen in the subject matter of both works. The ideas of Astin, Tinto, and the NSSE benchmark are good tools to assess the student experience provided in higher education, but for this study the researcher was concerned more with the activities that are occurring outside of the classroom. An area researches have studied outside of the classroom and how it relates to student retention is recreational sport clubs. Kampf and Teske (2013) found that student recreational sport organization participation (an activity that occurs outside of the classroom) correlated with positive student retention. The study found that 86 % of club participants returned and that their odds of returning were 2.22 times higher than those who did not participate. The aforementioned results display a correlation between participation and positive retention. The findings of Astin, Kampf and Teske warrant further exploration of adaptive recreation services. Not only have adaptive recreation programs not been examined to determine a possible link between participation and GPA and retention; the required personal nature of the services for adaptive might yield more interesting findings.

Physical, Social, and Psychological Needs

Examining the literature on matters outside of academics into optional activities of student engagement brings us to three well-being characteristics that show a connection to student retention. Developing students with an overall healthy well-being

allows them to best succeed in their education. In an interview students with disabilities discuss that they enjoyed an environment where they could openly discuss their adaptation needs with a facilitator that is positive and encouraging aids in developing well-being (Summers et al., 2014). The three characteristics of well-being are physical, social, and psychological. Examining these three aspects of well-being illustrates how adaptive recreation services meet these needs.

Physical needs.

Physical needs of students include physical exercise, dietary intake, housing, and medical (Maslow, 1958). Recently a study in Finland researchers found that as participants in the study increased physical activity levels their scores on the self-rated health questionnaire increased (Enberg, et al., 2015). These needs can all be met at the university through the services offered, such as dining halls, collegiate recreation, health services, and residence halls. The Centers for Disease Control (CDC) has developed recommendations for most of these areas of physical health. According to the CDC, adults should two and a half hours of cardio a week and lift weights at least twice a week (Center for Disease Control & Prevention, 2015). While it is possible to be achieve well-being on a college campus we find that some students are not prepared and sacrifice either their physical, social, or psychological well-being. Watson, Ayers, Zizzi, and Naoi (2006) compared users versus non-users of a recreation center and found that students who lived on campus were more likely to participate in collegiate recreational sport, and females utilized the recreation center for a smaller amount of time. Forester (2015) demonstrates how competencies can be gained from recreational opportunities found that

over 80% of student felt that their physical strength, athletic ability, and weight control was increased due to recreational sports. These findings show that participants perceive their time invested in recreational sports helped them be competent in physical well-being. These findings illustrate that some students could be missing out on their physical activity guidelines by not using this university service. More specifically, linking the potential benefits of adaptive recreation personal training participation to GPA and retention could highlight that more students should be directed toward using these services.

Social needs.

Social needs include friendship and other emotional responses to various activities, like intimacy and power that occurs in friendships (Neill, 2010). Neill also listed achievement, affiliation, and power in addition to intimacy as social needs. Watson et al. (2006) also found that of students who utilized collegiate recreation felt it helped them make friends and feel more at home on the campus. Forrester (2015) found that 84% of students surveyed felt that collegiate recreation helped their ability to make friends. Additionally this study found that collegiate recreation aided in other social need outlets such as achievement, with 89 % stating it helped academic performance, 86% stating it helped stress management, and 82 % stated it helped their communication skills. Although social needs are rooted within psychological needs, they have been studied separately in recent years. Adaptive recreation provides the opportunity for students to be integrated into the collegiate recreation environment where they can meet other students and develop friendships; as well as build physical fitness.

Psychological needs.

The psychological needs of a person are very broad. Self Determination Theory (Ryan & Deci, 2010) lists three psychological needs of a person as relatedness, autonomy, and competence. These needs are closely related to self-motivation, or what causes people to do their actions. For one to be motivated by things that are considered healthy these needs must be nurtured healthy activities. If one displays these needs both independently and in social settings they are likely to psychologically well. One study researched the psychological needs presented in the Self Determination Theory by grouping students into categories segregated by their scores on a psychological need survey (Hawkins, Kalin, & Waldron, 2014). The researchers found that 87% of the students who scored high on the psychological needs survey played high school sports. Furthermore they suggest that creating an environment that makes these individuals comfortable participate in recreational opportunities might improve their perceived competency of psychological needs (Hawkins et al., 2014). Positive psychological state allows for personal growth, which is reciprocal to maintaining a positive psychological state. Hawkins et al. (2014) also found that 54 % of students in the mid-level group of psychological well-being participated in high school sports. This illustrates that ones motivations can push them to exercise even if they are not fully met, and then with sports we would ideally see the psychological needs being met. With the needs being met it sets the conditions for an individual to feel an increase in their psychological well-being. These findings the value of recreational activities as they cultivate individuals psychological needs. The aspect of relatedness is primarily achieved by social needs previously discussed. The psychological need of autonomous is inherently important

with personal training service. A trainer provides a situation where all aspects of psychological needs can be achieved. A personal relationship is formed between the personal trainer and the client, which promotes relatedness. Physical fitness goals can be reached which makes the client competent and autonomous as they work to complete the goals.

Well-being.

Well-being is an all-encompassing term, and for the purposes of this study the researcher will use the definition provided by the Center for Disease Control and Prevention (CDC). The CDC (2013) defines well-being as the “presence of positive emotions and moods... satisfaction with life, fulfillment and positive functioning... feeling very healthy and full of energy” (How is well-being defined, para. 1).

Hixenbaugh, Dewart, and Towell (2012) found students who reported high levels of social support had better physical and mental health, which are the three needs of well-being. The study also found that those with high social support reported feeling better integrated with the university, and integration with the university was found to correlate to degree attainment. The findings of Hixenbaugh et al. (2012) implies those students who are or believe themselves to be physically fit, and those with a good sense of well-being are more likely to be retained in school. These findings call for research that explores how to increase a students' well-being, as well as, identify out of classroom programs that increase students' physical health and sense of well-being. The unique nature of adaptive recreation allows for providers to work with the individually on a very close level to develop a setting that will best suite the individuals physical health and

sense of well-being. The positive environment students desire Summers et al. (2014) mentioned should ideally create positive attributes that are psychological in nature stemming from positive social settings on university campuses should result in positive student well-being. The goal of collegiate recreation centers, particularly that of adaptive recreation, is to provide opportunities to students that specifically seek to “support their learning and growth by fostering lifelong habits of wellbeing” (NIRSA, para 2, 2015).

Collegiate recreation and well-being.

Currently collegiate recreation is a deliberate service aimed at providing well-being opportunities through student involvement. However this was not always the case initially services were not formalized or funded by the university. As collegiate recreation began to formalize on college campuses so did the research, which shows that student involvement in recreational sports results in students having positive perception of their physical, social, and psychological well-being. Collins, Valerius, King, and Graham (2001) found the more students participated in recreational activities the higher their mean self-esteem scores. Another study focused on participation in intercollegiate athletics and intramurals and found that these programs positively influences participant’s physical self–description, and self-esteem (Simmons, & Childers, 2013). These studies are important because they show that recreational opportunities benefit students socially and psychologically. In fact, Lerner, Burns, and de Roiste’s (2011) study on motivations to participate in physical activity found that only 26% of people reported their motivation was to stay fit. This study is particularly noteworthy as it demonstrates students are

participating in recreational sports for reasons other than physical well-being. These reasons could be the social aspect, the experience, or skill acquisition.

Collegiate Recreation

NIRSA: Leaders in Collegiate Recreation is a professional association of collegiate recreation providers that work together towards the promotion and advancement of recreational services on college campuses. As NIRSA (2015) describes them “NIRSA members support their (students) learning and growth by fostering lifelong habits of wellbeing” (Who We Are, para 2). Once known as the National Intramural-Recreational Sports Association, the association is now known as NIRSA: Leaders in Collegiate Recreation and is commonly referred to as NIRSA. The organization was formed with representatives from a few historically black universities. College recreation has developed into a practice that is similar on all college campuses; typically consisting of several sub-departments in order to handle certain types of recreation with the guidance required. These sub-departments commonly included in most collegiate recreation programs across the United States are Fitness, Informal Recreation, Aquatics, Outdoor Pursuits, Intramurals, and Club Sports. Fitness represents the focus on providing group exercise classes and personal training. Informal Recreation refers to free lifting or use of areas designated for recreation such as the basketball court or weight room. Aquatics generally refer to the use of the pool for free usage or organized usage. Outdoor Pursuits is a vast area of collegiate recreation that offers outdoor trips for students to indoor rock wall usage at some facilities. Intramural sports represent a large list of sports played over the course of the semester in 4-week tournaments. Finally, Sport Clubs offers participants the ability to practice year round with a variety of sports to choose from and

then if they choose to, compete with other collegiate clubs. Some collegiate recreation centers offer more services than others, and an exhaustive list of all services provided is not feasible.

Collegiate recreation and student involvement.

While so far we have looked at awareness to collegiate recreation services, and physical well-being characteristics of college students, we have not looked at how these services affect student success variables. The variables that represent student success have been defined in previous research as; college GPA, Retention credits obtained high school GPA, cumulative college GPA, one-year retention, two-year retention, and class standing (Danbert et al., 2014). This study will only be looking at one-year retention rates and college GPA, because they are the most interesting to the study at hand. Reasons for this include literature that demonstrates the importance of the other variables as they correlate with retention rates. For instance high school GPA has been found to correlate with better collegiate retention rates (Farmer & Hope, 2015). The benefit of collegiate recreation as an excellent tool for physical health is not enough to justify its purpose on college campuses, and this is why student involvement theories are important to university administrators as they describe the value of recreation programs to their constituents.

Collegiate Recreation is an involvement service provided to students. Therefore, if the premise of Astin (1975) and Tinto's (1993) theories holds true we should see a usage of Collegiate Recreations services to support higher GPA's and positive student retention. Astin thought that if students were involved with campus programs and

administrators they would remain satisfied with school and remain in school. This should then be directly applicable to collegiate recreation since this service gives students an opportunity to interact with faculty and peers in addition to exercise. Likewise Tinto believed that if students could leave behind their old social norms and adapt those of the college that they would not be likely to depart from school.

Several studies have looked at different recreational services offered by collegiate recreation and their effect on GPA and Retention (Kampf & Teske, 2013; Danbert, et al., 2014; McElveen & Rossow, 2014). This is important research to higher education as it demonstrates a need and purpose for recreational services on college campuses. This research is equally as important to the university administrators in charge of recreational services, because it identifies a need for adaptive recreation programs on their campuses.

One such study was conducted at a Midwestern university whose recreation center tracked first time freshmen (Danbert, et al., 2014). Danbert et al. identified freshmen that purchased memberships to the facility as members and those who did not purchase memberships were classified as nonmembers. The researchers then compared members to nonmembers on the variables of GPA, retention, and college credit accumulation (Danbert et al.). These categories were labeled as measures of academic success, and support this studies reasoning for identifying GPA and Retention as variables for student success. This study concluded that members had higher GPA's and accumulated more credits than nonmembers (Danbert et al.). This study took two measures of retention, one and two-year retention, and found a non-significant but higher one year retention rate (Danbert et al.). Two-year retention rate was however found to be higher and statistically significant between members and nonmembers (Danbert et al.).

The findings of Danbert et al. (2014) are similar to those by Kampf and Teske (2013), which found positive retention rates by those involved in collegiate recreation club sports. Kampf and Teske's study is important in contrast with Danbert, et al. because it shows the focus of research into specific areas of collegiate recreation. Following this concept of assessing one program area, McElveen and Rossow (2014) focused their research on a program of collegiate recreation, intramurals; and found no increase in GPA. However they did find a 5.9% higher retention rate of first time in college students (McElveen & Rossow, 2014). Focusing on one program area of recreational sports is the model that this study will follow as the researcher attempts to illustrate the benefits of an adaptive recreation program.

Adaptive collegiate recreation.

The goals of an adaptive recreation program are very similar to those of any other programs within collegiate recreation: to create an environment for students with disabilities to participate in activities that will foster well-being. The adaptive recreation staff aims to accomplish this goal by providing adaptations to recreational sports if a student is unable to traditionally participate (Auburn, 2015). The most identifying aspect of adaptive programs is the use of specialized equipment or training, which might be required to execute the activity appropriately. Another difference is for students to receive the service they must be registered with the university's office of disability services or disclose to the adaptive recreation office their need for this service. In some instances a student might only need to work with a personal trainer a few times to understand how to use the exercise equipment in the gym. While some adaptive measures

will require specialized equipment and continued supervision to provide the service on an ongoing basis.

Adaptive recreation in the collegiate environment is responsible to upholding law set forth by the Americans with Disability Act (2011), in addition to policies set forth by the University's Disability office. The goals of these laws and policies are to create a more inclusive environment to all persons. Inclusion in this paper refers to a situation in which all persons feel comfortable and valued when utilizing a service such as collegiate recreation. This social concept is one that continues to evolve and has had legislation passed to help certain groups who might not feel comfortable. For people with disabilities, the Americans with Disabilities Act (2011) was passed and carries repercussions if not followed. This law however only directly affects a certain group of people and only establishes minimum guidelines that are meant to equalize service provision. Studies on inclusion within collegiate recreation services allude to the idea that there are two ways to be inclusive, to meet all legal and university mandated policies, and to meet and surpass in service the legal and university policies (Staeger-Wilson & Sampson, 2012). This present investigation on inclusiveness is important because it illustrates the reality of adaptive collegiate recreation which at some universities it a program that goes above and beyond the legal mandates or one that meets legal requirements. At Middle Tennessee State University the services provided through the disabilities office ensure that not only does collegiate recreation meet federal mandate, but it is pushing for a more inclusive model that goes beyond what is required. This is true because not only does the universities recreation center meet all Americans with Disabilities Act (2011) requirements, it also works to adapt any programming offerings to

those students who require adaptation to participate. It is noteworthy to mention that governing bodies of university administrators emphasize this inclusive culture such as the Council for the Advancement of Standards in Higher Education (2011). However, in practice we are not seeing all recreational programs having an inclusive mindset instead many only meet the minimum ADA requirements.

Personal training and collegiate recreation.

The department responsible for fitness programming is most important to this study because physical improvement is the core of well-being. This is true since to improve physically is typically tied to other psychological and social variables that also play a role in well-being. Personal training as defined by the National Federation of Professional Trainers (2015) is a service provided by a trained individual to help their clients complete exercise aimed towards at personal physical well-being goals. Personal training services are commonly found at recreation centers, however they are usually not required to be used by participants engaging in exercise. This could present a problem to persons without the knowledge of how to exercise or to use the equipment in recreation centers, especially for persons with a disability.

Topp et al. (2011) took a unique approach to improve physical activity by placing participants in a type of counseling service aimed at increasing physical activity. The researchers interviewed participants about their perceived barriers to exercise and food consumption. Topp et al. found that 70% of the participant's time was spent as being inactive or sitting, and that 45% had scores for being obese/overweight. The study concluded that participants showed positive changes in physical activity (Topp et al.),

which is important because it shows how trained personnel can make a difference in college student's physical well-being. Despite the results that a personal trainer can help a person achieve personal fitness it is a service that is often underutilized (Scholl, Leen, Alexander, Pike, & Johansen, 2012).

Scholl et al. (2012) studied a personal training service's usage and awareness by university students, and concluded that only 5% of students were currently using this service, and only 60% were aware of the service. These findings represent the entire university population and the researcher can expect to find similar findings across all subpopulations of the university. One area that is lacking is that of the impact of adaptive recreation services. However, if these findings are generalizable to the university of the current study the researcher will find only have five percent of students with disabilities using the service. Therefore, if GPA and retention are found to correlate with adaptive training services the researcher will find reason to draw attention for the need to put more emphasis on recruiting students to use this service.

While there are legal requirements for adaptive services and the benefits seem clear, however, there remains limited literature in the field about adaptive recreation. While this study is an older study it is one of few in the literature, Hodges (2000) surveyed students registered with the disability service office. The findings from this study were 88 % of the respondents had never participated in informal recreation. Students also participated in interviews about their participation with recreational sports. The interviewer found some had never heard of recreational sport events. Some students who were aware of recreational sports stated that since they could not drive it would be difficult for them to return to campus in the evening for events (Hodges, 2000). This

article identifies a specific group of students, persons with disability, who may be missing out on student involvement and at risk of departing school. More specifically Tsai and Fung (2005) found that students with hearing impairments reported that feeling uncomfortable socially was the primary reason for their lack of participation.

Yoh, Mohr, and Gordon (2008) measured collegiate recreation usage among students with disabilities and found that 37% had never used the facility and 68% had used it less than 5 times. While constraints are studied in the literature, studies that look to explore benefits of adaptive recreation specifically in the collegiate environment could not be found by this author. However literature outside of collegiate recreation shows that there are several benefits to participation in adaptive recreation. For instance, Lundberg, Bennet, and Smith (2011) studied veterans' participation in adaptive sports and recreation program and measured their quality of life scores, which primarily looked at psychological variables. The researchers found that on pre/posttest quality of life scores were not significantly different on quality of life; however scores on vigor were increased statistically significant. The study at hand will add to the literature about benefits of collegiate adaptive recreation and demonstrate the importance of this service. By illustrating the benefits of collegiate recreation the researcher hopes to see more research in the future on benefits and how to break down constraints around participation so students can achieve the benefits of participation.

For researchers and administrators across fields of higher education, college recreation, and disability studies the findings of this research will prove beneficial. This study will address common knowledge in higher education that student engagement assists in student success. For collegiate recreation professionals supporting their services

with research is often critical when tasked with justifying their services. Those involved with advocacy and support of persons with disabilities as it will attempt to link service provision to outcomes associated with positive well-being. Comparing users of adaptive recreation to non-users with the student success variables GPA and retention will allow us to infer a benefit from participating in programs of this nature. The results from this study are likely to influence university officials to implement, or assess their current adaptive program offerings. Equally as important this literature could be promoted to student to encourage them to participate.

CHAPTER III: METHODS

Student engagement is known in higher education to play a role in student success. This study attempted to explore the potential relationship between adaptive recreation services with student success variables. Using university provided de-identified data sets the researcher compared participants to eligible non-participants of adaptive recreation with the student success variables of GPA and retention. A random sample of university students without a registered disability was also gathered.

Design and Setting

This study was a cross-sectional, causal-comparative design. Data sets were obtained from a mid-sized university in the southeast United States with a student population of around 20,000, and considered a commuter school. This study used a variety of data sets provided by the Office of Institutional Effectiveness, Planning, and Research and Office of Adaptive Recreation. Retention for the purposes was defined as one-year based on previous literature that has defined retention by one-year intervals (Kampf & Teske, 2013).

Institutional Resources Providing Data Sets

The following are descriptions of university offices that provided the data for this analysis.

Office of Institutional Effectiveness.

The university's Office of Institutional Effectiveness, Planning, and Research (IEPR) is responsible for maintaining student data for planning and assessment. The IEPR works with administrators to provide institutional data they need, such as

demographics of admitted students. This office provided a data set containing the following variables: high school GPA, college GPA, retention rates, demographics, student level, and disability status. After completing a request for the data set the IEPR generated and sent the data sets to the primary investigator.

Disability Access Center.

Disability Access Center (DAC) is an office on campus that assists students with disabilities with appropriate accommodations they require to participate in university functions. Registering with this office is optional for students.

Once students register with this office the DAC reports this information to the university, which can be accessed by the IEPR. The sharing of this information to the IEPR allowed for the disability data to be included in the IEPR provided data set. These students registered with this office have disabilities ranging from physical to learning disabilities. Registering with the DAC allows the student to develop a relationship with administrators whose job is to work with the student by exploring adaptations that can help the student be successful.

Office of Adaptive Recreation.

The Office of Adaptive Recreation services are only available to students who are registered with the DAC, or who disclose a disability to the Office of Adaptive Recreation. The adaptive recreation office works with students to assist in a wide array of assistance such as facility tours, and personal training service. The personal training service offered was the program looked at in this study due to it being the primary programming effort for students with disabilities. This office maintains data on

participants of the program, and the frequency of student participation. The adaptive recreation office at this school was contacted and had student records from 2011 to the time of this study. The office will send a the list of participants to the IEPR for pairing with student data and de-identification.

Data Sets/Participants

This study had three samples groups: participants of adaptive recreation (N= 28), adaptive recreation non-users (N= 183), and a random university sample (N=191). All samples were collected using stratified sampling so that the samples were proportionate based on term and classification. It was possible for the same student to represent multiple records, and since duplicates were possible from any of the groups the researcher left students with multiple records in the groups.

Adaptive recreation users.

The number of students using adaptive recreation was around 10 a semester. Using all available data the goal was to have a sample size of 100, however the final sample size was (N= 28). A user of adaptive recreation services is someone who has used the adaptive recreation personal training service one time. In this study one time participation use was used as criteria to define usage, which is based on previous literature (Kampf & Teske, 2013) that has defined usage of collegiate recreation services by at least one, and over ten.

Adaptive recreation non-users.

This sample of non-adaptive recreation users (N=183) was needed to have a similar demographic comparison group. This group was identified dueto the nature of the

adaptive recreation program, which has a primary focus of assisting students with disabilities. Students must disclose their disability to the adaptive recreation office to be served; however it does not have to be disclosed to the DAC. Participants of the adaptive recreation non-users group consisted of students registered with the DAC. This sample size the researcher wished to obtain for this group was intended to be similar in size to the adaptive recreation participants. Students who participate in the adaptive recreation service were excluded from this group.

Random sample.

This sample size the researcher wished to obtain for this group was intended to be similar in size to the adaptive recreation participants. These records were selected from the general university population students who were not registered with the DAC or participant in adaptive recreation. The sample size for this group was (N= 191).

Procedures

To obtain the data, requests were made with various university departments after obtaining approval from the Institutional Review board (Appendix A). The researcher only received de-identified data sets. Referencing to the diagram in Figure 1 the steps are identified on how the de-identified data set was obtained that was used in this study. In box 1, the researcher requested that the coordinator of adaptive recreation compile a list of service participants and degree of participation and send it to the IEPR. Box 2 states that the IEPR received this information to complete a request from the researcher to create a de-identified data set for the focus groups of this study paired with student variables. The IEPR will create three different data sets for the researcher: box 3a which

is the adaptive recreation participants, box 3b or the eligible non-participants, and box 3c, a random sample of university students. The primary investigator then received the de-identified data sets from the IEPR. This method of data collection kept student records completely confidential, therefore exposing the students to no risk.

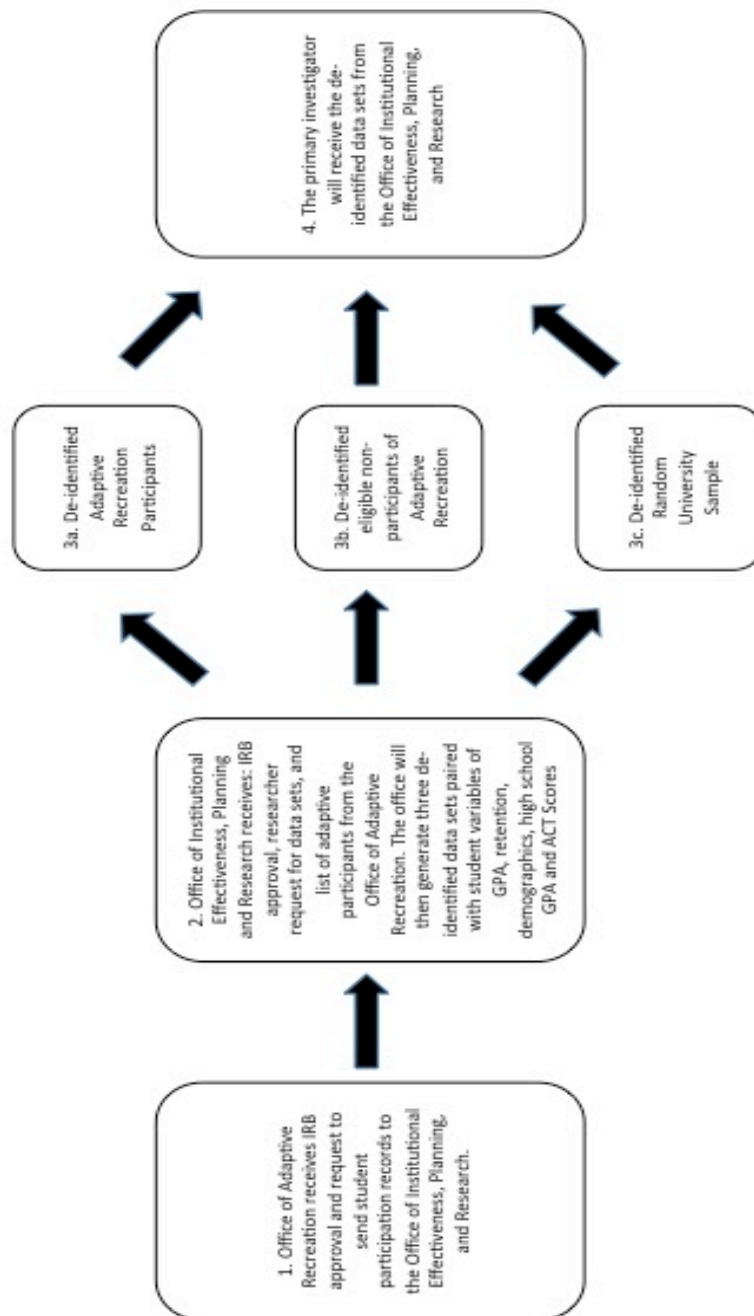


Figure 1. Process to create and obtain de-identified data sets. *Note.* IEPR = the office of institutional effectiveness, planning, and research.

Data Analysis

The participation records of this service start at 2011, which will set the boundaries for the number of years this study looks at. Descriptive statistics were run to determine any abnormalities in the data. The pre-college variables that were collected were controlled for with statistical analysis due to previous research that demonstrates the effects of pre-college background on student success (Kuh, et al. 2013 & Westrick, Le, Robbins, Radunzel, & Schmidt, 2015). All statistics were calculated using Statistical Package for the Social Sciences version 21. An attempt was made to run a Generalized Estimating Equation which would account for multiple time points by some participants, however there were not enough participants with multiple time points to generate an accurate model. Instead, a logistic regression analysis was run to determine a difference in average retention rates among the three groups. A multiple regression analysis was performed to compare the three groups average GPA.

CHAPTER IV: RESULTS

This study focused on the association between student group classification and student success variables. The groups analyzed in this study include those who participated in adaptive recreation offered by a university, non-users of adaptive recreation, and a random sample. The student success variables measured in this study were one-year retention rates, and GPA. The following section contains the results of the statistical analysis of the data gathered in this study.

Data Preparation

Participants from the adaptive recreation group totaled 39 unique students. The adaptive recreation office provided 85 records of individual student participation from spring 2011 through spring 2015. There were nine records from spring 2015, and were left of this study since one-year retention would not be possible to determine. In addition five records from spring 2011 were not included in this study because the institution was not tracking if students had a registered disability at this time or not. Lastly 16 of the records from the adaptive recreation group were unable to be matched to a university census record because they had not either registered for classes by the university deadline or had withdrawn from all classes.

For this study the primary focus was with undergraduate retention rates so all graduate students were dropped from the data set. The student data sets were reported as having a certain value if they retained/graduated school, and a separate value if they progressed to the next grade level or graduated. A few seniors were recorded as having progressed/graduated but not retained/graduated. These students were removed from the

data set, since it is not possible for this to happen. Students were also removed if they had missing ACT and High School GPA scores as these were controlled for in the statistical analysis. Table 1 displays the final number of student records that were analyzed after preparing the data.

Table 1

Demographic Statistics of the Data Set

Variable Name	Total (n)	Percent
Gender		
Male	189	47 %
Female	213	53 %
Grade Level		
Freshmen	73	18 %
Sophomore	89	22 %
Junior	105	26 %
Senior	135	34 %
Group		
Adaptive	28	7 %
Non-users of Adaptive	183	45 %
Random Sample	191	48 %

Retention

A logistic regression was conducted because our dependent variable was categorical. Our initial logistic regression model included the variables: high school GPA, race, ACT score, class standing, and gender. The variables race and ACT score were removed because they were non-significant and did not significantly improve the model. Therefore we were able to obtain a more parsimonious model with the Nagelkerke R square of our final model being .065. The sample size of the analysis was ($N = 452$).

Table 2*Odds Ratios for Retention Rates*

Variable Name	One-year Retention Rate
Gender	
Male	[Reference]
Female	1.20 (.72 – 2.02)
Grade Level	
Freshmen	[Reference]
Sophomore	1.41 (.68 – 2.92)
Junior	2.04 (.99 – 4.19)
Senior	2.64 (1.26. – 5.51)*
Group	
Adaptive	[Reference]
Students with Registered Disability	.71 (.42 – 1.20)
Random Sample	1.87 (.52 – 6.74)
High School GPA	1.05 (.987 – 1.12)

Note. The above Odds Ratios were calculated using logistic regression with “Retention Rate” selected as the reference group 95% Confidence Interval for the odds ratios are provided in parenthesis. * indicates significance $p < 0.05$.

The results from the retention analysis can be found above in Table 2. The results indicate that participating in the adaptive recreation group does not show statistical significance towards retention. Therefore rejecting the first hypothesis, participating in adaptive recreation will result in a mean difference in retention rates when compared non-users of adaptive recreation. The results do indicate that being a senior is a significant indicator of retention with the odds ratio of 2.64 (95% *CI*: 1.26 – 5.51). High School GPA was also found to be a likely predictor of retention with the odds ratio of 1.05 (95% *CI*: .987 – 1.12). The analysis also displayed the amount of students retained in each group, see figure 2.

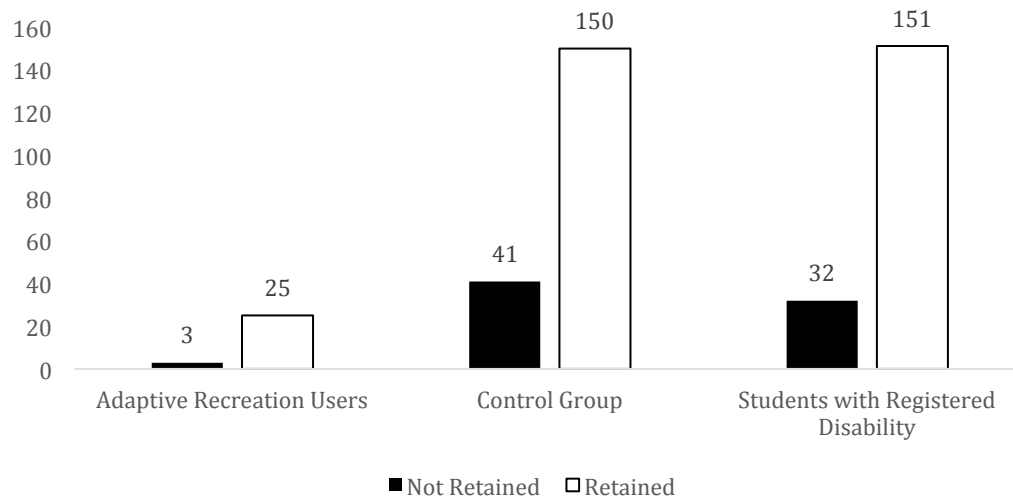


Figure 2. Students retained within the three samples.

GPA

Differences in GPA among the different groups were analyzed with a one way analysis of variance (ANOVA). The ANOVA, $F(2,399) = 1.406, p = .246$, indicated there was no significant difference in cumulative GPA's across the three groups. Thus, the second hypothesis, there will be a mean difference in GPA among those who use adaptive recreation compared to non-users, is rejected. Figure 3 displays the comparison between the groups. The adaptive recreation group had a mean GPA of 3.01 with a .395 standard deviation, the non-users of adaptive recreation had a mean GPA of 2.85 with a standard deviation of .637, and the control group had a mean GPA of 2.72 with a 1.35 standard deviation.

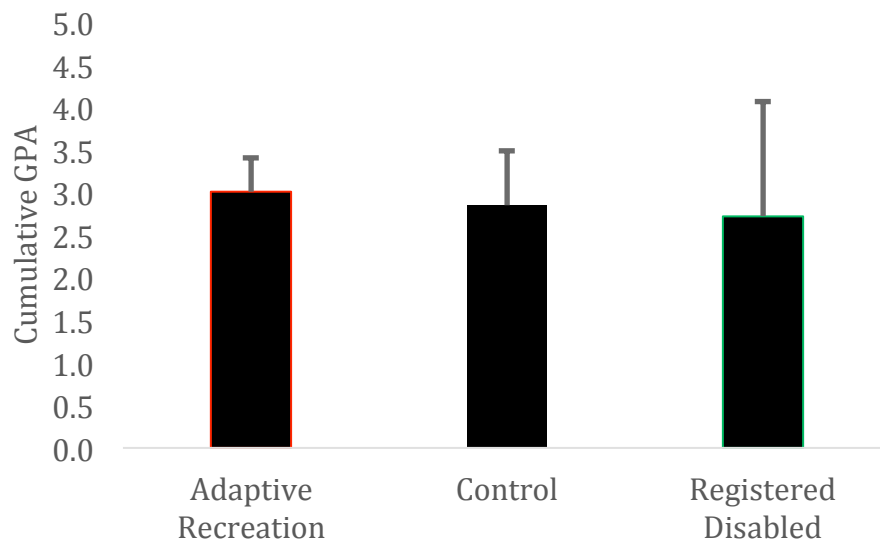


Figure 3. Mean cumulative GPA and standard deviation scores of each sample group.

CHAPTER V: DISCUSSION

This chapter will interpret and discuss the findings of this study and their significance in application. The focus will be on GPA and retention outcomes by participation in adaptive recreation and pre-college characteristics.

Retention

Retention rates have become increasingly important for state funded higher education institutions, who's funding used to depend highly on new student enrollees. The metrics in which higher education has to prove their value by has changed in almost all states to a focus more on retention and graduation rates as reported in a recent report from the National Conference of State Legislatures (2015). For instance the state of Tennessee has enacted the "Drive to 55" program with a goal of 55% of residents having a college degree (Drive to 55, 2014). Under this program metrics have been set so universities attain funding based upon the amount of hours achieved by students, degrees obtained. These new initiatives are important to administrators of higher education, as they will need to adapt their assessment models to illustrate their value according to the new metrics.

What's happening?

With funding being tied directly to retention, it is advantageous for university departments to be able to show usage of service related to student retention. Middle Tennessee State University President, Sydney McPhee, released a newsletter, Universities are responding to this funding modification by placing a higher emphasis on retention (2015). Advisors, Scholarships, and programs are being added and developed to

increase retention. The president stated that over 50 advisors have been added, to guide students toward graduation. Additionally financial incentives have been added to students who graduate in four-years. These students will receive a scholarship reimbursing them for any tuition increases during their studies. Connection point is a program that the president mentions that rewards students for participating in campus events. This program also serves as a metric for student affairs to measure student participation. Measuring engagement in campus activities, is not unique to Middle Tennessee, with many researchers publishing their findings of student engagement.

Results in comparison.

The results from this study do not indicate that participating in an adaptive collegiate recreation program have a significant effect on retention rates. However, while not statistically significant, the group with the highest retention rate is the adaptive group. Figure 4 displays the breakdown of retention rates amongst the three groups: adaptive recreation, non-users of adaptive recreation, and the random university sample.

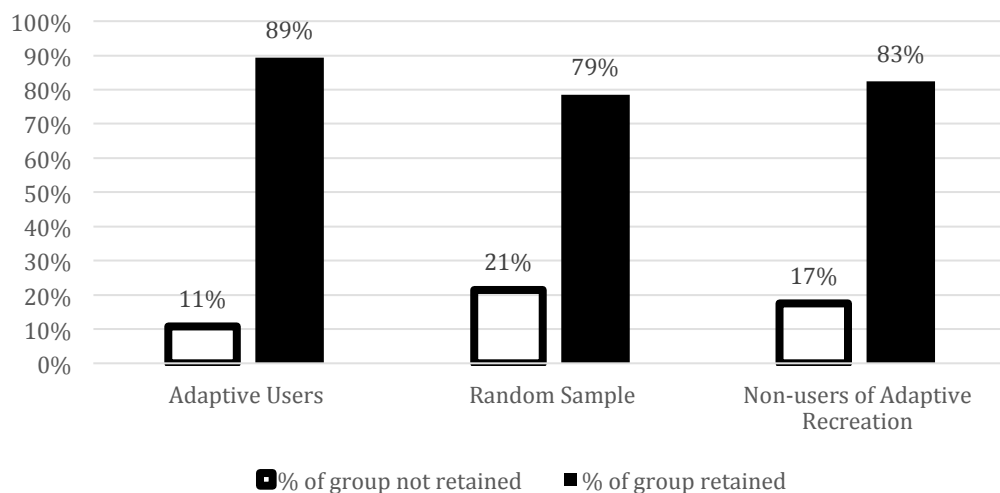


Figure 4. Percentages of students retained within the samples.

Although the results of this study were not statistically significant, the researcher found a trend that similar with current literature such as. Kampf and Teske (2013) who found university sport club participants “had a 2.22 times greater odds of enrolling the following year in compared with students who did not participate” (p. 90). Forrester (2015) conducted another study in which students were asked to self-report the effect collegiate recreation facilities had on their decision to continue at the institution, and 73% said that these facilities were a factor in their retention. Our results were not self-reported similar to Kampf and Teske’s model, which allows for a more quantifiable association to be identified between retention and collegiate recreation programming. Danbert et al. (2014) also followed a similar model where they acquired members’ information from the recreation center. Particularly noteworthy is that Danbert’s findings were similar to our study, while they did not find a statistically significant relationship between being a member and retention while the data did trend that way. This may illustrate that a need for more qualitative studies that can explore the complexities off the relationship of recreational sports and student success.

GPA

GPA is an indicator of how well a student did in the course. For the student there are many things that can effect the time they are able to put into their coursework. In this study, the reseacher found the adaptive recreation users had a higher overall GPA than the other groups, however the results were not statistically significant. Physical activity has been found to have a correlation to self-reported increased GPA (Henchy, 2013). In order to receive credit and return to school in progression towards graduation students must receive passing grades for their classes. GPA is then one of the fundamental pieces

of retention. According to the new metrics higher education is receiving funding by, specifically the portion that refers to students attaining credit hours (drive55), studies like this are extremely relevant by studying GPA and program involvement. With these findings we can see that GPA increase due to campus recreation activities is not a completely established relationship.

Results in comparison.

The data analysis did not reveal adaptive recreation to have a statistically significant effect on GPA; however it did illustrate being in the adaptive recreation group does trend towards a higher GPA. The adaptive recreation group has the highest mean GPA (3.01) followed by the non-users of adaptive recreation group (2.85), and control group (2.72). These results while not statistically significant, do add to the body of literature that shows physical activity could have an impact on increased student GPA, supporting the work of Henchy (2013). Henchy found that students who reported high levels of physical activity had higher cumulative GPA's. McElven and Rossow (2014), concluded in their study that Intramural participation did not have an effect on GPA, which is similar to our study in that their participants GPA were equal to or greater than that of non-participants but not a statistically significant amount. Furthermore, Brock, Carr, & Todd (2015) also did not find campus recreation usage to influence GPA. The results of collegiate recreation trend in the direction that collegiate recreation is a factor in improving GPA, although the evidence is not conclusive. While maintaining a certain GPA is necessary to complete college, lack of a perfect GPA is not required for graduation. Many of these graduates develop relationships during recreational supports

that could potentially fuel what the participants do after college. Overall the researcher feels that GPA is not a good metric for measuring success of all students.

Pre-College Characteristics

Acceptance into a university occurs when a student has various characteristics that indicate to the university that the student will be successful. These characteristics are typically required for the students to disclose upon application, and include ACT/SAT scores, high school GPA. Often times a minimum score is required for these scores such as Middle Tennessee State University whose admission standards for first time freshmen these characteristics must be a 3.0 GPA or a 22 on the ACT.

Results in comparison.

The pre-college characteristics the researchers had access too were: race, ACT scores, High School GPA, and gender. Due to previous literature (Westrick, Le, Robbins, Radunzel, & Schmidt, 2015) that has found ACT and High School GPA to be predictors of retention they were handled as predictors during the statistical analysis. This study partially supports the previous research in that High School GPA was found to be a statistically significant variable in student retention; however ACT scores were not found to be a predictor, and reduced the reliability of the model. Another study who's findings were similar to our study is that of Kampf and Teske (2013), who found that high school GPA was not a significant variable of retention rate in their model. This discrepancy in findings makes it hard to draw a conclusion about pre-college characteristics when it comes to collegiate recreation usage.

Limitations

This research study had several limitations. These analysis's results are limited due to the small sample size of adaptive recreation participants. Another limitation of this study was that the researchers were not able to control for recreation participation in the non-users of adaptive recreation and the random sample, since participation was unknown. Also these results also do not account for participation in alternative forms of recreation that were not taken into account in this study. Furthermore, this study did not include a qualitative approach to finding out about the direct benefits perceived by users of the services.

Well-being benefits.

One of the most important aspects of any physical activity program is the well-being outcomes associated with it. Although important, this study does not address any of these outcomes as they relate to the adaptive recreation program. Many studies have explored the well-being outcomes associated with collegiate recreation, but still none have looked specifically at collegiate adaptive recreation programs. These benefits are those discussed in the literature review as recreation is shown to play a role in fulfilling the three primary aspects of well-being: physical, psychological, and social. Since this study focused only on quantitative data the researcher cannot determine if the well-being needs were met or how the program helps students meet these needs.

Implications

This study illustrates the need for more research on adaptive recreation services. This research should hopefully stem from two main areas, student success and well-being

outcomes. The study at hand does not refute the findings of Kampf and Teske (2013) who found collegiate recreational services to aid in retention and GPA. Instead this study adds to the literature that surrounds student success and pushes the agenda for more multi-institutional studies like Forrester (2015). Forrester analyzed results from an assessment that students at many universities take part in, and found that students reported collegiate recreation aided in well-being and retention. With awareness growing about persons with disabilities it will be natural progression to see the research continue to emerge.

Program assessment.

A point of interest here is that the participation in adaptive recreation is relatively small, and may imply low usage of recreational services among students with disabilities. This does not infer that students with disabilities are not participating in recreational activities rather that they are just not using the specific service provided by this university. Low participation in this program geared directly towards those with disabilities may just represent that the population is utilizing different opportunities. Currently there are a wide variety of program models used by universities to provide opportunities to students with disabilities, and informal recreation remains an option across all of these models. The program looked at in this study uses a personal training approach to serving the students at this university. Assessing these models to see if they are meeting the needs that they were created for is important in order to best serve this population. This assessment is something that can easily be added to assessment that many departments are already doing such as the University of Arizona Campus Recreation. In 2012, the University of Arizona's Department of Campus Recreation

released a report that contained information regarding students who use the recreation center and how it relates to well-being outcomes. This study adds another model that campus recreation administrators can follow to report outcomes of their programs and demonstrate their value.

Institutional research.

Studies such as this one can be completed without the intent to publish, and solely for assessment purposes. The second aspect of this assessment is a connection between the programs and student success. Looking at programs as they relate to student success is beginning to become common practice and is likely to be a regular part of collegiate recreation administrators' responsibilities. An example of this is the Bowling Green State University Department of Recreation and Wellness (2015), where the department released a report that compared their program participants to non-participants across the student success variables of GPA and retention.

In regards to obtaining the student success variables, many universities have departments dedicated to tracking student information that includes these student success variables. These departments can be useful partners of collegiate recreation department as they prove their value to the university community. Working with offices of this nature allows student confidential information to be shared with university employees for educational purposes. Finally, the results of this study may interest many members of the upper administration at higher education institutions as it reveals there are trends in participation and student success.

Future Studies

Future studies should account for other recreation outlets outside of a campus recreation would be a recommendation by the researcher to assist in illustrating a connection between well-being and retention. This is especially true in the commuter school setting as it might be more reasonable for the student to recreate closer to home. Other recommendations for future research stem from the limitations mentioned earlier, and include the topics of sample size and methodology.

Increase sample size.

A multi-institutional study is highly recommended since it would include more student cases for a stronger comparison group. Having a larger sample size would allow for a more clear analysis of participation and student success variables.

Methodology.

Using qualitative and quantitative data is important for the to obtain a clear understanding of the impact of participation in adaptive recreation on GPA and retention of students. For future projects using a quantitative approach to measuring participation and retention is recommended, as it connects recreation's effects directly to retention. During this quantitative approach it is best to try and access pre-existing data or pre-existing data tracking opportunities. Specifically, a qualitative approach to determining well-being outcomes and participation satisfaction information is essential for a full understanding of the effect of collegiate recreation on the populations that use adaptive services and non-adaptive services. An example of using both self-reported data and pre-existing data sources is Brock, Carr, & Todd (2015), who in their study acquired well-

being health information from self-reported measures, and GPA and campus recreation visits from university resources. Students could also be asked to complete different instruments before and after their participation in adaptive recreation to better measure well-being outcomes such as physical and psychological well-being. An example of this post-pre test model assessing collegiate recreation is that of the aforementioned Brock, Carr, & Todd (2015), who studied first time freshmen.

Collegiate adaptive recreation well-being outcomes.

Overall more research is needed within collegiate recreation to understand the best ways to meet this population. The lack of literature that specifically focuses on persons with disabilities, who use adaptive recreation services, leaves a void in the knowledge administrators need to provide programs of this nature. Assessment of well-being outcomes have been done in the field, however more focus is needed for this demographic. One such study is that of Scott Forester who found that over 90% of student self-reported feeling they increased their feeling of well-being with participation in recreational sports (2015). Another is that of Artinger (2006), who found intramural participations reporting higher scores on various social outcomes. Some studies have looked at the benefits of recreation programs as they benefit those of the adaptive population outside of collegiate recreation. A study by Lundberg, Bennett, & Smith (2011) found that adaptive sports correlated with an improvement in veterans psychological health. Continued efforts to study this group is important for the field to best serve this demographic.

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APPENDIX

APPENDIX A: IRB APPROVAL

IRB
INSTITUTIONAL REVIEW BOARD
 Office of Research Compliance,
 010A Sam Ingram Building,
 2269 Middle Tennessee Blvd
 Murfreesboro, TN 37129



EXEMPT APPROVAL NOTICE

10/1/2015

Investigator(s): Adam Thompson
 Department: Health and Human Performance
 Investigator(s) Email: at4w@mtmail.mtsu.edu
 Protocol Title: "Exploring the Relationship between Adaptive Recreation Participation and Student Success"
 Protocol ID: 16-1057

Dear Investigator(s),

The MTSU Institutional Review Board, or a representative of the IRB, has reviewed the research proposal identified above and this study has been designated to be EXEMPT.. The exemption is pursuant to 45 CFR 46.101(b) (4) **Collection or Study of Existing Data**

The following changes to this protocol must be reported prior to implementation:

- Addition of new subject population or exclusion of currently approved demographics
- Addition/removal of investigators
- Addition of new procedures
- Other changes that may make this study to be no longer be considered exempt

The following changes do not have to be reported:

- Editorial/administrative revisions to the consent of other study documents
- Changes to the number of subjects from the original proposal

All research materials must be retained by the PI or the faculty advisor (if the PI is a student) for at least three (3) years after study completion. Subsequently, the researcher may destroy the data in a manner that maintains confidentiality and anonymity. IRB reserves the right to modify, change or cancel the terms of this letter without prior notice. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board
 Middle Tennessee State University

NOTE: All necessary forms can be obtained from www.mtsu.edu/irb.