



---

**Collegiate Intramural Sports Participation: Identified Social Outcomes**

**Jill R. Sturts, Craig M. Ross**

Department of Recreation, Park, and Tourism Studies, Indiana University

**Correspondence with:**

**Jill R. Sturts**

[jsturts@indiana.edu](mailto:jsturts@indiana.edu)

Department of Recreation, Park, and Tourism Studies

Indiana University

Bloomington, IN 47405

*International Journal of Sport Management Recreation & Tourism*, Vol.11, p.25-41, 2013

© 2013 I.J.S.Ma.R.T. All rights reserved. ISSN: 1791-874X

**To link to this article: <http://dx.doi.org/>**

**DOI: 10.5199/ijsmart-1791-874X-11b**

## **Collegiate Intramural Sports Participation: Identified Social Outcomes**

### **Abstract**

Collegiate recreational sports provide many avenues for student development resulting in various benefits that have been supported through theoretical and empirical research. This study examined social outcomes of participation in intramural sports. The data revealed differences in social outcomes related to gender, age, year in school, ethnicity, residence, and division of competition. Differences were found between groups in the degree of social outcomes experienced. The data contribute to a body of empirical research which shows that intramural sport participation serves as a vehicle for social development among college students, which not only improves overall well-being but can also help serve as a potential reason for why students persist at universities. Specific areas of development include social interaction, time management, ability to work within a team, overall happiness, sense of belonging, and feelings of self-worth. The results of this study will assist university recreational sport professionals and administrators in further understanding the role and importance of intramural sports as a vehicle for social development while also providing evidence of differences between groups.

**Keywords:** social outcomes; intramural sports; recreational sports; student retention

## **Collegiate Intramural Sports Participation: Identified Social Outcomes**

### **Introduction**

Over the past thirty years, the emergence of recreational sports departments and facilities have had many positive effects on college students. Recreational sport involvement has been linked to higher grade point averages (Belch, Gebel, & Maas, 2001; Gibbison, Henry, & Perkins-Brown, 2011), higher university retention rates (Hall, 2006; Huesman, Brown, Lee, Kellogg, & Radcliffe, 2009), reduction of stress (Kanters, 2000), and overall satisfaction with the college experience (Lindsey & Sessoms, 2006). Recreational sports participation has also impacted students' perceived sense of campus community (Elkins, Forrester, & Noel-Elkins, 2011), enhanced quality of campus life (Ellis, Compton, Tyson, & Bohlig, 2002), leadership and communication skills (Lindsey, 2012), intrinsic motivation (Cooper, Schuett, & Phillips, 2012), healthy physical activity benefits (Forrester, Arterburry, & Barcelona, 2006; Haskell et al., 2007), and values clarification (Rothwell & Theodore, 2006). The Council for the Advancement of Standards in Higher Education (CAS) further stated that the "mission of recreational sports programs must be to enhance the mind, body, and spirit of students and other eligible individuals by providing programs, services, and facilities that are responsive to the physical, social, recreational, and lifelong educational needs of the campus community as they relate to health, fitness, and learning" (Dean, 2009, p. 332).

The positive outcomes associated with recreational sports on college campuses have been documented through the examination of participation in a variety of areas including club sports (Haines & Fortman, 2008; Smith, 2008), recreation center facility use (Huesman, Brown, Lee, Kellogg, & Radcliffe, 2009), proximity of campus recreational physical activity facilities (Mowen & Confer, 2003; Reed, 2007; Reed & Phillips, 2005), and intramural sports (Artinger et al., 2006; Rothwell & Theodore, 2006). The social, physical, and cognitive outcomes of recreational sport participation contribute to a body of knowledge that further supports overall student development.

The seminal work of Astin's (1984, 1993, 1999) Student Involvement Theory and Tinto's (1975, 1987, 1997) Student Integration Model serve as the theoretical frameworks in the investigation of social outcomes of intramural sport participation in this study. Situating this research within the frameworks of involvement and retention will aid in demonstrating the importance of recreational sport departments as the need to provide

rationale for existence persists. The purpose of this study was to provide empirical evidence which supports the notion that students experience high degrees of social outcomes while participating in campus recreational sports and to examine the differences between various demographic variables. The study was modeled after research by Artinger, Clapham, Meigs, Sampson, and Forrester (2006) who found social benefit differences among students related to residency, ethnicity, year in school, and number of intramural sports played.

## **Literature Review**

### ***Theory of Student Involvement***

Astin's Theory of Student Involvement suggested that the amount and quality of the time and energy that students spend in college activities is proportional to the amount of student learning and development associated with a program (Astin, 1984, 1993, 1999). Types of student involvement might include greek life, campus residence hall associations, student government, athletics, academic clubs, student organizations as well as recreational sports. The application of this theory to recreational sport programming suggests that high-quality programs and multiple student participation rates lead to increased learning and student development. Astin (1999) stressed that "the greater the student's involvement in college, the greater will be the amount of student learning and personal development" (p. 13). He further suggested that the usefulness and value of a program was directly related to the capability of that program to increase student involvement. Providing positive ways for students to develop a sense of belonging is one benefit of a healthy community. In addition, the benefits of this sense of belonging in a community with individuals or groups on campus will assist students as they transition from college to real world experiences (Zizzi, Ayers, Watson, & Keeler, 2004).

### ***Student Integration Model***

The central theme of Tinto's Student Integration Model (Tinto, 1975) or sometimes referred to as the "theory of departure" suggests that whether a student remains or drops out of college is strongly predictable by their degree of social and academic integration. Although it is inevitable that some students will voluntarily leave the academic environment for reasons that are outside the control of the faculty and institution, a substantial amount of student attrition is avoidable and unnecessary. Tinto emphasized the peer culture within an institution as strongly affecting a students' commitment and

engagement to the university. Pascarella and Terenzini (2005) further identified social adjustment issues as one of the indicators of student attrition. Undergraduate students who are not involved or associated with the 'social fabric' of the college community are more likely to drop out (Swail, Redd, & Perna, 2003). If a student does not establish a sufficient amount of social ties during their university experience and feels isolated, they are more likely to leave college. Extracurricular activities provide many opportunities for increasing social ties, student interaction (Watson et al, 2006), influencing social integration in college (Kilchenman, 2009) along with an increased sense of community on campus (Hall, 2006) which all increase the quality of student life on campus.

The relevance and significance of these two theoretical models is that the more recreational sports departments are able to attract, engage, and involve students in extracurricular activities, the more socially satisfied they will become with their overall university experience.

### ***Student Retention***

Student satisfaction with their university experience as a result of social bonding may lead to persistence and retention in their academic studies. For example, Lindsey and Sessoms (2006) examined various demographic variables (e.g. year in school, ethnicity, grade point average, greek affiliation, residence, and employment status) and the frequency of participation in recreational services and reported that the opportunities to participate in recreational programs contributed to students' decision to attend and provided a reason to remain at a university. According to Bryant, Banta, and Bradley (1995), "recreation may be the single common bond between students" (p. 158) during their freshman year of college outside of any structured university orientation programs. More recently, Miller (2011) examined recreational sports environment as a whole as it related to social belonging and retention and found that the recreational sports environment contributed to attracting students to a university and also provided a reason for them not to leave.

Results from a study conducted by Belch et al., (2001) revealed a substantial difference in the retention rates between campus recreation center participants and non-participants. In addition, they found that freshman students who participated in campus recreational programs were more likely to return to college after one year. Huesman et al., (2009) reported in their study that linked campus recreation facility visitation data with individual student records, a positive association between facility usage and student retention rates.

### ***Overall Student Satisfaction***

Increased involvement in extracurricular activities result in an increase of student's overall satisfaction with their college experience. Moffitt (2010) suggested that students who participate in campus intramural sports are more likely to "demonstrate a sense of belonging in the community, have more interactions with peers, have increased emotional health, and increased leadership potential at the university" (p. 31). Students who are not only physically healthy but also exhibit social and emotional health have a greater chance for satisfaction and success in college (Leafgran, 1989). The National Intramural-Recreational Sports Association (NIRSA) study on the influence and value of participating in collegiate recreational sports activities found that "participation in recreational sports is a key determinant of satisfaction and success in college" (NIRSA, 2002, p. 9).

In an effort to enhance student learning and social development, providing increased opportunities should be a goal of recreational sports programs. Recreational sport activities create "opportunities for interaction, collaboration, and unification which are essential if campuses are to develop a sense of community" (Dalgarn, 2001, p. 66). Christie and Dinham (1991) further stated that "students who become adequately integrated into the social and academic systems of their university through participation in extracurricular activities, interactions with other students, and interactions with faculty develop or maintain strong commitments to attaining a college degree" (p. 412-413). Windschitl (2008) concluded that "recreational sports programs, particularly intramural sports, provide a powerful medium for student interaction" (p. 21).

The theoretical background of student involvement and socialization combined with recent empirical evidence of social outcomes and retention emphasizes the need for studies that provide evidence of social outcomes in campus recreational sports. Thus, the purpose of this study is to measure the social outcomes of collegiate intramural sport participants as they relate to social group bonding, university integration, personal benefits, and social benefits. In addition to the degree to which participants experience social outcomes, the study also seeks to identify if there are any differences between groups (gender, residence status, ethnicity, and age) and social outcomes.

## **Methodology**

### **Sample**

The total number of respondents completing and returning the questionnaire was 386. Of this number, 85 were incomplete and removed from the sample. Therefore, 301 usable questionnaires were used for data analysis purposes. Items in the questionnaire that were negatively worded were reverse coded for analysis purposes. Respondents rated their level of agreement to social outcome statements using a five-point Likert scale ranging from 1= *strongly disagree* to 5= *strongly agree*.

### **Questionnaire**

In order to address the research questions, data were collected through the use of a pen and paper survey. The instrument used in this study was a modification of the Artinger et al (2006) social benefits questionnaire which was implemented at a Canadian institution of higher education. One question was removed from the Artinger questionnaire due to the inapplicability resulting from structuring differences between recreational sports departments. The final questionnaire consisted of 23 Likert type questions and seven demographic questions. Outcomes measured in the Artinger questionnaire were grouped in four main categories including “university integration, personal social benefits, cultural social benefits, and social group bonding.” These same groupings are utilized for the current study.

Internal consistency for the questionnaire and each of the five social outcome sub-scales was established. A common measure of internal consistency when using the Likert scale is the Cronbach alpha. A Cronbach’s alpha coefficient of 0.7 and above indicates a high degree of internal consistency among the data collected (Nunnally, 1978). The internal consistency for the overall instrument was reliable (Cronbach’s alpha = .89). However, Cronbach alpha values for each of the five sub-scales was low (ranging from .49 to .58) which also occurred in the Artinger (2006) study. Due to these scores, the 23 items in the questionnaire were individually analyzed. Independent sample t-tests, one-way ANOVA’s, and Pearson Correlations were used to examine differences between groups.

### **Process**

A convenience sample was used as participants for the study were selected on site at an intramural basketball program being conducted at a large four-year, primarily residential, research university with an enrollment of over 40,000 students. Questionnaires were distributed by the researchers and intramural sports supervisors at

various times (5pm-11pm) during a one week period after students participated in their intramural basketball contest. Teams only played one game per week during this phase of the intramural basketball season so duplication of individual responses was not a possibility. The questionnaire took approximately 10 minutes to be completed.

### Results

Approximately 75% of the respondents were males (n=185). The distribution of year in school was relatively evenly distributed with 22.1% freshmen (n=65), 21.8% sophomores (n=64), 25.2% juniors (n=74), and 26.5% seniors (n=78). Thirteen graduate students completed the survey, and 80% of the respondents were Caucasian. Table 1 provides greater demographic information details for the intramural sport participants that participated in this study.

**Table 1.** Descriptive statistics.

| Variables                          | Frequency | Percent |
|------------------------------------|-----------|---------|
| Gender                             |           |         |
| Male                               | 185       | 76.1    |
| Female                             | 58        | 23.9    |
| Years of Study                     |           |         |
| Freshman                           | 65        | 22.1    |
| Sophomore                          | 64        | 21.8    |
| Junior                             | 74        | 25.2    |
| Senior                             | 78        | 26.5    |
| Graduate Student                   | 13        | 4.4     |
| Ethnicity                          |           |         |
| African American                   | 28        | 9.3     |
| Asian American                     | 10        | 3.3     |
| Hispanic American                  | 3         | 1.0     |
| Native American                    | 8         | 2.7     |
| White American                     | 222       | 73.8    |
| Other American                     | 4         | 1.3     |
| Not a US citizen                   | 2         | .7      |
| White American                     | 222       | 80.1    |
| Non-White American                 | 55        | 19.9    |
| Place of Residence                 |           |         |
| Greek House                        | 65        | 22.0    |
| On-Campus Residence Hall           | 72        | 24.4    |
| Off-Campus                         | 158       | 53.6    |
| Different Intramural Sports Played |           |         |
| Co-Intramural                      | 83        | 28.4    |
| Men's                              | 201       | 68.8    |
| Women's                            | 8         | 2.7     |

An independent sample t-test was performed with gender as the grouping variable in looking at gender differences and social outcomes. Table 2 provides the results of differences between males and females. There were significant differences between males and females in seven areas: increases satisfaction with university experience  $t(238) = -2.108$ ,  $p < .05$ , improves overall happiness  $t(237) = -2.139$ ,  $p < .05$ , improves ability to work within a team  $t(234) = -3.608$ ,  $p < .001$ , increases community involvement  $t(236) = -1.975$ ,  $p < .05$ , helps to manage time better  $t(237) = -2.024$ ,  $p < .05$ , improves ability to socially interact  $t(240) = -2.894$ ,  $p < .01$ , and allows bonding with teammates  $t(239) = -2.609$ ,  $p < .01$ .

**Table 2.** Differences in social outcomes for gender: T-test.

|  | <i>df</i> | T         | Mean |        |
|--|-----------|-----------|------|--------|
|  |           |           | Male | Female |
| 8. Increases my satisfaction with my university experience | 238       | -2.108*   | 3.31 | 3.67   |
| 11. Improves my overall happiness                          | 237       | -2.139*   | 3.69 | 4.02   |
| 12. Improves my ability to work within a team              | 234       | -3.608*** | 3.40 | 4.00   |
| 17. Increases my community involvement                     | 236       | -1.975*   | 3.57 | 3.86   |
| 20. Helps to manage my time better                         | 237       | -2.024*   | 3.51 | 3.82   |
| 22. Improves my ability to socially interact               | 240       | -2.894**  | 3.22 | 3.70   |
| 23. Allows me to bond with my teammates                    | 239       | -2.609**  | 3.90 | 4.23   |

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

The effect of wins and losses on social outcomes was also examined. Before statistical tests were performed, “wins and losses” data were recoded into winning percentages using the number of wins divided by total number of games. The correlation between social outcomes and winning percentage was performed, showing no statistical significance. A one-way ANOVA was performed after winning percentage was transformed into three categories including teams with a high winning percentage (more than 67%), teams with a middle winning percentage (50%), and teams with a low winning percentage (less than 33%). The results of the one-way ANOVA showed no statistical significance.

A Pearson correlation was performed to compare age and social outcomes (see Table 3). The only significance found was with regard to age and sense of belonging within the university ( $r = .141, p < .05$ ). Sense of belonging within the university increased with age. This finding was consistent with social outcomes and year of study (e.g. freshmen, sophomores, etc.). A one-way ANOVA was performed and statistically significant differences were found in sense of belonging with the university between sophomores and students in their fifth year or more  $F(286) = 3.265, p < .05$ . Additionally, statistical differences were found between freshmen and sophomores regarding satisfaction with their university experience  $F(284) = 3.327, p < .05$ .

**Table 3.** Differences in social outcomes for years of study: One-way ANOVA.

|   | <i>df</i> | F      | Mean<br>2 <sup>nd</sup> | Mean<br>5 <sup>th</sup> or more |
|---|-----------|--------|-------------------------|---------------------------------|
| 3. Improves my sense of belonging within the university | 286       | 3.265* | 3.14                    | 4.23                            |

  

|  | <i>df</i> | F      | Mean<br>1 <sup>st</sup> | Mean<br>2 <sup>nd</sup> |
|--|-----------|--------|-------------------------|-------------------------|
| 8. Increases my satisfaction with my university experience | 284       | 3.327* | 3.70                    | 3.05                    |

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Ethnicity of participants and social outcomes were examined (see Table 4) using an independent sample t-test with ethnicity as the grouping variable. White Americans and Non-white Americans were compared due to some categories having too small of a sample size (which was representative of the population). Statistically significant differences were found in seven areas: improves overall happiness  $t(294) = 2.748, p < .01$ , improves self-confidence  $t(294) = 2.263, p < .05$ , increases willingness to perform at best potential  $t(292) = 2.296, p < .05$ , increases community involvement  $t(293) = 3.012, p < .01$ , manages time better, increases feeling of self-worth, and allows bonding with teammates, with white Americans experiencing a higher degree of social outcomes in each area than non-white Americans.

**Table 4.** Social outcomes and ethnicity: T-test.

|  | df  | T        | Mean           |                    |
|--|-----|----------|----------------|--------------------|
|  |     |          | White American | Non-White American |
| 11. Improves my overall happiness                            | 294 | 2.748**  | 3.77           | 3.39               |
| 15. Improves my self-confidence                              | 294 | 2.263*   | 3.46           | 3.13               |
| 16. Increases my willingness to perform at my best potential | 292 | 2.296*   | 3.67           | 3.36               |
| 17. Increases my community involvement                       | 293 | 3.012**  | 3.63           | 3.24               |
| 20. Helps to manage my time better                           | 294 | 3.56***  | 3.62           | 3.13               |
| 21. Increases my feeling of self-worth                       | 294 | 4.100*** | 3.77           | 3.26               |
| 23. Allows me to bond with my teammates                      | 294 | 2.121*   | 3.95           | 3.68               |

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

A one-way ANOVA (see Table 5) was performed in the investigation of social outcomes and residency. Statistical significance was found between on-campus and off-campus students with increase in trust in peers. On-campus students experienced a higher degree of trustworthiness in their peers than off-campus students ( $F = 4.093$ ,  $p < .05$ ).

**Table 5.** Social outcomes and residency: One-way ANOVA.

|                                   | df  | F      | Mean      |            |
|-----------------------------------|-----|--------|-----------|------------|
|                                   |     |        | On-Campus | Off-Campus |
| 5. Increases my trust in my peers | 282 | 4.093* | 3.53      | 3.12       |

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

An independent sample t-test (see Table 6) was performed to look at social outcome differences in types of intramural sports played (men's, women's, and co-recreational). Due to the low number of student participation in all women's teams, the two groups compared were co-recreational and men's/women's. Social outcome differences in intramural sports played were found in nine areas, with co-recreational participants experiencing more powerful social outcomes: reduces social alienation, improves ability to work within a team, improves sense of responsibility to the university, increases willingness to perform at best potential, increases community involvement, helps to manage time better, increases feeling of self-worth, improved ability to socially interact, and allowed students to bond with teammates.

**Table 6.** Social outcomes and intramural sports played: T-test.

|  | <i>df</i> | T        | Mean<br>Co-IM<br>Men's or Women's |      |
|--|-----------|----------|-----------------------------------|------|
| 2. Reduces social alienation                                 | 289       | 2.263*   | 3.77                              | 3.47 |
| 12. Improves my ability to work within a team                | 281       | 2.816**  | 3.85                              | 3.45 |
| 13. Improves my sense of responsibility to my university     | 284       | 2.091*   | 3.49                              | 3.21 |
| 16. Increases my willingness to perform at my best potential | 283       | 3.515*** | 3.91                              | 3.46 |
| 17. Increases my community involvement                       | 284       | 2.891**  | 3.79                              | 3.42 |
| 20. Helps to manage my time better                           | 285       | 3.310*** | 3.80                              | 3.35 |
| 21. Increases my feeling of self-worth                       | 285       | 3.849*** | 3.98                              | 3.51 |
| 22. Improves my ability to socially interact                 | 287       | 2.663**  | 3.65                              | 3.27 |
| 23. Allows me to bond with my teammates                      | 287       | 4.192*** | 4.20                              | 3.75 |

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Note: Co-IM refers to Co-Intramural

### Discussion and Conclusion

The results of this study provided various dynamics of social outcomes as a result of participation in intramural sports. The results also showed differences in outcomes related to gender, age, year in school, residency, ethnicity, division of intramural played, and effects of wins and losses.

Consistent with the research on what is known about the benefits experienced through recreational sports participation, intramural sports provides many social outcomes for college students that aid in development, satisfaction, and creating healthy social networks. Given that this study is a modification of a study conducted by Artinger et al (2006), the similarities of the two studies that emerged include: higher benefits reported by females, higher benefits reported by on-campus students, and higher benefits reported by first-year students. An interesting finding in Artinger et al (2006) that was inconsistent with this study was the reported increase in tolerance of different cultures for first year students.

The lack of significance regarding effects of wins and losses supports the mission of an intramural sports program, which focuses on socialization and healthy lifestyles, rather than winning and losing contests. It is the hope that students participate in intramural sports for the sake of recreation, leisure, play, fun, and stress release and not with the intent to win playing a major role in their involvement. The lack of significance

associated with wins and losses supports the overall purpose and value of recreational sports.

Interestingly, females self-reported higher degrees of social outcomes in all areas, with the biggest difference in improving ability to work within a team. One may assume, given the nature of sport and society, that males would experience and report higher social outcomes, when in fact the females experienced higher social benefits. This finding should reinforce the goal of marketing to females, not only to increase participation rates, but more importantly to enhance the quality of the university experience, leading to increased university satisfaction.

It is important for recreational sports practitioners as well as academicians to realize and value the multitude of benefits for those students who are actively engaged in extracurricular activities on campus. Participation in extracurricular activities are excellent ways of satisfying the needs and desires of the current Millennial student (Howe & Strauss, 2000) and are often linked with college student retention and persistence (Frauman, 2005). The socialization outcomes gained by students are one of the many reasons and motives for participating in intramural sports programs. It is essential for college personnel to identify and better understand these social outcomes in order to improve the student's college experience and assist in retention efforts. The learning, development, and personal relationship building all contribute to increased satisfaction with the students' overall university experience (Whipple, 1996). Programs such as these can also serve as effective recruitment and retention tools for universities. Given that the findings in this study are consistent with other research and literature, administrators and campus planners will find it useful to better understand the recreational pursuits of college students today and to strategically implement programs that further facilitate social integration which plays a significant role in student success.

The social integration experience of undergraduate students should continue to be investigated with the ultimate goal of improving student retention and academic success rates. Higher education administrators must strive to learn how successful students adjust both socially and academically while in the college environment in order to reduce the student attrition rate. While it is the student's responsibility for social engagement, it is the institutions responsibility to provide quality extracurricular programs and activities, such as intramural sports, that encourage student participation and engagement.

Literature is sparse regarding female participation in intramural sports. Females are experiencing significant social outcomes related to intramural participation, so it is

important for recreational sports departments to continually work to involve more females in efforts to improve the overall quality of life for more students on college campuses. The results of this study will contribute to the body of knowledge within the field of recreational sports. Additionally, it will help guide further research and practice related to increased physical activity and health benefits, program development, marketing strategies, and student involvement in the campus community. The results of this study can aid recreational sport administrators in providing the needed empirical evidence in better illustrating their overall importance and value within the larger university community.

### **Further Research**

Suggestions for further research include the investigation of groups that do not participate in intramural sports and compare their social outcomes to those that do participate in intramural sports to reinforce the positive impact of intramurals on social outcomes. The findings of this study support the need for future research on the long-term effects and benefits of participating in collegiate extracurricular activities such as recreational sports. Do the experiences of recreational sport program participation benefit students beyond their college years? Additionally, it is recommended that the social outcomes for international students be investigated. Literature is sparse in this area and this study did not have a large enough sample size to draw any conclusions about the social outcomes resulting from participation in recreational sports. Future research should also include an investigation of the number of intramural sports played compared to social outcomes as well as the investigation of additional sports.

### **References**

- Artinger, L., Clapham, L., Hunt, C., Meigs, M., Milord, N., Sampson, B., & Forrester, S. A. D. (2006). The social benefits of intramural sports. *Journal of Student Affairs Research and Practice, 43*(1), 5.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*(4), 297-308.
- Astin, A. W. (1993). *What matters in college? Four critical years revisited*. San Francisco: Josey-Bass.
- Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 40*, 518-529.

- Belch, H. A., Gebel, M., & Maas, G. M. (2001). Relationship between student recreation complex use, academic performance, and persistence of first-time freshmen. *Journal of Student Affairs Research and Practice, 38*(2), 5.
- Bryant, J. A., Banta, T.W., & Bradley, J.L. (1995). Assessment provides insight into the impact and effectiveness of campus recreation programs. *NASPA Journal, 32*(2), 153-160.
- Christie, N. G., & Dinham, S. M. (1991). Institutional and external influences on social integration in the freshman year. *Journal of Higher Education, 62*(4), 412-428.
- Cooper, N., Schuett, P. A., & Phillips, H. M. (2012). Examining intrinsic motivations in campus intramural sports. *Recreational Sports Journal, 36*, 25-36.
- Dalgarn, M. K. (2001). The role of the campus recreation center in creating a community. *NIRSA Journal, 25*(1), 66-72.
- Dean, L. A. (2009). *CAS Professional Standards for Higher Education*. Washington, D. C.: Council for the Advancement of Standards in Higher Education.
- Elkins, D. J., Forrester, S. A., & Noël-Elkins, A. V. (2011). The Contribution of Campus Recreational Sports Participation to Perceived Sense of Campus Community. *Recreational Sports Journal, 35*(1), 24-34.
- Ellis, G., Compton, D., Tyson, B., & Bohlig, M. (2002). Campus recreation participation, health, and quality of life. *NIRSA Journal, 26*(2): 51-60.
- Forrester, S., Arterburry, C., & Barcelona, B. (2006). Student attitudes towards sports and fitness activities after graduation. *Recreational Sports Journal, 30*, 87-99.
- Frauman, E. (2005). Differences between participants and non-participants of campus recreation offerings across demographic variables and perceptions of the college experience. *Recreational Sports Journal, 29*(2), 156-165.
- Gibbison, G. A., Henry, T. L., & Perkins-Brown, J. (2011). The chicken soup effect: The role of recreation and intramural participation in boosting freshman grade point average. *Economics of Education Review, 30*(2), 247-257.
- Haines, D. J., & Fortman, T. (2008). The college recreational sports learning environment. *Recreational Sports Journal, 32*(1), 52-61.
- Hall, D. A. (2006). Participation in a campus recreation program and its effect on student retention. *Recreational Sports Journal, 30*(1), 40-45.
- Haskell, W. L., Lee, I. M., Pate, R. R., Powell, K. E., Blair, S. N., Franklin, B. A., et al. (2007). Physical activity and public health: Updated recommendation for adults

- from the American College of Sports Medicine and the American Heart Association. *Medicine and Science in Sports and Exercise*, 39, 1423-1434.
- Henchy, A. (2011). The influence of campus recreation beyond the gym. *Recreational Sports Journal*, 35, 174-181.
- Howe, N. & Strauss, W. (2000). *Millennials rising: The next great generation*. New York: Vintage Books.
- Huesman R., Brown, A. K., Lee, G., Kellogg, J. P., & Radcliffe, P. M. (2009). Gym bags and mortarboards: Is use of campus recreation facilities related to student success? *Journal of Student Affairs Research and Practice*, 46(1), 50-71.
- Kanters, M. A. (2000). Recreational sport participation as a moderator of college stress. *NIRSA Journal*, 24(2), 11-24.
- Kilchenman, J. R. (2009). *The impact of college recreation center renovation on overall participant utilization and frequency*. (Unpublished doctoral dissertation). Wright State University, Dayton, OH.
- Leafgran, F. A. (1989). Health and wellness programs. In M. L. Upcraft & J. N. Gardner (Eds.), *The freshman year experience* (pp. 156-167). San Francisco, CA: Jossey-Bass.
- Lindsey, R. R. (2012). The benefits and satisfaction of participating in campus recreational sports facilities and programs among male and female African American students: A pilot study. *Recreational Sports Journal*, 36, 13-24.
- Lindsey, R., & Sessoms, E. (2006). Assessment of a campus recreation program on student recruitment, retention, and frequency of participation across certain demographic variables. *Recreational Sports Journal*, 30(1), 30-39.
- Miller, J. J. (2011). Impact of a university recreation center on social belonging and student retention. *Recreational Sports Journal*, 35, 117-129.
- Moffitt, J. (2010). Recreating retention. *Recreational Sports Journal*, 34, 24-33.
- Mowen, A. J., & Confer, J. (2003). The relationship between perceptions, distance and socio-demographic characteristics upon public use of an urban park "in-fill." *Journal of Park and Recreation Administration*, 23(3), 58-74.
- NIRSA. (2002). *Value of recreational sports on college campuses*. Corvallis, OR: NIRSA.
- Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill.
- Pascarella, E., & Terenzini, P. (2005). *How college affects students: A third decade of research*. San Francisco: Jossey-Bass

- Reed, J. (2007). Perceptions of the availability of recreational physical activity facilities on a university campus. *Journal of American College Health, 55*(4), 189-194.
- Reed, J., & Phillips, A. (2005). Relationships between physical activity and the proximity of exercise facilities and home exercise equipment used by undergraduate university students. *Journal of American College Health, 53*(6), 285-290.
- Rothwell, E., & Theodore, P. (2006). Intramurals and college student development: The role of intramurals on values clarification. *Recreational Sports Journal, 30*(1), 46-52.
- Smith, B. D. (2008). *Motivational factors for student participation in collegiate club sports at Indiana University*. (Unpublished master's project). Indiana University, Bloomington, IN.
- Swail, W. S., Redd, K. E., & Perna, L. W. (2003). *Retaining minority students in higher education: A framework for success*. ASHE-ERIC higher education report, 30(2). San Francisco, CA: Wiley Subscription Services.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*, 89-125.
- Tinto, V. (1997). Colleges as communities: Taking research on student persistence seriously. *The Review of Higher Education, 21*(2), 167-177.
- Watson, II, J. C., Ayers, S. F., Zizzi, S., & Naoi, A. (2006). Student recreation centers: A comparison of user and non-users on psychosocial variables. *Recreational Sports Journal, 30*, 9-19.
- Whipple, E. G. (1996). Student services. In A. L. Rentz & Associates (Ed.), *Student affairs practice in higher education* (pp. 298-333). Springfield, IL: Charles C. Thomas.
- Windschitl, M. R. (2008). *The relationship of participation in recreational sports with retention rates and academic success of first-year college students* (Unpublished doctoral dissertation). University of Minnesota, Twin Cities.
- Zizzi, S., Ayers, S. F., Watson II, J. C., & Keeler, L. (2004). Assessing the impact of new student campus recreation centers. *NASPA Journal, 41*(4), 589-630.