

7-2015

# Intangible Benefits of Team Identification, and the Factors Which Generate It, toward Intercollegiate Athletic Programs in Students' College Adjustment

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Intangible Benefits of Team Identification, and the Factors Which Generate It, toward  
Intercollegiate Athletic Programs in Students' College Adjustment

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Education in Recreation and Sport Management

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## ABSTRACT

Intercollegiate athletic programs have been used to facilitate social interactions between students within the complex nature of the college environment. In particular, many researchers have discussed the benefits of intercollegiate athletic programs in higher education, examining positive aspects of team identification such as the enhancing sense of belonging, personal self-esteem, happiness, and decreasing stress, anxiety, depression, and loneliness in social life. With the benefits of the program, it is important to scrutinize the benefits of intercollegiate athletic programs in students' college adjustment in higher education. Therefore, the goal of this dissertation was to provide better understanding of the intercollegiate athletic programs in higher education to academic counselor and administrators. The purpose of two studies designed for this dissertation were as follows: (1) to assist to understand what role intercollegiate athletics have on students' academic success by considering social and emotional construct in college life, (2) to identify significant factors that generate team identification toward intercollegiate athletic programs in college environment. Researchers in the field of sport management should have a better knowledge of benefits of intercollegiate athletic programs to directly and indirectly assist students' social, emotional, and academic adjustment. Additionally, the predictive factors enhancing the degree of team identification, as resulted in the second study, support sport marketers to positively engage with student fans in a college. It is also evidence why students are highly identified to intercollegiate athletic programs as well as conceptual note that the predictive factors are directly and indirectly associated with the assistance of students' better life in college environment.

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## **ACKNOWLEDGEMENTS**

I would like to acknowledge many significant contributors below who support me in all processes completing doctoral dissertation. First, I thank Dr. Stephen W. Dittmore for concerning me to finish doctoral study in the United States and his mentoring with countless support and encouragement during a number year.

Second of all, I thank my dissertation committee, Drs. Terence W. Eddy, Steve Langsner, and Kasey Walker, the committee members for their significant comments, and critical insights of the process. The suggestions from the committee members helped to improve the quality of the dissertation.

Lastly, I specially appreciate to my wife, Hyeyoung, and adorable daughter, Jamie to support me during the years. They made me more energy and happy family life.

## **DEDICATION**

I would like to dedicate this dissertation to my beloved father, Nak-In, mother, Jae-Suk.

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## CHAPTER 1 - INTRODUCTION

Overall, the college enrollment for undergraduate students has been also increased by 47 percent, from 10.9 million to 18.1 million since 2001 (U.S. Department of Education, 2011). The National Center for Education Statistics in U.S. Department of Education indicated that college enrollment in higher education has increased by 32 percent since 2001 to 2011 (15.9 million to 21.0 million students). Additionally, more than 572,000 students attended non-degree institutions, including postsecondary institutions and institutions offering career and technical support in two year programs.

However, the U.S. Department of Education in 2013 also concluded that while there is an increased number of student enrolled in higher education, more than 40 percent of students have dropped out of college without earning any degrees. Among the most significant reasons were lack of social relationships with other students and lack of academic achievement (U.S. Department of Education, 2011). Even though the major purpose of higher education is to assist students to pursue educational passions, there are still students who struggled to adjust to college life.

In current studies in higher education, a number of scholars have examined the factors affecting students college adjustment and persistence them in the institution. Promotion of positive social interaction has been given much attention in this area. While the academic success is the most prominent purpose of higher education, a variety of research indicates that non-academic environments assists students' academic achievement and motivation. For example, non-academic environments such as social activities and college satisfaction influence academic achievement (Koo, Sung, & Martinez, in press; Sung, Koo, Kim, & Dittmore, 2015). Additionally, research in higher education suggested that an intervention of social group

belonging enhanced academic achievement, as well as mental health, by decreasing loneliness and depression, and increasing personal self-esteem (Koo, Sung, & Martinez, in press).

In conjunction with the sense of social interaction and belonging, college sport teams have spent millions of dollars to provide entertainment through intercollegiate athletic programs (Duderstadt, 2009). Numerous studies have revealed that intercollegiate athletic programs in the U.S. assist students' social interaction, as well as psychological well-being (Koo, Sung, & Martinez, in press; Wann, 2000, 2006; Wann, Dunham, Byrd, & Keenan, 2004). For example, intercollegiate athletics in U.S. higher education has created university tradition and culture, as well as campus celebrations, which provide an active college environment by connecting different parts of the community including students, alumni, family, and other fans (Clopton, 2008). While intercollegiate athletic programs characterize college through the power of cultural value and affiliation with other identified fans (Clopton, 2008; McEvoy, 2006; Toma & Cross, 1998), studies have examined the different levels of spectators' team identification toward the intercollegiate athletic program (Koo, Sung, & Martinez, in press; Wann, 2000, 2006; Wann, Dunham, Byrd, & Keenan, 2004; Wann & Pierce, 2005; Wann & Weaver, 2009). In particular, Koo, Sung, and Martinez (in press) noted that students who are highly identified with a certain college sport team enjoy more social interaction with other students and are emotionally well adjusted in a certain college institutions. Moreover, the intangible benefit from team identification derived from an intercollegiate athletic program positively assists students in choosing a certain college, and decreasing the rate of drop out (Sung, Koo, Kim, & Dittmore, 2015).

College sports create positive social environments in college life and higher levels of team identification generate greater effects of social and psychological benefits in higher

education. It is important to develop a greater knowledge of the influential factors which generate team identification in college life, as well as how intercollegiate athletic programs assist students to adjust in a certain college, and successfully complete a degree in higher education.

While winning is one of the most important factors influencing team identification (Demmert, 1973; Noll, 1974; Sloan, 1979), other investigations revealed that different characteristics, such as service quality and team performance, also facilitate level of team identification (Branscombe & Wann, 1991; Fisher & Wakefield, 1998; Sutton, McDonald, Milne, & Cimperman, 1997; Underwood, Bond, & Baer, 2001). The intangible benefits of team identification have also received attention in order to assist students' college adjustment and socio-psychological well-being (Koo, Sung, and Martinez, in press; Sung, Koo, Kim, & Dittmore, 2015). For example, Koo, Sung, and Martinez (in press) indicated that intercollegiate athletic programs are able to assist students social affiliation as well as social and emotional adjustment. Moreover, the level of identification toward the college sport team explained as one of non-academic environment assists to improve academic performance as well as decrease dropping rate of students in higher education.

Importantly, while intercollegiate athletic programs may have intangible benefits, such as identification of the college sport team, there are significant factors that develop team identification. However, there is still a lack of research on how the intercollegiate athletic program assists students' school adjustment in higher education as well as what the factors surrounding intercollegiate athletic programs enhance students' identification toward the college sport team are. Therefore, the overarching goal of this dissertation would provide two different type of research; first, students' team identification improve students' college adjustment; second, students' significant experiences through intercollegiate athletic program generating

team identification influence students' academic aspect, which is a major goal of higher education.

### **(1) Study 1**

The study focused on impacts of intercollegiate athletic programs on students' college adjustment. The purpose of this study was to provide a better understanding of social and emotional adjustments derived from team identification on student academic achievement in higher education (e.g., social, emotional, and academic adjustment).

This article aims to extend theoretical framework of the impact of team identification on students' school adjustment. This study considers that students who highly identify with an intercollegiate athletic have more opportunities to socially connect with other students, as well as the non-academic environment by intercollegiate athletic programs functions to assist students' academic success in higher education. Particularly, the positive social interactions through level of team identification improve personal self-esteem, and directly and indirectly enhance with social and emotional adjustment in college life. Even though the well-adjusted school life would be a major role of facilitating academic purpose in higher education, there is lack of research to scrutinize how intercollegiate athletic programs functions to assist students' social, emotional, and academic adjustments in college life.

It is necessary to identify how team identification toward intercollegiate athletic programs has advantages in enhancing students' college adjustment and assist to decrease the rate of students' dropout. The current study extended from existing research by examining the influence intercollegiate athletic programs on academic adjustment along with personal self-esteem, social adjustment, and emotional adjustment. The following research hypotheses were therefore scrutinized.

- H<sub>1</sub>: The level of team identification has a function to enhance personal self-esteem.
- H<sub>2</sub>: Personal self-esteem influenced by the level of team identification has a function to improve students' social and emotional adjustments.
- H<sub>3</sub>: The level of team identification has a direct and indirect function to enhance students' social adjustments.
- H<sub>4a</sub>: Social adjustment by intercollegiate athletic programs has a positive impact on emotional adjustment.
- H<sub>4b</sub>: Social adjustment by intercollegiate athletic programs has a positive impact on academic adjustment.
- H<sub>4c</sub>: Emotional adjustment influenced by social adjustment has a positive impact on academic adjustment.
- H<sub>5</sub>: Team identification has a positive impact on academic adjustment.

## **(2) Study 2**

The study concerned about factors generating team identification in the setting of intercollegiate athletic program. The purpose of this study was to investigate significant factors (e.g., core product, service quality, social environment, attitude, and domain involvement) generating team identification in the case of intercollegiate athletic programs by testing the hypothesized research model. This conceptual model was designed based upon product involvement (e.g., enduring involvement and situational involvement). Even though previous studies have emphasized the important role of spectators' team identification to maintain positive relationship between spectators and sport organization, few studies have attempted to investigate in spectators' preferences concerning factors that influence team identification. In addition, there

have been relatively little studies adapting product involvement to explain influential factors on team identification. While the major goal of intercollegiate athletic programs is to increase fan attendance as well as improve their identification toward the college team. The following research hypotheses were examined:

- H1: Core products will positively influence team identification.
- H2: Service quality will positively influence team identification.
- H3: Social environment will positively influence team identification.
- H4: Team belief will positively influence team identification.
- H5: Domain involvement will positively influence team identification.

### **Definition of Terms**

#### Team Identification

Team identification is defined as psychological attachment toward a certain sport team, player, coach, or player (Koo & Hardin, 2008; Wann & Branscombe 1993).

#### Core product

Core products in intercollegiate sporting events are defined as everything related with game experiences (Yoshida & James, 2010). Mullin, Hardy, and Sutton (2007) indicated that the core product is a bundle of sport fans' perception of the actual game. While the spectator sport industry contains unique products including game schedule, home game, different conferences, postseason, inter club competitiveness, rival competition, as well as hedonic experiences (Mason, 1999, Yoshida & James, 2010), the core product in college sport events represents entertainment value from the games and excitement of the game in service value (Schaaf, 1995).

#### Service quality



Service quality is simply described as consumers' perception derived from the delivered service by a certain organization, and refers to how consumers perceived a well-designed service. (Cronin & Taylor, 1992).

#### Social affiliation

Social affiliation is explained as individuals' perception of a sense of belonging to a particular group member in a certain organization. (Juvonen, 2006).

#### Media

Individuals create and exchange User Generated Content (UGC) through the Internet (Kaplan & Haenlein, 2010).

#### Belief

Beliefs are defined as an organizational tradition interrelated with sport team's characteristics distinguished from other teams. (Chen, 2007; Sundeen 2001).

#### Domain involvement

The aspect of domain involvement is explained as individuals' perception related to a certain sporting objective standardized by desires, values, and interests (Zaichkowsky, 1985).

#### Personal self-esteem

Personal self-esteem is defined as individuals' emotional evaluation in terms of their value and feelings of worthiness, pride and discouragement of one's self (Mackie, Smith, & Ray, 2008; Schacter, Gilbert, & Wegner, 2009).

#### Student persistence

Student persistence is defined as the continual students' enrollment to complete an academic degree, which is awarded from a certain institution (Cook & King, 2005)

### Social adjustment

Social adjustment is defined as an integration of the social environment as an important aspect in obligation to a particular academic institution, including social life, a support network, and social freedom in college life (Spady, 1970; Tinto, 1975).

### Emotional adjustment

Emotional adjustment is manifested as general psychological stress, somatic distress, anxiety, self-esteem, or depression as well as personal crisis (Henton, Lamke, Murphy, & Haynes, 1980).

### Academic adjustment

Academic adjustment is defined as a form of solution to successfully complete a college degree and a positive affiliation to an academic institution (Baker & Siryk, 1984a; Bean, 1980; Munro, 1981; Terenzini, Lorang, & Parscarella, 1981).

## **Significance of Study**

Although several studies resulted factors that develop team identification, there is a lack of research that examines the relationship between factors predicting team identification and college adjustment in higher education. This study proposes a new conceptual framework, based upon previous literature. The findings of the study may imply to the scholastic field of sport management to extend the researches into higher education, and how the environment around intercollegiate athletic programs enhances the degree of team identification. Additionally, this study also provides information for academic administrators to consider the better understanding of intercollegiate athletic programs in order to maintain students in the educational institution.

## CHAPTER 2

### Study 1

#### **Team Identification and College Adjustment: Intangible benefit of intercollegiate athletic program on students' adjustment in higher education**

According to study from National Center for Education Statistics (2011), only 57 % of students finished a degree of university within six years, and 31 % of community college students graduated a program within three years. Indeed, more than 35 % of students have failed to complete a college diploma after six years while about 14 % of college students have dropped out of college. In addition, many social scientists supported that most common factors influencing motives of college dropout are a lack of social relationships with friends and difficulties of academic setting (Alexander, Holupka, & Aaron, 1987; Chávez, Belkin, Hornback, & Adams, 1991; Peng & Takal, 1983; Rumberger 1983; Rumberger, 2001; Rumberger & Lim, 2008).

With the difficulties to maintain students in higher education, a number of studies suggested keys to decrease a rate of dropout from college and to assist better college life for students, such as, the improvement of social environments in college life (Astin, 1984; Barefoot, 2004; Pascarella & Terenzini, 1991), social and academic integration (Braxton, 2001), and the development of strong sense of belonging toward a certain college or university (Baker & Siryk, 1984b; Koo, Sung, & Martinez, In review; Munro, 1981; Terenzini, Lorang, & Pascarella, 1981).

In social science, particularly, the active social experiences directly and indirectly promote academic success explained through positive interaction with other students (Bettencourt, Charlton, Eubanks, Kernahan, 1999; Gerdes & Mallinckrodt, 1994; Walton & Cohen, 2011). For example, sense of belonging within social group improves self-report psychological health and is positively associated with higher scores of grade-point average

(GPA) (Walton & Cohen, 2011). In a current study by Koo, Sung, and Martinez (in press), an intercollegiate athletic is one of significant factors that students are able not only to integrate social groups and to strongly attach to the university, but also to assist psychological health in college life. They resulted that students who highly identify toward a certain college sport team would report strong self-worth because they have a tendency to tie their value with the team. In addition, the team attachment has a direct and indirect impact on psychological and social health.

While social and psychological health are positively correlated with academic success, the study will provide a significant role of intercollegiate athletic programs on increases in mental and social health, and a significant predictor to achieve his or her educational goals. Therefore, the purpose of this study is to provide better understanding of intercollegiate athletic programs significantly leading to academic success in higher education, and to examine direct and indirect relationships of constructs including team identification, personal self-esteem, and college adjustments (i.e., social, emotional, and academic adjustment).

The findings of this study will also provide the expended and practical suggestions. This study would suggest to school administrators to consider phenomenon of social group integration and psychological benefits by intercollegiate athletic programs, as non-academic environment, in order to assist students' academic success in higher education.

### **Team identification and personal self-esteem**

Many social scholars have represented that an affiliated social group is built by individuals who have similar characteristics, needs, and emotions toward a certain goal and objects (Correll & Park, 2005; Tajfel, 1981; Turner, 1975). When individuals positively interact with the group members, the individuals have strongly integrated within the social group and have a strong sense of belonging (Tajfel, 1981). In addition, the positive affiliation with in-group

members would cause affirmative social and emotional health (Compton, 2005; Correll & Park, 2005; Tajfel, 1981; Turner, 1975), while the affiliated group members develop strong boundaries between in-group and out-group members (Buchalter & Frey, 2003; Putnam & Stohl, 1996; Stohl & Walker, 2002; Walker & Stohl, 2012).

Social identity theory has commonly supported the phenomenon of creating social affiliation and its interaction within the group (Tajfel, 1981). Tajfel (1981) explained, "social identity is the individual's knowledge that he belongs to certain social groups together with some emotional and value significance to him of the group membership" (p. 31). The theory has been examined in effects of the social group membership through positive association, such as enhancement of personal self-worth and psychological health via in-group memberships (Tajfel, 1981; Tajfel & Turner, 1979). Particularly, individuals within the social group are likely to have favoritisms with in-group members, whereas they have derogation feelings against out-group members (Tajfel, 1981). The emotions toward in- and out-groups create higher level of personal self-esteem and strong association with the group, as well as cause socio-psychological health (Tajfel, 1981; Tajfel & Turner, 1979).

With the positive social interaction within the social group, team identification is well recognized in sport management as psychological involvements toward a certain sport team, player, or coach (Koo & Hardin, 2008; Trail, Anderson, & Fink, 2000; Wann & Pierce, 2005). In particular, team identification is theoretically consistent with social identity theory perspective in terms of improvements of individuals' emotions of self-worth and a personal sense of who they are (Tajfel, 1981; Tajfel & Turner, 1979; Wann & Pierce, 2005). The sense of psychological involvement toward a college sport team allows students to integrate with larger group members and share the self-concept with them (Brewer 1979; Oakes & Turner 1980; Turner, 1975;

Branscombe & Wann, 1991; Koo, Sung, & Martinez, in press; Wann, 2000). In addition, individuals who have higher level of team identification tend to evaluate their values as equal as the team's values (Wann, 2000), and the positive self-evaluation and derogation of out-group becomes stronger when the following team competes with rival team (Brandscombe & Wann, 1991; Brewer, 1979; Murrell & Dietz, 1992; Oakes & Turner, 1980; Turner, 1975; Wann, 1996). Based upon the relationships between team identification and personal self-esteem, we provide first research hypothesis following:

- H<sub>1</sub>: The level of team identification has positive function to enhance personal self-esteem.

### **Social and emotional adjustment**

Based upon increased personal self-worth from the level of team identification, personal self-worth is positively related with individuals' intangible benefits such as social and emotional health. Along with social interactions, which in turn generate personal self-worth, the intangible benefits derived from social environment are the most important elements to facilitate educational success in college life (Pedrotti, Edwards, & Lopez, 2008; Pittman & Richmond, 2007, 2008; Shankland, Genolini, Franca, Guelfi, & Ionescu, 2010). In particular, Simek (2013) suggested that improved personal self-concepts from a sense of belonging to a certain social group create psychological health such as lower levels of fear and anxiety, as well as higher levels of happiness and satisfaction of life while they actively interact with other social group members.

Specifically in sport management, the finding is consistent with the Psychological Health Model developed by Wann (2006). He examined positive and negative relationships between levels of team identification and psychological benefits, resulting in decreases in depression,

loneliness, and stress as well as increases in personal self-esteem and satisfaction of life. This finding also parallel with Koo, Sung and Martinez (In press)'s study tested in direct and indirect influences of team identification and personal self-esteem on social and emotional adjustments. The findings revealed that team identification and personal self-esteem has a direct influence in social construct (e.g., decreasing a level of loneliness) while the social adjustment influenced by the improved personal self-worth have directly assist to promote students' emotional adjustment (e.g., decreasing a level of depression) (Koo, Sung & Martinez, In press). It represents that improved personal self-esteem derived from the higher level of psychological attachment toward a certain college sport team is positively correlated with the improvement of social and emotional benefits in college life.

Based upon a variety literature, the students who are highly identified toward a college sport team facilitate social boundaries against other groups, and it functions to engage with in-group members by a strong sense of belonging to the group, which finally improve psychological health (Pedrotti, Edwards, & Lopez, 2008; Pittman & Richmond, 2007, 2008; Shankland, Genolini, Franca, Guelfi, & Ionescu, 2010; Simek, 2013). In the conjunction with the relationships, we provide the research hypotheses following:

- H<sub>2</sub>: Personal self-esteem influenced by the level of team identification has a function to improve students' social, emotional adjustments.
- H<sub>3</sub>: The level of team identification has a direct and indirect function to enhance students' social adjustments.

### **Academic achievement**

While the level of identification toward a college sport team is significantly related with social and emotional construct of college adjustment, social activities through the college sport

team additionally promote students' academic adjustment (Astin, 1984; Bettencourt, Charlton, Eubanks, Kernahan, & Fuller 1999; Walton & Cohen, 2011). In particular, a number of researchers specified an important role of non-academic environment influences. For example, college satisfaction and positive social circumstances as well as a sense of belonging to the university in college life as a form of non-academic environment function to promote academic performance in higher education (Arndt, Greenberg, Schimel, Pyszczynski & Solomon, 2002; Murray-Harvey & Slee, 2007; Sung, Koo, Kim, & Dittmore, 2015).

Especially, a sense of belonging has mostly positive relationships with academic adjustment such as student intrinsic value, academic efficacy, school affect, educational expectations and educational aspirations (Goodenow, 1993; Sánchez, B., Colón, Y., & Esparza, 2005; Smerdon, 2002). The findings are relevant that positive influence of an association with favorite social group improves students' academic achievement, motivation, and grade point average, as well as decreases the degrees of depression and rates of college drop out (Beyer & Goossens, 2003; Walton & Cohen, 2011).

The effects of team identification are paralleled with sense of school belonging in terms of generating socio-psychological benefits of school life in higher education. Intercollegiate athletic programs create students' opportunities to interact with other students, and become members of a social group in the complex nature of college (Correll & Park, 2005; Koo, Sung & Martinez, In review; Tajfel, 1981; Turner, 1975; Wann, 2000; Wann & Pierce, 2005). As benefits of non-academic environment on academic performance, intercollegiate athletics generates promote school attachment, quality of school life, and active school circumstances, as well as psychological benefits such as buffering anxiety, stress, and loneliness (Arndt, Greenberg, Schimel, Pyszczynski & Solomon, 2002; Beyer and Goossens, 2003; Murray-Harvey



& Slee, 2007, Koo, Sung, & Martinez, In Press; Wann, 2006). Finally, we provide fourth and fifth research hypotheses following:

- H<sub>4a</sub>: Social adjustment by intercollegiate athletic programs has a positive impact on emotional adjustment.
- H<sub>4b</sub>: Social adjustment by intercollegiate athletic programs has a positive impact on academic adjustment.
- H<sub>4c</sub>: Emotional adjustment influenced by social adjustment has a positive impact on academic adjustment.
- H<sub>5a</sub>: Team identification has a direct impact on academic adjustment.
- H<sub>5b</sub>: Personal self-esteem has a direct impact on academic adjustment.

While previous researches addressed the students' social and emotional adjustment by intangible benefits of intercollegiate athletic program, this study specified to employ a construct of academic adjustment in higher education as a limitation of the study (Koo, Sung, & Martinez, in press). As current researches resulted, the positive social experiences in college life as non-academic environment effectively influences academic performance in higher education (Sung, Koo, Kim, & Dittmore, 2015), it is clear to note that students who highly identify with a college sport team would directly or indirectly lead to improve students' scholastic work in college.

Finally, it is conceptually evident that the improved personal self-esteem from social interaction is positively associated with socio-psychological processes for school adjustments, as well as academic success in higher education (Bettencourt & Dorr, 1997; Simek, 2013).

Although many researchers examined social and psychological benefits from team identification, there is still a lack of investigation of intercollegiate athletics' intangible benefits on students' academic setting. Therefore, the purpose of this study was to assist to understand what roles

intercollegiate athletics have on students' academic success by considering social and emotional construct in college life.

The study will provide theoretical expanding of team identification for students' social and emotional adjustments, which finally lead to academic adjustment. Additionally, the findings could suggest better understandings of intercollegiate athletics that improve positive school environments and the quality of school life in higher education. Indeed, the study also encourages administrators and teachers to effectively utilize intercollegiate athletics for the students who encountered problems in academic performance and school adoptions.

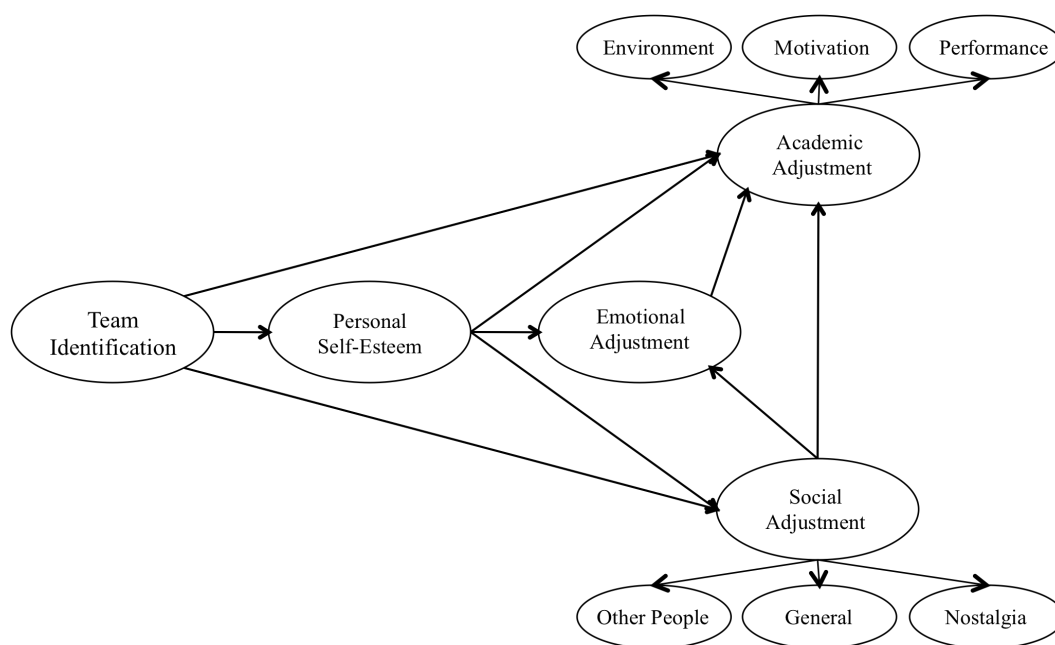


Figure 1.1. The conceptual model of the study

## Method

### Participants

A convenience sample of 320 undergraduate students participated in the study in a major public university in the southeastern region of the United States. While team winning and

attendance are important factors influencing team identification, the university was considered in a large institution in NCAA Division I.

The student sample consisted of 125 (38.9%) male and 195 (60.7%) female including 29 freshmen (9.0%), 67 sophomores (20.9%), 117 juniors (36.4%), and 107 seniors (33.3%). The majority of students (86.09%) were between the ages of 19 and 23 while the mean age of participants was 21.05 years ( $SD = 3.35$ ).

### **Data Collection Procedure**

The number of students were recruited through undergraduate courses within the university. Students were invited to participate in an online survey by email. According to McDonald and Adam (2003), an online survey is more beneficial in reducing costs and rates of missing data, as well as increasing rates of responses from participants than traditional methods such as paper and telephone survey. In an attempt to raise response rates, students received a second requisition to complete within a week after an initial invitation.

In addition, participants who completely finished received extra course credit. Finally, 320 of students completed the online questionnaire, from 496 students who were invited to participate.

### **Measures**

The proposed model included four major properties such as team identification, emotional adjustment, social adjustment, and academic adjustment. First, Spectator Sport Identification Scale (SSIS: Wann & Branscombe, 1993) was adapted to measure team identification anchored by seven-Likert scale items ranging from (1) strongly disagree to (5) strongly agree (e.g., "I strongly see myself as a fan of..."). The items were slightly modified for the purpose of the study. The reliability of SSIS scale was reported by Wann and Branscombe

(1993), an internal consistency of 0.91, exceeding .70 threshold of acceptable level (Nunnally & Bernstein, 1994).

Second, personal self-esteem was measured via Rosenberg's (1965). Participations were asked to response 5 statements on 5-point Likert-type scale, ranging from (1) strongly disagree to (5) strongly agree. The personal self-esteem measures the personal evaluation itself (e.g., "I feel that I am a person of worth, at least on an equal basis with others). While the original RSES reported strong internal consistency of .86, the reliability of the items was demonstrated in an acceptable level of .75 (Nunnally & Bernstein, 1994).

Third, the Student Adaption to College Questionnaire (SACQ: Backer & Siryk, 1989) was adapted to measure college adjustment. Student Adaptation to College Questionnaire contains three subscales involving academic, social, and personal / emotional adjustments. Participations responded a 5-point Likert-type scale anchored by (1) strongly disagree to (5) strongly agree. In SACQ, the Academic Adjustment subscale contains 13 items measuring various academic experiences in the college (e.g., "I currently enjoy my academic work"). The Social Adjustment subscale includes 11 items measuring social environments and activities in college experiences (e.g., "I am very involved with social activities in the university"). The personal / Emotional Adjustment subscale includes 6 items asking psychological aspects in college life (e.g., I feel tenses or nervous in college life). Dahmus, Bernardin, and Bernardin (1992) indicated internal consistency of academic adjustment ranging from .81 to .90, social adjustment from .83 to .91, and personal and emotional adjustment from .77 to .86. The reliability combined three subscales was ranged from .92 to .95. Therefore, the reliability of the scale of SACQ exceeded an acceptable level .70 threshold (Nunnally & Bernstein, 1994).

## Data Analysis

Data were analyzed using the IBM SPSS 20.0 and AMOS 20.0 programs. This study employed Confirmatory Factor Analysis (CFA) and Structure Equation Modeling (SEM) was employed to evaluate psychometric measurement and structural model by the covariance matrix and maximum likelihood estimation (Bentler & Hu, 2005). Then, SEM was conducted to evaluate the hypothesized model including the effect of team identification on personal self-esteem, which leads to students' college adjustment. Structural equation model (SEM) scrutinized the significant direct and indirect relationships among the latent constructs (e.g., team identification, personal self-esteem, social adjustment, and emotional adjustment), and favorable model fit to the observed data. For example, Hair, Black, Babin, and Anderson (2006) suggested the overall model fit indices as  $\chi^2/df$  ( $<5.0$ ), the root mean square error of approximation (RMSEA) ( $<.08$ ), the standardized root mean squared residual (SRMR) ( $<.08$ ), and the comparative fit index (CFI) ( $>.90$ ; Hair, Black, Babin, & Anderson, 2006).

## Results

### *Psychometric Evaluation of the Measures*

A confirmatory factor analysis (CFA) was employed to measure the relationships between the items and each related factors, as well as the distinction from one latent construct to another constructs (Hair, Black, Babin, Anderson, & Tatham, 2006). This study attempted comparison between two alternative measurement models (e.g., Second-Order model, Bi-factor model) to move to further examination while the two models have a purpose to improve the model fit to denote better factor structure of items (Chen, west, & Sousa, 2006). Particularly, bi-factor models are beneficial regarding item commonality, specifications of multiple domain factors from general factors, and availability of control by researchers (Chen,

West, & Sousa, 2006). In addition, while the second order model is nested into bi-factor model, the bi-factor model could function to compare with a second order model, scrutinizing the relationship between factors and each item (Gustafsson & Balke, 1993). On the other hands, while second-order model is a common tool to measure higher order factors (Stewart & Ware, 1992), the second-order model has a benefit in the measurement of relationship between lower order factors, between higher-order factor and lower-order factors (Gustafsson & Balke, 1993; McDonald, 1999; Mulaik & Quartetti, 1997; Yung, Thissen, & McLeod, 1999). In particular, a general factor is accounted by each lower order factors represented by multiple items represent (Mulaik & Quartetti, 1997). While second-order model has commonly employed to test hypothesized measurement model when each factors in lower-order is correlated (Chen, West, & Sousa, 2006), bi-factor model is implied to a general factor accounting for the item commonality and specific domain accounted for by the unique effects within general factor, and researchers' interests in a certain factor (Chen, West, & Sousa, 2006; Reise, Morizot, & Hays, 2007).

Additional loadings to the first item of each latent construct were held to 1 in order to identify the model within the items. Firstly, the estimates of exact, absolute, parsimonious, and incremental fit indices demonstrated a favorable model fit for the initial second order measurement model:  $\chi^2(845) = 2017.633, p < .001$ ; Standardized Root Mean Squared Residual (SRMR) = .081; Root Mean Square Error of Approximation (RMSEA) = .068; Comparative Fit Index (CFI) = .851. Secondly, a favorable model fit for the initial bi-factor measurement model represented:  $\chi^2(788) = 1651.810, p < .001$ ; Standardized Root Mean Squared Residual (SRMR) = .061; Root Mean Square Error of Approximation (RMSEA) = .060; Comparative Fit Index (CFI) = .888.

According to the Lagrange Multiplier (LM) tests, the freely estimated covariance of pairs of error terms slightly improves model fit. Based upon theoretical rationale, the modification in the covariance of error terms applied to final measurement model. For instance, the pair of error terms that were allowed to freely estimate were, *I am satisfied with social participation in the college, and I am satisfied with social life*. As well as, *I have difficulties on academic work, and I have travel concentrating when studying*. While the items assessed the same construct, the error terms could be allowed to covary each other.

The modified and covariance of pairs were equivalently applied to second-order model and bi-factor model. Finally, the fit indices for the mortified second-order measurement model indicated  $\chi^2 (836) = 1778.673, p < .001, SRMR = .076, RMSEA = .061, CFI = .880$ . On the other hand, the fit indices for modified bi-factor measurement model indicated:  $\chi^2 (774) = 1505.764, p < .001, SRMR = .054, RMSEA = .056, CFI = .905$ . Finally, the mortified measurement model of bi-factor model fit indices satisfied the recommended level of model fit to the data, whereas, second-order model fit indices indicated that there is still a lack in the recommended values (Hu & Bentler, 1999; Kelloway, 1998). Furthermore, as the second-order model is nested within the bi-factor model (Chen, West, & Sousa, 2006; Yung, Thissen, & McLeod, 1999), chi-square difference test, which is a likelihood ratio test, showed that the bi-factor model is a statistically significant improvement over the second-order model:  $\Delta \chi^2 (62) = 272.909, p < .001$ . Finally, this study selected bi-factor model to move further to examine causal relationships among the latent constructs.

Table 1.1  
*Psychometric Evaluation of the Measures*

Latent Construct	Items	Factor Loading	Reliability	AVE	$\phi^2$
Team Identification	[University name] athletics wins are very important to me.	.814	.96	.764	.012 - .118
	My friends see me as a fan of [University name] athletics	.896			
	I closely follow [University name] athletics via in person, media, and internet	.833			
	Being a fan of [University name] athletics is very important to me	.839			
	I dislike [University name] athletics greatest rivals	.691			
	I usually display [University name] athletics name or insignia at my place of work, where I live, or on my clothing	.958			
	I plan to attend the home games of [University name] athletics this season	.922			
Personal Self-Esteem	I feel that I am a person of worth, at least on an equal basis with others.	.794	.86	.666	.064 - .299
	I feel that I have a number of good qualities.	.759			
	I am able to do things as well as most other people.	.694			
	I take a positive attitude toward myself.	.830			
	On the whole, I am satisfied with myself.	.794			
Social Adjustment	I enjoy meeting people and making friends	.654	.93	.534	.012 - .211
	I get along well with roommates	.592			
	I have good friends to talk about problems with	.763			
	I am not lonesome for home	.577			
	I don't feel lonely a lot	.587			
	I would rather not be home	.583			
	I am very involved with social activities in the [University name].	.832			
	I have several close social ties.	.712			
	I have adequate social skills.	.821			
	I am satisfied with social participation in the [University name]	.671			
I am satisfied with social life.	.596				



Table 1.1  
*Psychometric Evaluation of the Measures (Cont.)*

Academic	I am satisfied with variety of courses	.619	.93	.507	.011 - .299
Adjustment	I am satisfied with quality of courses	.619			
	I am satisfied with program of courses	.620			
	I am satisfied with academic situation	.705			
	I have well-defined academic goals	.751			
	A college degree is important for me	.613			
	I currently enjoy my academic work	.707			
	I have difficulties on academic work.	.802			
	I am satisfied with academic performance	.910			
	I do not use study time effectively.	.712			
	I have trouble concentrating when studying	.688			
	I do not put my effort into my academic work.	.552			
	I have trouble getting started on homework.	.891			
	Emotional	I feel tense or nervous.	.650	.87	.523
Adjustment	I feel blue and moody.	.756			
	I feel that being independent is not easy.	.517			
	I think that gets muddled too easily.	.738			
	I worry a lot about college expenses.	.792			
	I have trouble coping with college stress	.704			

As shown in Table 1, evidence of convergent validity was produced by calculating average variance extracted (AVE) of each latent construct (Hair, et. al., 2006). For instance, as Fornell and Larcker (1981) suggested, if the calculated AVE were above .50 cutoff thresholds, the measures were considered to possess acceptable levels of convergent validity. In the current study, the estimated AVE was ranged from .507 to .764 for all latent constructs. In addition,

comparing the comparison between AVE and the square of the correlations in each latent construct allows determining the evidence of discriminant validity (Hair, et. al., 2006). Finally, the estimated AVE for each latent factors were higher than the squared phi correlations ( $\phi^2$ ) in the measurement model, the measures were found to have satisfactory levels of discriminant validity.

### *Decomposition of the SEM*

As shown in Table 1, the SEM resulted that the model fit indices have a favorable model fit;  $\chi^2 (775) = 1537.117, p < .001$ , SRMR = .055, RMSEA = .057, CFI = .901, and all parameters were significantly estimated. No additional path was allowed into the structural model because the modification suggested by LM test was not supported by the theory.

First, decomposition of the relationships from the SEM indicated that identification to a certain college sport team improve students' personal self-esteem ( $t = 4.610, p < .01$ ). This relationship resulted that when team identification increases by 1 standard deviation, .291 standard deviation of personal self-esteem is increased.

Table 1.2  
*Decomposition of Effects with Standardized Values*

Outcome	Predictor	Effects		
		Direct	Indirect	Total
Personal Self-Esteem $R^2 = .085$	Team Identification (H1)	.291		.291
Emotional Adjustment $R^2 = .288$	Team Identification		.144	.144
	Personal Self-Esteem (H2)	.495		.495
Social Adjustment $R^2 = .563$	Team Identification (H3)	.239	.188	.427
	Personal Self-Esteem (H2)	.115		.115
Academic Adjustment $R^2 = .566$	Team Identification (H5)	.148	.135 + .045 + .058	.386
	Personal Self-Esteem	.463	.157	.620
	Social Adjustment (H4 <sub>b</sub> )	.244		.508

Second, the personal self-esteem improved by team identification directly led to social ( $t = 8.383, p < .01$ ), emotional ( $t = 4.769, p < .01$ ), and academic adjustment ( $t = 2.942, p = .03$ ). These direct relationships represent that .645 standard deviation in social adjustment, .495 standard deviation in emotional adjustment, and .463 standard deviation in academic adjustment are increased when personal self-esteem increased by 1 standard deviation.

Finally, students' identification to a college sport team has a direct influence in social adjustment ( $t = 4.552, p < .01$ ), which finally led to academic adjustment ( $t = 2.217, p = .03$ ), while team identification directly influenced academic adjustment ( $t = 2.152, p = .03$ ). However, emotional adjustment did not lead to academic adjustment ( $t = .707, p = .48$ ). These relationships also revealed the mediating role of social adjustment between team identification and academic adjustment.

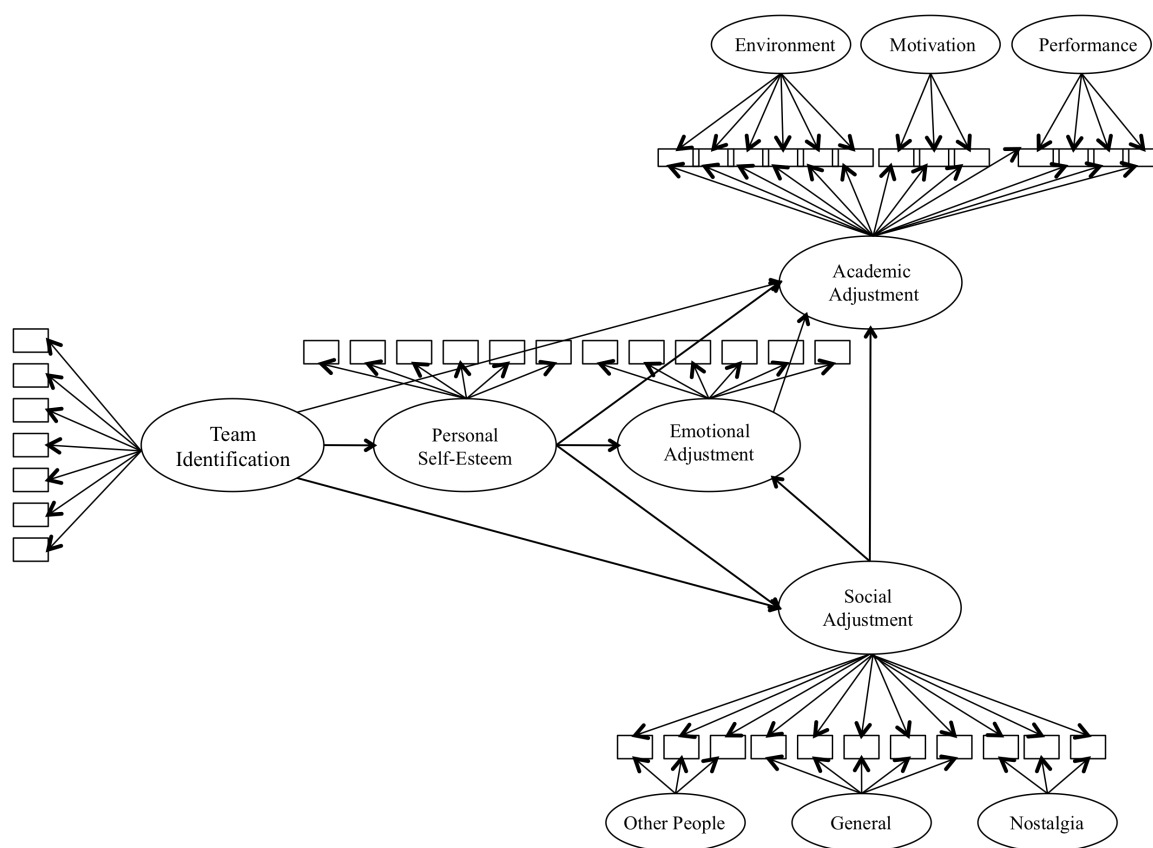


Figure 1.2. The full SEM model

## Discussion

While many young college students have struggled in complex nature of college environment because of difficulties of academic setting and social relationships, a variety of research has focused on differentiations among social class, cultures, and group of convenience (Amir, 1969; Babiker, Cox, & Miller, 1980; Basu & Ames, 1970; Chataway & Berry, 1989; Deutsch, 1970; Di Marco, 1974; Hull, 1978; Klineberg & Hull, 1979; Lysgaard, 1956; Sewell & Davidsen, 1961; Ward & Searle, 1991). In addition, the previous research revealed the significant role of 'group of convenience' and it is positively related for students' college adjustment (Bean & Metzner, 1985; Chataway & Berry, 1989; Davidson, Parnell, & Spencer 1955; Fisher, Fraser, & Murray, 1985; Fisher & Hood 1988; Lu, 1995). Finally, this study attempted to provide how intercollegiate athletic programs significantly lead to academic success in higher education, and to examine direct and indirect relationships of constructs including team identification, personal self-esteem, and college adjustments (i.e., social, emotional, and academic adjustment).

One of the findings from the decomposition of the SEM revealed that students' identification toward an intercollegiate athletic program creates the improved personal self-esteem (H1). This result is consistent with social identity theory that a sense of belonging to a certain social affiliation plays a major role in active interactions with group members and it assists to improve personal self-esteem while competing against rival groups (Tajfel, 1981). In addition, this phenomenon is also consistent that sharing common interests with group members creates strong boundary with other members (Brewer 1979; Brandscombe & Wann 1991; Wann, 2000). In particular, this finding is parallel with Koo, Sung, and Martinez (in press) that team identification with intercollegiate athletic programs improve students' personal self-esteem

through positive social interaction in college life while intercollegiate athletic programs have a function to integrate students in college environment as well as sharing campus culture and university characteristics in terms of the unique logo and color (Clopton, 2008). Accordingly, the current study suggests that the identification with a college sport team is one of significant tools to improve students' personal self-esteem through positive social interaction in campus environment generated by intercollegiate athletic characteristics.

This study also found that the improved personal self-esteem (H2) by team identification (H3) leads positive social, and emotional in higher education. The relationship of team identification with social and emotional adjustment is consistent with previous study developed by Koo, Sung, and Martinez (in-press). They indicated that the direct relationships of personal self-esteem derived from team identification enhance social and emotional adjustment in college life. For example, the personal self-esteem improved by team identification decreases a level of loneliness and depression. Particularly, this phenomenon is also consistent with Psychological Health Model developed by Wann (2006). He also resulted that team identification have benefits enhancing levels of happiness and satisfaction of life, and declining the level of fear and anxiety through the construct of self-esteem. Finally, while students in higher education are highly engaged with social relations with friends which finally enhance personal self-worth, better understanding of intercollegiate athletic programs are required for academic advisors to assist students to improve their social and emotional affiliation in their school life.

The findings revealed that non-academic environment including team identification (H5), personal self-esteem and social adjustment (H4b) directly enhance academic adjustment in higher education. The findings were parallel with previous researches emphasized in the important role of non-academic environment. For example, while personal self-esteem, positive

social affiliation, and strong sense of belonging to a university comprise non-academic environment in college life, it functions to enhance academic performance in higher education (Arndt, Greenberg, Schimmel, Pyszczynski & Solomon, 2002; Murray-Harvey & Slee, 2007; Sung, Koo, Kim, & Dittmore, 2015). Specifically, these findings are also consistent with Walton and Cohen's study (2011) that personal self-esteem enhanced by a sense of social belongings in college life improved grade point average (GPA). In particular, Sung, Koo, Kim, and Dittmore (2015) revealed that the identification toward intercollegiate athletic program generate intangible benefits such as a strong sense of belonging to a university, which is one of the non-academic environments and it promotes students' academic performance in higher education. Beyer and Goossens' study (2003) also supports this idea that social group belonging and psychological attachment toward a group assist students' academic motivation, as well as reduce the rate of school dropout. In conjunction with the studies, team identification, personal self-esteem, and social environment are forms of non-academic environment derived from intercollegiate athlete program. Finally, the present study results that non-academic environments including team identification, personal self-esteem enhanced by team identification, and social adjustment have a positive function to improve academic adjustment in higher education.

However, in the relationship among three college adjustments, social adjustment (H4a) did not significantly influence emotional adjustment while emotional aspect (H4c) in college life did not influence academic adjustment. Firstly, the findings of relationship among adjustment are inconsistent with previous researches that positive social relationships in college life improve students' psychological well-being (Koo, Sung, & Martinez, in press). The gender differences in sampling compared with previous studies might be one possible explanation for the unexplained finding in the relationship between social and emotional adjustment. In current study, 60 percent

of women participated in this study and it might cause inconsistent results while the perceived social and emotional aspects of life were significantly varied by gender. For example, Clopton (2008) indicated that the gender differences might not conclude same results in predicting social environment in college setting as compared with other results from previous researches while his sample resulted the gender difference in attachment toward intercollegiate athletic programs is significant, where men have higher identification than women (Clopton, 2008; Wann & Branscombe 1991; Wann, 1996). Additionally, in social science, Carver, Scheier and Weintraub (1989)'s study also supports the gender differences roles in emotional setting that woman groups are emotionally focused on coping style than men's group. In particular, women have higher level of general anxiety, depression, stress about time management, and worrying more about academic performance than men do (Angold & Rutter, 1992; Feingold, 1994; Nolen-Hoeksema, 1987, 1990; Silverman, LaGreca, & Wassersten, 1995; Simmons & Blyth, 1987). Finally, the lack of male samples in the current study might have causes in different relationships among college adjustments. Secondly, the current measurement of social construct contains parts of emotional constructs such as satisfaction of college life and loneliness for undergraduate students, while, in current study, the emotional construct only included general psychological questions including feelings of tense or nervous, blue and moody, getting easily muddled, college expenses, and trouble coping with college stress. Although the construct relationships between social and emotional were not significant, the loneliness and satisfaction of college life, conceptually, in the construct of social adjustment in current study functions improve academic adjustment in college life. The previous researches measured subject well-being revealed the consistent results. For example, Chirkov and Ryan (2001) utilized 20 items of depression construct developed by Radloff (1997) and satisfaction of life scale (Diener, Emmons, Larsen, &

Griffin, 1985) and revealed that the lower level of depression and higher level of satisfaction of college life positively influence academic performance for undergraduate students. In addition, Akgun and Ciarrochi (2003) revealed that psychological aspects of undergraduate stresses including working while in school and stress for the tests, and self-control schedule in college life are influential factor to enhance academic success. While many scholars revealed that there is a significant relationship between psychological aspects and academic adjustment, future studies should contain certain constructs to measure emotional adjustment.

In summary, these findings can provide rational insights that intercollegiate athletics may assist students' emotional adjustment by improved personal self-esteem. In addition, intercollegiate athletic program enhancing students' social adjustment has a function to improve students' academic adjustment. In this regard, the current study provides intangible benefits for college students generated by intercollegiate athletic programs to university administrators. First, college advisors need to have better knowledge of the functions of intercollegiate athletics for students who have challenges in college adjustments. While students dropout rate has been increased due to a lack of social relationships and academic difficulties (National Center for Education Statistics, 2011), as Murray Harvey and Slee (2007) supported, intercollegiate athletic programs, as non-academic environment in college setting, assist students to improve personal self-worth by integrating with social group members, as well as finally lead academic success, which is a major goal of higher education. In conjunction with this line, effectively utilizing intercollegiate athletic programs for students' adjustment would decrease students' major challenges in college life in higher education.

In second, the findings of this study suggest to college administrators to develop more appropriate college social environment generated by intercollegiate athletic programs. In



particular, Sung, Koo, Kim, and Dittmore (2015) highlighted sense of belonging to the university created by college sport teams including history, tradition, and the represented color around the campus (Clopton 2008; Smith, 1988). Moreover, the highly identified students are more willing to display the following team's logo and color through variety ways and easily connected with other identified students (Trail, Anderson, & Fink, 2000; Wann & Pierce, 2005). Currently, many schools have provided tailgate parties for social activities, it is generally limited for Division I schools, which are most successful institutions, and for football seasons. In this regards, this study may suggest for administrators to create college social circumstances by college sport teams so that students are consistently able to associate with the intercollegiate athletic programs effectively assist students' college adjustment as well as success in academy in higher education.

### **Limitations and Future study**

Beyond the investigation of the study, this current study has limitations to suggest for future contribution. First, the findings of the current study are sampled in a major public university in the United State. While the level of team identification is varied within students' gender, personality, and region as well as institutions' location, division, success, coach, and players, this limitation suggests for future studies to consider the variety students and college setting.

Second, this study has not addressed significant factors to develop students' level of team identification toward intercollegiate athletic programs. While college sports have develop into a big business and significantly generate intangible benefits for college students, Amstrong (1999) revealed the important role of factors that spectators are identified toward sport team to maintain relationship between sport spectators and sport organization. As this current study resulted the

role of team identification on students' college adjustment, it is important to understand how students are engaged with intercollegiate athletic programs.

Lastly, while this study has focused on overall program of intercollegiate athletics, the study could not specify impacts of different sports. Developing team identification and relationships with college adjustments would vary depending on different sport involvement including baseball, basketball and soccer. In this regard, this study suggests for future study to investigate the distinctions among different sport domain identification.

## CHAPTER 3

### Study 2

#### **Factors generating team identification in intercollegiate athletic program**

The sport industry has grown rapidly and become 9<sup>th</sup> largest industry in the United States (Business and industry Sector Rating, 2014). In particular, college sport fans have spent \$ 5 billion to purchase college licensed apparel (Adams, 2014). As college sport programs have become a powerful business and significantly generate profits from spectators, a number of scholars have paid attention in increasing team awareness, image, and generating financial profit (Howard & Crompton, 2004).

With the growth of sport industry, many scholars have indicated the important role of spectators and their behavior to manage organizational marketplace. In particular, Gladden and Funk (2002) suggested that the enhancement of level of consumers' involvement is important to maintain long-term relationship between customer and sport organization, because the involvement is directly related to customers' future behavior to purchase that finally generate organizational profits (Goodstein & Butz, 1998). In addition, previous studies showed that brand and organizational involvement is expressed as biased purchase behavior, frequent behavior for some duration, respect to alternative brands, and psychological functions in evaluative process (Jacoby & Kyner, 1973; Milne & McDonald, 1999).

In particular, while team identification, in sport management study, has been represented the degree of sport fans' attachment toward a sport team (Koo, Sung & Martinez, in press; Wann, 1996). Most scholars in social science studies have broadly categorized two different elements for consumer responses, including enduring involvement and situational involvement (Bloch & Richins, 1983; Houston & Rothschild, 1978). While enduring involvement is created

by individuals' interests and motivation as well as hedonic pleasure (Bloach & Richins, 1983), the present study proposes two sub-dimensions in enduring involvement including emotional value (e.g. satisfaction and belief) and domain involvement itself. Additionally, while situational involvement represents an evaluation of objective stimuli, the present study proposes three sub-dimensions regarding situational involvement including core product (e.g. quality in game experiences), service quality (e.g. quality in stadium) and social environment.

Therefore, the purpose of this study is to investigate significant factors (e.g., core product, service quality, social environment, attitude, and domain involvement) generating team identification in the case of intercollegiate athletic programs. Especially, this current study is designed based upon situational and enduring involvement to conceptualize factors. Additionally, this study would provide valuable knowledge to intercollegiate athletic departments and sport marketers to understand how spectators are involved into the college sport team.

### **Team Identification**

In sport management, team identification has been introduced a level of psychological attachment and a significant relationships with purchase behaviors, and intention to visit future sporting games (Fisher & Wakefield, 1998; Koo & Hardin, 2008; Kwon & Armstrong, 2004; Lee, Shin, Park, & Kwon, 2010; Madrigal, 1995). While research has explored a significant role of team identification in predicting consumer's psychological and behavioral intentions, few studies have explored factors significantly enhancing team identification.

Sport marketers consider highly identified fans as important consumers creating tangible and intangible benefits, (e.g., increase in ticket sales, generating social affiliation, and campus culture). In sport management, team identification is explained as the psychological involvement

toward a team, coach, athletics, and organization in pro- or college sport level (Koo, Sung & Martinez, in press; Trail, Anderson, & Fink, 2000; Wann & Pierce, 2005). In particular, while highly identified fans have a tendency to be more involved with a part of the organization or the institution (Mael & Ashforth, 1992; Underwood, Bond, & Baer, 2001; Wann, 1996), a number of studies showed phenomenon of the identified fan. For example, the highly identified fans are more willing to not only purchase the team's game tickets (Madrigal, 1995), and merchandise to display as a part of the organization (Lee, Shin, Park, & Kwon, 2010; Trail et al., 2000), but also positively evaluate the provided service (Gau, James, & Kim, 2009; Theodorakis, Koustelios, Robinson, & Barlas, 2009).

Moreover, while sport fans are more likely to persist in their levels of identification over time and never switch to other teams (Wann, Melnick, Russell, & Pease, 2001), causal fans are "those individuals who actively witness a sporting event in person or through some forms of media" (Wann, et al., 2001, p. 2). In conjunction with this line, it should be distinguished between the highly identified fans and causal fans because individuals who are emotionally attached are more likely to have a stronger and longer relationship with the brand (Kuusik, 2007; Hunt, & Morgan, 1995; Reichheld 2003). Therefore, sport marketers should recognize the importance of the concept of consumer's identification because stronger identification with the sporting organization positively results in a long-term relationship with the organization (Sutton, McDonald, Milne, & Cimperman, 1997).

### **Product Involvement Theory**

Many researchers in leisure and recreation have paid attention to identifying participations' behavioral activity by the level of involvement with team products (Dimanche, Havitz, & Howard, 1993; Fesenmaier & Johnson, 1989; Kim, Scott, & Crompton, 1997;

Madrigal, Havitz, & Howard, 1992; Selin & Howard, 1988; Zaichkowsky & Sood, 1989). In particular, Quester and Lim (2003) stated that customers who are highly involved with a certain product are more likely to exhibit future intention to purchase and being loyal while leisure involvement is defined as individual's motivation, arousal, or interest regarding a certain product (Rothchild, 1984). Sport management, similar with leisure studies, team identification is explained as psychological attachment toward a certain sport team (Koo, et, al, 2008). In addition, Lock, Taylor, Funk (2012) revealed the development of identification themes with PCM stages including external and internalized themes. They represented that external themes including players, team seen, news, as socialization processes, and communications, are a key to improve fans' level of identification by improvement of externalized themes (Lock, Taylor, & Funk, 2012). Finally, it is significantly associated with sport fans' behavior intentions including game attendance, media usage, and purchase of team merchandise (Gladden & Funk, 2002; Mahony, Nakazawa, Funk, James, & Gladden, 2002; Mullin, Hardy, & Sutton; 2007; Wann, 1995). This study adapted the definition of product involvement theory to examine the phenomenon of the development of team identification.

Product involvement is defined as "an internal state variable that indicates the amount of arousal, interest or drive evoked by a product class", which is consistent with definitions of other consumer psychologists (Bloch, 1981; Mittal & Lee, 1989, p. 194). Theoretically, brand loyalty and team identification has been positively linked by product involvement (e.g., enduring involvement and situation involvement) (e.g. Gladden & Funk, 2002; Mahony, Nakazawa, Funk, James, & Gladden, 2002; Mullin, Hardy, & Sutton; 2007; Wann, 1995). Enduring involvement represents consumers' consistent preference and emotions toward a product including self-concepts, values, and ego (Havitz & Howard, 1995; Holbrook & Hirschman, 1982; Richins &

Bloch, 1986), whereas, situational involvement reflects influences of a specific situation including cost, performance, and environments (Gladden & Funk, 2002; Mahony, Nakazawa, Funk, James, & Gladden, 2002; Mullin, Hardy, & Sutton; 2007; Wann, 1995).

In early research in leisure involvement, understanding antecedents and behavioral consequences of leisure were highly concentrated since intention to participate in the activity is highly dependent upon an individual's hobbies, types, and levels (Funk, Ridinger, & Moorman, 2004). Recently, numbers of researchers have paid attention to characterize and develop better understanding of the construct of involvement (Havitz & Dimanche, 1997; Iwasaki & Havitz, 1998; Laurent & Kapferer, 1985; McIntyre, 1989). In the early conceptual framework by Laurent and Kapferer (1985), they suggested five involvements, including 1) the perceived importance of the products, 2) the perceived importance of negative consequences associated with purchase of the product, 3) the perceived probability of making a poor purchase decision, 4), the symbolic or sign value attributed by the consumer to the product, and 5) the hedonic value or pleasure provided by the product.

In later years, McIntyre (1989) utilized four factors (importance, pleasure, sign, and life style) to measure enduring involvement. Based upon four factors to measure enduring involvement, the authors found that three factors were appropriately explained the involvement in the recreational environment (Funk, Ridinger, & Moorman, 2004; McIntyre, 1989; McIntyre, & Pigram, 1992), and were renamed as 1) attraction, 2) self-expression, and 3) centrality. Attraction represents consumers' perception of products and hedonic values from product usage (Kapferer & Laurent, 1985). Even though Kapferer and Laurent (1985) suggested that attraction should be divided into two factors such as pleasure and importance, McIntyre's studies (1989, 1992) indicated that it is not necessary to make the distinction in leisure setting. Self-expression

is described as psychological statement toward a certain usage, while centrality represents social affiliation with varieties of groups in an individual's life.

In other research related to involvement, Iwasaki and Havitz (1998) suggested that categorizing involvement into individual characteristics and social situational factors. Moreover, they introduced two factors, which “influence the formation of an individual's involvement with recreational activities or product” (Iwasaki & Havitz, 1998, p. 260). Specifically, individual characteristics involve a individual's needs, attitudes, motivations, preferences, and experiences while social situational factors accounts for social association with others, situational incentives, cultural norms, and anticipation of social benefits.

Most scholars in social science studies have broadly categorized two different elements for consumer responses, including enduring involvement and situational involvement (Bloch & Richins, 1983; Houston & Rothschild, 1978). First, enduring involvement is distinct from a specific purchase, and is more focused on a product class (Richins & Bloch, 1986). Enduring involvement is created by an individual's interests about a certain product class, and associated with the consumer's self-concept, values, and ego. Richins and Bloch (1986) defined enduring involvement as “independent of purchase situations and is motivated by the degree to which the product relates to the self and/or the hedonic pleasure received from the product” (p.280). Second, situational involvement refers to purchase occasions. Bloch and Richins (1983) defined as “ a temporary perception of product importance based on the consumer's desire to obtain particular extrinsic goals that may derive from the purchase and/or usage of the product" (p. 72). Situational involvement represents an evaluation of objective stimuli, including expenses, performance, social and psychological environment. Additionally, an individual's evaluation of each stimulus, including performance, environment, cost, and any availability related to the



product, is contained into situational involvement (Parkinson, & Schenk, 1980; Richins, & Bloch, 1986).

### **Factors influencing team identification**

Intercollegiate athletic programs are a specific type of entertainment value in college life that facilitates high levels of team identification (Sutton, McDonald, Milne, & Cimperman, 1997). Wann (1996) explained team identification as psychological affiliation with a sport team. From a team identification perspective, few researchers have explored factors influencing team identification regarding college sports. For example, team success, geographic location, players, and affiliations were significant factors which predict levels of team identification (Branscombe & Wann, 1991; Fisher & Wakefield, 1998; Sutton, McDonald, Milne, & Cimperman, 1997; Underwood, Bond, & Baer, 2001). In particular, Fishers and Wakefield (1998) examined group connection based upon team success. The study noted domain involvement, perceived group performance, and group member attractiveness were significantly associated with group connection. More current research by Heere (2005) expanded this idea to external group identity such as public/private evaluation, interconnection, behavioral involvement, and awareness and knowledge, to improve levels of team identification.

Sporting games events provide spectators a unique group experience such as a strong affiliation with a social group, and a sense of competence against rival groups in a variety of levels such as amateur, college, and professional levels (Branscombe & Wann, 1991). It suggests sport organizations have a strong power to increase spectators' identification. Additionally, this present study also suggests better understanding of intercollegiate athletic programs on students' college adjustment among the influential factors. Based upon previous research regarding product involvement theory on factors which generate team identification, the study composed

five conceptual dimensions affecting team identity, including core product, service quality, social environment, emotional value, and domain involvement.

While enduring involvement is created by individuals' interests and motivation as well as hedonic pleasure (Bloach & Richins, 1983), the present study proposes two sub-dimensions in enduring involvement including emotional value (e.g. satisfaction and belief) and domain involvement itself. Additionally, while situational involvement represents an evaluation of objective stimuli, the present study proposes three sub-dimensions regarding situational involvement including core product (e.g. quality in game experiences), service quality (e.g. quality in stadium) and social environment.

### **Core product**

Core products in intercollegiate sporting events are defined as everything related with game experiences (Yoshida & James, 2010). Mullin, Hardy, and Sutton (2007) indicated that the core product is a bundle of sport fans' perception of the game. The spectator sport industry contains several unique products including game schedule, home game designed in a certain league, post games, inter club competitiveness, rival competition, as well as hedonic experiences (Yoshida & James, 2010), the core product in college sports events represents entertainment value from the games and excitement of the game in service value (Schaaf, 1995). A number of scholars have provided factors related to sporting event outcomes, including level of competition between home and rival teams, team history, star players, and game performances (Braunstein, Zhang, Trail, & Gibson, 2005; Ferreira & Armstrong, 2004; Hansen & Gauthier, 1989; Yoshida & James, 2010).

In particular, Yoshida and James (2010) suggested two components of core products based upon a review of the literature. First, the core product contains team characteristics

including history, star players, as well as rival teams. Second, the core product includes game performance in the actual games, including skills, strategy, and team effort (Garvin, 1984; James & Ross, 2004).

The team characteristics represent a tradition of the organization as well as identity itself to the team (James & Ross, 2004). Additionally, the characteristics provide tangible and intangible environments around a campus as well as a certain community (Fisher & Wakefield, 1998; Underwood, Bond, & Baer, 2001). In intercollegiate athletic programs, the organizational characteristics signify the team is successful in long winning records and develop tradition with fans. In this sense, team characteristics contribute to enhance fans' team identification (Underwood, Bond, & Baer, 2001).

Fisher and Wakefield (1998) suggested that team performance is the dominant factor to enhance the level of team identification. Additionally, while fans are psychologically connected with the successful team, they have a tendency to tie their value with the team success, and enhance personal self-esteem (Koo, Sung, & Martinez, in press). While the team characteristics and game performance have significant relationships with team identification, team administrators are able to consider the development of quality of performance and skills to sport fans.

### **Service Quality**

Service quality is simply described as consumers' perception derived from the delivered service by a certain organization and refers to how consumers perceive well designed service. (Cronin & Taylor, 1992). In sport management, researchers define service quality as personal and organizational interaction with the sporting circumstances including personnel in the stadium, layout of the stadium, convenience, seating comfort, and information signs (Brady &

Cronin, 2001; Cronin & Taylor, 1992; Greenwell, Fink, & Pastore , 2002; Wakefield & Blodgett, 1996).

In the current study, the service quality of employees in the stadium is significantly associated with behavior intentions such as revisiting the stadium as well as enhancement of team identification (Brady & Cronin, 2001; Cronin & Taylor, 1992; Wakefield & Blodgett, 1996). Generally, consumers readily perceive the service provided from employees in the stadium. On the other hand, the service environment, as conceptualized by Wakefield, Blodgett, and Sloan (1996), includes surrounding conditions, seating space and functions, and well recognized signs. They indicated this environment positively contributed to consumers' overall perception of the service and emotions in the stadium (Brady & Cronin, 2001; Kahle, Aiken, Dalakas, & Duncan, 2003).

Based on these findings, other studies suggest that positive service quality has a positive relationship in creating team identification. For example, a study related to rugby league stadiums concluded that consumers' perceptions of service quality directly influenced intention to revisit the stadium (Hill & Green, 2000). Additionally, this finding supports that service quality has more functions on future intention to revisit the stadium for individuals who have lower levels of team identification than higher levels of team identification (Greenwell et al, 2002). While team identification is directly associated with future behavioral and emotions regarding the team and environment, the studies support the idea that service quality of the stadium environment is directly an influential factor to enhance team identification that comprise the sense of revisit the stadium.

**Social environment (Fan affiliation, community affiliation, media)**

Intercollegiate athletic programs create social environments including traditions, rituals, tailgate party, representative team logo as well as color for a certain college and community (Clopton 2008; Smith, 1988; Wann & Robinson, 2002). While individuals have a tendency to belong in a certain group related to the same goal and purpose, based upon social identity theory, intercollegiate athletic programs promote a sense of belonging to a certain organization. In particular, Abrams and Hogg (1999) found that social association process individuals stereotypic perception. Additionally, other researchers revealed that while team awareness is significantly associated with team identification, the activated social affiliations by media, friends and community enhance team awareness by the number of exposure to the team information (Funk & James, 2001; Park & Dittmore, 2014; Tajfel, 1982).

For example, individuals are easily categorized with others sharing common self-concept, interests, excitement and passions (Melnick, 1993). Moreover, Stotland, Zander, and Natsoulas (1961) found that individuals' common identification are stronger when other individuals share the information related with the common interests. The role of social affiliation also applied to team identification generated by intercollegiate athletic programs. While college sports promote collective representations such as a symbol of the community, it facilitates a strong sense of identity of the symbol (Clopton, 2008). Another socialization processes includes the impact of social media surrounding the local community. While social media, which includes print materials, television, and Internet sensitively affects individuals who have lower level of team identification, the social media additionally provide stimulus to improve their level of team identification as well as accumulate information related to the team (Sutton, McDonald, Milne, & Cimperman, 1997). In particular, Underwood, Bond, and Baer (2001) resulted that a variety

of experiences derived from social media is highly associated with the enhancement of brand association as well as team identification. For example, social media delivers information about what happened in the sport, as well as people look for information, analysis of events, and entertainment (Delpy & Bosetti, 1998; Spreitzer & Snyder, 1983; Sutton, McDonald, Milne, & Cimperman, 1997). Additionally, the research by Zhang and colleagues revealed that “Broadcast media present sport in the form of action and drama, offer play by play descriptions and interpretations, provide immediacy in coverage of on-the-spot action, generate excitement, and provide support for sport personalities” (Zhang, Pease, & Smith, 1998, p.104). With these senses, while social media functions as a vehicle to provide interests, the additional stimulates encourage the enhanced identification.

### **Emotional value (Belief)**

Beliefs are defined as an organizational tradition interrelated with sport team’s characteristics distinguished from other teams. (Chen, 2007; Sundeen 2001). According to Fisher and Wakefield (1998), while the belief derived by team tradition is associated with individuals thought, individuals are easily associated with winning sports teams as well as enhanced team identification. In particular, Branscombe and Wann (1994) specified that a belief in especially college sports is the most important factor developing identification while students live in campus and are stimulated by athletic events. The findings are consistent with the studies on the BIRG (basking in reflected glory) in college sports which suggested that students were likely connected with the team known in various universities and believe a victory based upon the team performance. Additionally, while college sports are heavily associated with the belief of team’s tradition regarding winning, the belief also reflects on individuals’ value including courage, ethical values, self-discipline, and acceptance of authority (Sage, 1979; Snyder & Spreitzer,

1989). For example, Wann and his colleague (2009) specified an examination between fans' perceptions of the belief and team identification. The results revealed that individuals who lowly identified are more sensitive about the perception of curse and decrease level of identification. However, sport fans are likely to protect their association against blaming the curses regarding team performance and history (Wann & Zaichkowsky, 2009).

### Domain Involvement

The involvement is manifested as consumers' determinant action or perception of the life while an object represents the extended achievement regarding personal goals and values (Celsi & Olson, 1988). The aspect of domain involvement is explained as individuals' perception related to a certain sporting objective standardized by desires, values, and interests (Zaichkowsky, 1985).

Product Involvement	Definitions	Products
Situational Involvement	“Temporary perception of product importance based on the consumer's desire to obtain particular extrinsic goals that may derive from the purchase and/or usage of the product” (Bloch & Richins, 1983, p72); an evaluation of objective stimuli, including expenses, performance, social and psychological environment.	<ul style="list-style-type: none"> <li>• Success, performance, tradition, head coach, and player</li> <li>• Fan affiliation, community affiliation, and social media</li> <li>• Stadium, stadium space / access, and employee</li> </ul>
Enduring Involvement	Distinction from specific purchase, and more focused on a product class (Richins & Bloch, 1986.) Created by individual's interests about the certain product class, and associated with consumer's self-concept, values, and ego	<ul style="list-style-type: none"> <li>• Belief</li> <li>• Domain Involvement</li> </ul>

*Figure 2.1. Distinctive involvement*

In social science research, the domain, sport it-self, is relative to group operation as well as personal perception influenced by the group. In particular, Fisher and Wakefield (1998) investigated the differences between unsuccessful and successful groups leading team identification. They resulted that the domain of group and attractive group members mainly functions to enhance domain identification for the unsuccessful group because the domain

involvement is actually associated with individuals' perceived needs and interests. The findings indicated that group members of the association tend to connect the most positive aspect such as their values and interests rather than game performance and winning (Fisher & Wakefield, 1998). For example, the fans would consider their pleasure to watch the sport because they just love going to the game, reading media, enjoying the facility, and connecting their life with a certain sport object. On this basis, domain involvement would significantly assist to develop identification.

Even though previous studies have emphasized the important role of spectators' team identification to maintain positive relationship between spectators and sport organization, few studies have attempted to investigate in spectators' preferences concerning factors that influence team identification. Therefore, the purpose of this study is to investigate significant factors (e.g., core product, service quality, social environment, attitude, and domain involvement) generating team identification in the case of intercollegiate athletic programs by testing the hypothesized research model (Figure 1) and five hypotheses:

H1: Core products will positively influence team identification.

H2: Service quality will positively influence team identification.

H3: Social environment will positively influence team identification.

H4: Belief will positively influence team identification.

H5: Domain involvement will positively influence team identification.



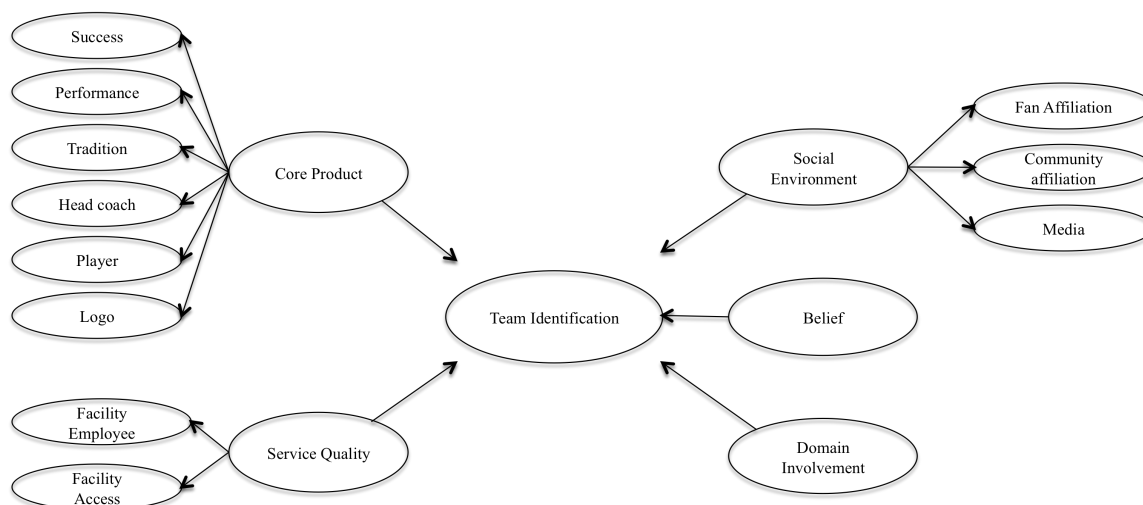


Figure 2.2. The conceptual model of the study

## Method

### Participants

A convenient sample of 242 undergraduate students enrolled in a major public university in the southeastern region of the United States participated in this study. One hundred forty-six (60.3%) male and 96 (39.7%) female containing 72 freshmen (29.8%), 68 sophomores (28.1%), 66 juniors (27.3%), and 36 seniors (14.8%) were participated in total 242. The majority of students (81.0%) were between the ages of 18 and 22 while the mean age of participants was 21.46 years ( $SD = 5.267$ ).

### Data Collection Procedure

The students were initially contacted by email and asked to follow hyperlinked directions for the online survey. In the online survey, the study purpose, potential risks, contact information and the Institutional Review Board (IRB) approval form were given to assist the students' to better understand the study. The on-line survey method is more beneficial to reduce costs, rate of missing data, and increase response rate, and this study was designed for student's self-completion in the questionnaires at any time during given period. Additionally, the author sent a

follow-up email to participate within seven days from the initial contact. The survey was completed from April 28, 2015 to May 12, 2015 for 14 days through the Google Form Survey. Finally, of the 720 students who were initially contacted, 242 students completed the survey designed by on-line questionnaire, which resulted in a 33.6% response rate.

### **Measures**

The instrument for this study included scales for core products, service quality, social environment, belief, domain involvement, and team identification. All scale items utilized a 5-point Likert type scale anchored by strongly disagree (1) and strongly agree (5). The author utilized parsimonious measures reducing certain items in each category while not changing the latent construct. This approach might avoid “a response tendency resulting from the length of a group administered questionnaire instrument” (Herzog & Backman, 1981, p. 549). Details of the major properties (e.g., core products, service quality, social environment, belief, domain involvement, and team identification) were employed in this study.

First, core products contained team success (3 items), team performance (4 items), tradition (3 items), head coach (3 items), and star players (3 items). (Gladden & Funk, 2002; Chen, 2007; Underwood, Bond, & Baer, 2001). Team success contained caring of winning, post-season records, and league champion while team performance involved teamwork, best efforts of each game, excitement, and game entertainments. In addition, tradition included history of winning and a rich history while head coach included existing favorable head coach in the team, and performance of head coach. Lastly, star player contained existing star player in the team, enjoyable to watch star player, and star players who they want to watch. According to Gladden and Funk (2002), the reliability of the items represented as team success, .76, tradition, .75, head coach, and 82, star players, .83. In addition, Chen (2007) reported Cronbach’s alpha value for

team performance, .82. Therefore, the items to measure core products considered having an acceptable level of reliability exceeding the .70 threshold (Nunnally & Bernstein, 1994).

Second, service quality involved the stadium itself (5 items) and stadium employees (4 items). Measuring items for the stadium were adapted from a conceptual framework by Underwood, Bond, and Baer (2001), and included attractiveness, quality, comfortable seats, layouts, concessions of stadium, being friendly, willingness to help, taking action about what you needs, and professional knowledge of employees in the stadium. Chen (2007) reported the reliability, .90 of stadium itself. Yoshida and James (2010) reported the reliability of stadium employee, .91. Therefore, measuring service quality items, including stadium and employee has exceeded the threshold .70 (Nunnally & Bernstein, 1994).

Third, social environment included fan affiliation (4 items), community affiliation (3 items), and media (3 items). The concept of measuring social environment was adapted from Underwood, Bond, and Baer (2001). Fan affiliation involved availability to meet other people, feeling like part of the community, supporting the team, and the importance of being a fan. Community affiliation included representing the city, pride of the team in the city, and a symbol of the city while media represented easiness of following the team through media, reading magazines regarding the team, and learning through social media. According to Chen (2007), social environment measures exhibited reliability including fan affiliation (.86), community affiliation (.86), and media, (.87). Finally, the items measuring social environment considered as an acceptable level of reliability exceeding the .70 threshold (Nunnally & Bernstein, 1994).

Fourth, four items of belief were adapted from Underwood, Bond, and Baer (2001). It contained serious discipline of the team, respect of authority, diligent attitudes, and fair play.

Chen (2007) reported Cronbach's alpha value as .88, which is an acceptable level of reliability greater than the .70 threshold (Nunnally & Bernstein, 1994).

Fifth, domain involvement was measured to understand the level of individuals' involvement with the domain itself in sports. The domain involvement scale was adapted from Zaichkowsky (1985) including the domain that is part of life, following media about the sport, level of love of the sport, and thinking of the sport every day. The domain involvement has a strong reliability, .85 (Fisher & Wakefield, 1998). Therefore, the items related to domain involvement are above minimum value of reliability, .70 threshold (Nunnally & Bernstein, 1994).

Sixth, the Spectator Sport Identification Scale (SSIS) (Wann & Branscombe, 1993) was utilized to determine team identification anchored by seven Likert scale items ranging from (1) strongly disagree to (5) strongly agree (e.g., "I see myself as a fan of..."). A sample of items was slightly modified for the purpose of the study. The SSIS scale by Wann and Branscombe (1993) has an internal consistency of .91 in an acceptable level of exceeding the .70 threshold (Nunnally & Bernstein, 1994).

### **Data Analysis**

The analysis of data was performed using the SPSS 20.0 to conduct exploratory factor analysis, reliability and validity, and multiple-regression. First, this study employed exploratory factor analysis (EFA) to explore specific psychometric properties of constructs generating team identification as well as finding a certain pattern within observed variables (Hair, et al., 1998). Additionally, while Hair et al. (1998) revealed greater .40 in factor loadings is importantly considered, this study adapted greater than .40 of factor loadings for acceptable level (Hair, et al., 1998). Second, this study was also conducted to identify the reliability and validity of the

instruments. For instance, according to Churchill (1979), coefficient alpha and correlation for items should be conducted to measure the large set of the structure. While Cronbach's coefficient alpha is commonly used to measure the items' commonality in a construct, the current study employed the acceptable level of reliability exceeding the .70 threshold (Nunnally & Bernstein, 1994). Finally, multiple-regression analysis were conducted to predict team identification by independent variables including core products, service quality, social affiliation, attitude, and domain involvement.

## **Results**

### **Factor Analysis**

An exploratory factor analysis (EFA) was employed to explore the psychometric properties of constructs generating team identification as well as finding a certain pattern within observed variables (Hair, et al., 1998). Based upon varimax rotation, a total of six factors were considered to build team identification in the setting of intercollegiate athletic programs.

Initially, two items of SQ\_Stadium 1 and SQ\_Stadium 2 were deleted from Team Characteristics while cross factor loading values in two items indicated there is another association with Service Quality items. As the purpose of this study is to identify factors generating team identification, the two items that are associated with other construct were deleted.

The result of EFA indicated that a six-factor model supports to build the level of team identification in college sport setting. As shown in table 1, above .40 of factor loading value was considered (Hair et al., 1998). Additionally, as reported in the results of EFA, 41 items loaded on factors with Eigenvalues greater than 1.0 ranging from 17.114 to 1.453. Total six-factor solution accounted for 69.48% of the total variance of the variables. All of the factors generating team

identification explained reasonably well as the values of communalities ranged from .48 to .87.

In order to explore the number of the verified factors, the data was analyzed by a maximum likelihood method with varimax rotation (Churchill, 1997)

Table 2.1.  
*The Result of Exploratory Factor Analysis*

	Items	Factor Loading	Cronbach's
Team Characteristics	Team_Perform4	.820	.933
	Team_Trad2	.809	
	Team_Perform1	.803	
	Team_Perform3	.789	
	Team_Perform2	.777	
	Team_Trad3	.761	
	Team_Trad1	.761	
	Team_Succ2	.748	
	Team_Succ3	.735	
	Team_Succ1	.458	
Team Personnel	Player2	.771	.928
	Player1	.769	
	Player3	.632	
	Coach2	.627	
	Coach3	.614	
	Coach1	.612	
Service Quality	SQ_Employee1	.806	.912
	SQ_Employee2	.805	
	SQ_Employee3	.793	
	SQ_Employee4	.784	
	SQ_Stadium4	.679	
	SQ_Stadium5	.617	
	SQ_Stadium3	.597	

Table 2.1.  
*The Result of Exploratory Factor Analysis (Cont.)*

	Social_Fan3	.764	.940
	Social_Comm2	.749	
	Social_Media1	.738	
Social	Social_Fan2	.717	
	Social_Media2	.684	
Environments	Social_Fan4	.683	
	Social_Comm1	.678	
	Social_Comm3	.675	
	Social_Fan1	.671	
	Social_Media3	.543	
	Belief1	.841	.839
Belief	Belief3	.840	
	Belief4	.828	
	Belief2	.689	
Domain	Domain3	.882	.891
	Domain1	.816	
Involvement	Domain2	.797	
	Domain4	.793	

The result of EFA indicated that a six-factor model supports to build the level of team identification in college sport setting. As shown in table 1, above .40 of factor loading value was considered (Hair et al., 1998). Additionally, as reported in the results of EFA, 41 items loaded on factors with Eigenvalues greater than 1.0 ranging from 17.114 to 1.453. Total six-factor solution accounted for 69.48% of the total variance of the variables. All of the factors generating team identification explained reasonably well as the values of communalities ranged from .48 to .87. In order to explore the number of the verified factors, the data was analyzed by a maximum likelihood method with varimax rotation (Churchill, 1997)

Items measuring core product was specified into two different dimensions, team characteristics (3 items of team tradition, 4 items of team performance, and 3 items of team

success) and team personnel (3 items of player and 3 items of head coach). In second, 7 items of service quality that proposed to measure two qualities in stadium and employee were merged into one dimension. In third, the proposed factor measuring social environment, including fan affiliation (4), community (3), and social media (3), was merged into one factor. Finally, the proposed factors of belief and domain involvement were remained as one single factor each.

### **Test Hypothesized Relationships**

In order to test the research hypotheses, significant relationships between team identification and the predictable factors were examined through a correlation Matrix. Tolerance and Variance Inflation Factor scores were also measured to test other multicollinearity issues between variables. The value of Pearson's product moment correlation coefficient indicated that team identification had a statistically positive significant relationship with six predictable factors. Results of correlation analysis and stepwise multiple regressions indicated that social environment including fan affiliation, community association, and social media, was highly correlated with team identification (.640), team personnel (.740), and service quality (.684). However, the social environment construct had a lower level of tolerance (.335).

This result shows that much amount of the variable of social environment factor also explain other variables, possibly causing the increases in the standard error as well as the reduction of  $\beta$  scores in terms of decreases in tolerance and increases in Variance Inflation Factor (Pedhazur, 1997). Based upon a number of issues in correlations and tolerances, it was decided to remove the social environment construct from the model in order to accurately examine significant factors developing team identification. Tolerance ranging from .45 to .96 and no exceeded Variance Inflation Factor (VIF) scores greater than 4 revealed that there is inconsequential multicollinearity (Hair et al., 1998). After removing the social environment,



Table 2.2 shows the correlation Matrix examining analysis to examine significant relationships between team identification and the predictable factors.

Table 2.2

*Correlations between predicting factors and team identification*

	Team Identification	Team Characteristics	Team Personnel	Service Quality	Belief	Domain Involvement
Team Identification	1	.513**	.586**	.380**	.371**	.493**
Team Characteristics		1	.519**	.403**	.283**	.314**
Team Personnel			1	.638**	.234**	.376**
Service Quality				1	.125*	.346**
Belief					1	.170**
Domain Involvement						1

Note. \*\*. Correlation is significant at the 0.01 level (2-tailed)

Multiple regression analyses were employed to predict team identification with team characteristics, team personnel, service quality, belief, and domain involvement. Standard regression coefficients and related significant tests were used to assess the relative degree of impact on overall team identification. Figure 2 represents the results predicting overall team identification by six factors. The 51 percent of team identification was explained by five factors generating team identification including team characteristics, team personnel, service quality, team belief, and domain involvement. Additionally, the result of the regression indicated that the overall model was statistically significant  $F(5, 233) = 49.074, p < .01$ .

In Table 3, the results of the multiple regression reveals that the influence of predictive factors on team identification. First, team characteristics positively assist to develop sport fans' identification toward a certain team ( $t = 4.171, p < .01$ ), this relationship indicated that when

team characteristics increases by 1 standard deviation, .274 standard deviation of team identification is increased.

Table 2.3  
*Multiple Regression Analyses of the Predictive Factors on Team Identification*

Dependent	Independent	$\beta$	$T$	Sig.
Team Identification	Team Characteristics	.274	4.171	.001**
	Team Personnel	.414	5.492	.001**
	Service Quality	-.077	-.981	.328
	Belief	.450	3.805	.001**
	Domain Involvement	.258	5.447	.001**

Note. \* $P < .01$ , a. Dependent Variable: Team Identification,  $R^2 = .513$ .

Second, team personnel improves team identification ( $t = 5.492, p < .01$ ), indicating when 1 standard increases in personnel in the team, .414 standard deviation of team identification is increased. Third, service quality did not significantly improve team identification ( $t = -.981, p = .328$ ). Fourth, belief toward a certain team also enhances team identification ( $t = 3.805, p < .01$ ). It indicates that .450 standard deviation of team identification is increased by improving 1 standard deviation of belief toward a team. Lastly, domain involvement significantly improves team identification ( $t = 5.447, p < .01$ ), resulting when 1 standard increases in domain involvement, .258 standard deviation of team identification increases.

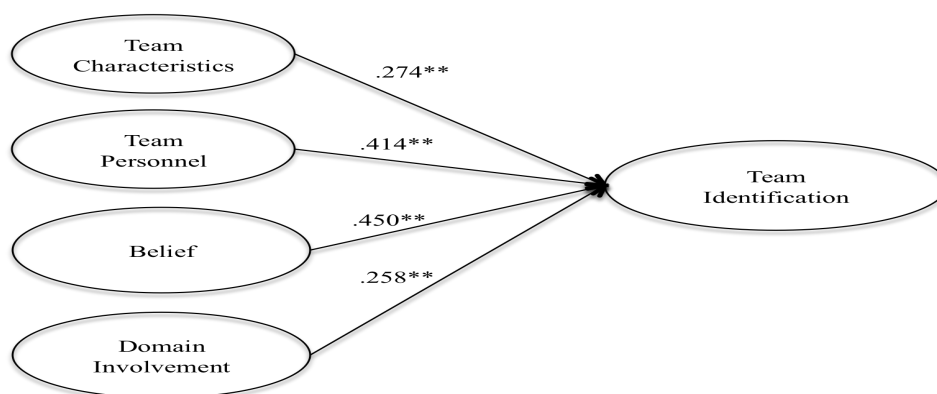


Figure 2.3 The results of multiple regression analyses

Note: \*\*  $p < .01$

## Discussion

Many sporting organizations strive to have positive relationships with sport fans as it is directly associated with game attendance, image of the program, and financial supports. In particular, one of the biggest fans in intercollegiate athletic programs is a student. Additionally, most of intercollegiate athletic departments have actively tried to engage with students' body as well as to find significant environment to develop their level of identification toward the program. In this study, we defined the predictive factors influencing team identification at NCAA Division I football team. Overall, five predictive factors explain 51% of variance in team identification.

The purpose of the study was to identify factors that influence team identification based upon the overall existing literature. In order for further examination of influences, this study sought to define factors for the research. While team identification has been defined as individuals' attachment toward a certain sport team, it is important to define what aspects of a certain environment improve individuals' level of team identification. As it become dominant, only a few studies have developed the factors generating team identification and been based upon the context. A number of environments might change or flip to be identified toward a sport team. For these reasons, factors that generate team identification in a certain setting should be defined and understood for sport marketers or administrators to further development of the positive relationships with sporting organization and sport fans.

First, based upon the results of the EFA and the multiple regressions, the loading of items on core product (H1) revealed that the five sub-dimensions of core product that initially conceptualized were divided into two distinct constructs. One of the constructs is shown that team performance, team history, and tradition were merged in one single factor, while another

construct represents that team personnel was also merged into another single dimension. It is a logical finding. While team characteristics are more considered as tangible and intangible environments such as team history, team strategy, skills, and efforts in actual games (James & Ross, 2004), team personnel is mostly associated with organizational commitment to excellence regarding the investment to players and coaches (Sutton, McDonald, Milne, & Cimperman, 1997). In particular, Sutton, McDonald, Milne, and Cimperman (1997) resulted that the organizational investment in players and coaches are dominant in enhancing team identification as well as organizational image. Additionally, Gladden and Funk (2002) supported that the traded and re-designed star players and head coaches assist negative perception of the fans and negatively cause team trust for the following team. It indicates that separately players and head coaches as organizational commitment to excellence affect building team identification. Additionally, this finding of team characteristics impact on team identification is consistent with James and Ross (2004)'s study. They revealed that team characteristics include tangible and intangible environments such as team history, team strategy, skills, and efforts. Yoshida and James (2010) also supported this finding that team characteristics are mostly generated by the represented entertainment value as hedonic experiences of the games. Finally, based upon the results, this finding suggests sport marketers consider the impact of the distinctive constructs between team characteristics and personnel on building team identification.

Second, the issue for the results of EFA revealed that service quality which contains two sub-factors including stadium itself and employees were merged into one single factor measuring service quality (H2). It would be logical to be merged into one factor while consumers' perception of service quality refers to total service environment surrounding stadium (Oliver, 1993). Especially, Cronin and Taylor (1992) stated that consumers evaluate overall services

surrounding the physical environment. While sport fans spend long time in the stadium to watch the games, it is critical to evaluate overall perception of service quality from stadium environments including interaction with personnel, comfortable seat available, stadium layout, and accessibility of the stadium (Sloan, 1996; Wakefield & Blodgett, 1996). In particular, while sport marketers provide managerial delivery of services to spectators in the stadium environment including physical environment and services by employees at a certain time, it is reasonable that sport spectators evaluate their service from overall experiences at the stadium (e.g. Bitner, 1990, 1992; Koo, et al., 2008; Wakefield, Blodgett, & Sloan, 1996).

Additionally, another interesting finding of this study was that research hypothesis (H2), that service quality would improve levels of team identification, was not supported. This result is consistent with some previous research. Hill and Green's study (2000) found that quality of service has little impact for enhancing team identification and future behavioral intention. In addition, Greenwell et al. (2002) also observed that the facility and other environment in the stadium did not function to improve the level of team identification. Similarly, Gencer (2010)'s study was also consistent with this finding with a negative relationship between service quality and team identification, suggesting sport spectators in the stadium might like to be more involved with the actual product as a game rather than evaluating the services.

Additionally, a significant number of studies revealed that a combination of the services and satisfaction of the experiences, which next leads behavioral intention, is still in process to increase identification, (Brady & Cronin, 2001; Koo et al., 2008; Parasuraman, Zeithaml, & Berry, 1985, 1988; Trail, Anderson, & Fink, 2005). For example, Trail, Anderson, and Fink (2005) revealed that there are four steps to be loyal, including cognitive stage (e.g., product awareness), affective stage (e.g., evaluations and perception of service and satisfaction),

behavioral intention stage (e.g., future purchase), and action stage (e.g., a routinized response or habit). As the study of Trail et al., (2005), because individuals' evaluation of the services is still in a beginning step to be identified to a sport team, the service might not directly enhance the level of team identification but could enhance the behavioral intention that is the next step to move to the highest stage to be loyal. Even though this study resulted that service quality in the stadium did not significantly enhance spectators' identification, it is still necessary to consider one of step for sport fans to be identified to the product as well as attracting sport consumers to the stadium to watch games.

Another point of the relationship in service quality is that this study aimed to measure the perception of service quality rather than importance of service quality. While the perceived service quality is defined as "the result of a consumer's view of a bundle of service dimensions" (Gronroos, 1984, p. 39.), it is directly associated with overall satisfaction of the game event in the stadium (Homburg, Koschate, & Hoyer, 2006; Koo, Andrew, Hardin, & Greenwell, 2009; Koo, & Hardin, 2008). Additionally, a number of studies revealed that the overall satisfaction of the perceived service quality directly improves the intention to participate the game event as well as the identification (Babin, Lee, Kim, & Griffin, 2005; Huan, Yen, Liu, & Chang, 2014). Therefore, it is possible that overall satisfaction would have a function as a mediator between the perceived service quality and the development of team identification, but it does not discourage them from consuming the core product.

Third, social environment (H3) has been removed from the model because social environment construct including fan affiliation, community association, and social media have high relationships with other variables. One of the reasons is that measurements of the social environments have largely overlapped with the construct of team identification. This

phenomenon from the result could increase the standard error and reduce  $\beta$  scores, which could lead reduction of tolerance and increase in variance inflation factor (Pedhazur, 1997). For example, while fan affiliation measures as “*Being a part of the group of the \_\_\_\_ teams’ fans is important*”, team identification measures, as “*Being a fan of \_\_\_\_ team is very important to me*”. In addition, a item “*It is easy for me to follow the \_\_\_\_ team through social media*” in social media and a item “*I closely follow \_\_\_\_ team via in person, media, and internet*” in team identification accessed the similar construct. Even though the variable of social environment were removed, it is still important that intercollegiate athletic programs have a special function to associate with sport fans as well as the community by providing long history, tradition, and the representative logo of an university (Clopton 2008; Smith, 1988; Sung, Koo, Kim, & Dittmore, 2015; Wann & Robinson, 2002). For example, sport fans are easily categorized with other sport fans by sharing information, interests, and self-concept (Melnick, 1993) while the association with others with common identification assist to create strong identification (Stotland, Zander & Natsoulas, 1961). Additionally, in the socialization process, social medium including print materials, television, and Internet Web site positively stimulus to improve the identification (Sutton, McDonald, Milne, & Cimperman, 1997). One in four people closely utilize social media and the number of the users, and Brenner and Smith (2013) reported that more than 75 percent of adult use social media. It indicated that people firstly look for information and analysis of the event as well as share video or news with others through Internet, while the usage of the Internet has dramatically grown (GlobalWebIndex, 2013).

While the number of users has increased, many researchers suggest the important role of social media in social environments. Individuals’ receive information through the number of exposures to team information by social networks and traditional media. This is significantly

associated with the enhancement of team interests and awareness, which directly leads to incline the degree of team identification (Funk & James, 2001; Park & Dittmore, 2014; Tajfel, 1981). In particular, Funk and James (2001) resulted that the enhancement of team awareness is initial step to increase the degree of their identification while social media has a function to deliver information regarding team's game results, performance, names and logo to social media users. In consistent with the study, Smith, Smith, and Sanderson (2012) resulted that Twitter usage is highly affiliated with developing spectators' identification. For example, they aim to analyze hashtag usages in Twitter account for the case of College World Series Final, and resulted that hashtag assists to appear names of certain sporting organizations to other account users and lead to levels of awareness about the team. In addition, they also revealed "hashtags can be seen as a way for fans to identify with teams" (p. 551). Although this dissertation could not examine the role of the social environment in team identification due to much overlapped constructs with team identification and other predictable variables, it is still necessary for sport organizations to positively connect with fans and community to share more about the team through both traditional and Internet media to increase the awareness and interests to other people.

Other aspects enhancing team identification are belief (H4) and domain involvement (H5). First, this study showed that the preference of a certain object of sports is highly associated with the development of the following team. It is consistent result with Fisher and Wakefield (1998)'s study. They revealed that a certain domain involvement is highly associated with individuals' perceived needs and interests. Additionally, the association with the sport has a tendency to simply link with all positive aspects in terms of their value and interests rather than team success (Fisher & Wakefield, 1998). It indicates that fans who love to watch, go, read, and enjoy the sport are not only positively connected with a certain sport object, but also easily



identified with a certain team. Secondly, while the beliefs are defined as an organizational tradition interrelated with the team's characteristics and tradition, individuals are easily associated with highly ranked or successful team. Moreover, the development of belief is especially important issue for college sport organization. While students spend more time in the campus and stimulated by athletic programs surrounding in the college, students are easily connected with the team and believe a victory with the successful team. This phenomenon has been explained by many studies about BIRGing and CORFing. Individuals who have strong belief about the team would like to maintain and be close with the team. However, if individuals do not believe the teams' value including courage, ethical values, self-discipline, and acceptance of authority, the individuals have a distance with the team and are failed to identify with the team (Wann & Brandscombe, 1990; Brewer, 1979; Murrell & Dietz, 1992; Oakes & Turner, 1980; Sage, 1979; Snyder & Spreitzer, 1989; Turner, 1975; Wann, 1996; Wann & Branscombe, 1990).

### **Implication**

The findings provide evidential support that team characteristics, team personnel, service quality, social environment, belief, and domain involvement may assist to build team identification. The main purpose of the study was to identify the factors that generate team identification. In this regard, the current study provides practical implications to sport marketers and administrators considering positive relationship between the organization and sport fans. Firstly, while the online population has been grown by 1.2 billion people and connected social media every day, it is important to note that effective promotion through social media could enhance the degree of identification toward the team. According to Watkin (2014), the effectively utilizing social media positively improve individuals' interests as well as intention to visit the stadium to watch actual games. Based upon the results, one of implication is to promote

star players to personally interact with fans. For example, sport marketers could facilitate a special Twitter, Facebook, and Instagram accounts to directly affiliate with other fans. Secondly, this study also resulted that team characteristics, service quality of the stadium, and belief toward the team had a direct influence to develop the identification. It suggests that providing promotional video regarding historical performances, traditional promotions, and historical winning moment, as well as advertising well-structured stadium, could additionally improve sport fans interests as well as team identification. Finally, this study also suggests that personal meeting promotions with players and head coaches in the stadium. In particular, Koo, Ruibley, and Dittmore (2012) suggested that emotional connection with players is positively associated with sport fans' game attendance as well as attachment. While sport fans have a lack of experiences to associate with players and coaches, the meeting parties before or after game could create strong attachment toward the sport team. Finally, this finding could suggest to sport marketers to re-consider the construct of stadium. While this study resulted that service quality was negatively associated with the development of team identification, tradition and history were the most significant factor to enhance the identification. For example, the newly constructed Yankee stadium was designed to maintain the team's memories with number of photos representing team's historical winning moment and players. Additionally, Georgia Tech Yellow Jackets have advertised the team with traditional stadium as Historic Giant Field. Originally constructed in 1913, Grand Field is the oldest on-campus college football stadium in the southern United States. The stadium has been expanded as well as maintained original facility and displaying early photos of buildings since 1923. In this sense, although the newly constructed stadium as comfortable seat is important for watching games in the stadium, the

historically designed stadium would be more beneficial to attract more fans as well as increase the level of team identification toward the team.

### **Limitation and Future Studies**

This current study provides dominant insights in terms of which factors significantly generate team identification around intercollegiate athletic programs. The results of the study contain limitations to address for future research. First, this study has employed a convenient sampling method with Division I undergraduate students in a certain major public university in southeastern region of the United States. While the circumstances around intercollegiate athletic programs are varied by size of the program or Divisions, future study would interpret a large number set of schools in order to generalize the population, or environment differences in Divisions.

Second, although the current investigation is limited to analyzing the social environment as a factor developing team identification due to the construct much overlapped with other variables and similar concept measuring team identification, it may be useful for further examinations of the value of social environment on the development of team identification. While intercollegiate athletic programs have a significant function to integrate student fans in a college setting and society in a certain community, a number of studies have also indicated that the exposures through social media assist to improve team awareness and interests (Funk & James, 2001; Park & Dittmore, 2014; Smith, Smith, & Sanderson, 2012). Therefore, future study should address the important role of social environment to better understand how the degree of attachment toward the intercollegiate athletic program is reinforced by social environment.

Third, the finding of the study revealed that service quality is negatively associated with building team identification around intercollegiate athletic programs. Although this finding is

inconsistent with previous studies that positive perception of service quality including stadium quality and interaction with employees improve the degree of team identification (Brady & Cronin, 2001; Cronin & Taylor, 1992; Wakefield & Blodgett, 1996), this study support the idea that service experiences of the sport facility has a less influence on the development of team identification (Gencer, 2010; Greenwell, Fink, & Pastor, 2002). However, providing better quality of service is still important for service organization to increase fan attendance. In particular, previous studies suggested that a consumers' perception of service quality is directly related to fans' satisfaction (Parasuraman et al, 1985, 1988; Cronin & Taylor, 1992; Lentell, 2000), while satisfaction from the perceived service quality is also directly linked to spectators' future behavioral intention (Homburg, Koschate, & Hoyer, 2006). Therefore, future study need to clarity more accurate relationship between service quality and team identification.

## CHAPTER FOUR

This chapter discusses how the two studies importantly contribute in the field of sport management as well as of higher education. This study, in particular, could be implied to the development students' college adjustment in complex nature of college life by tangible and intangible benefits of intercollegiate athletic program. Finally, the two studies fill the gap between non-academic environment generated by college sport team in college life and major goal of higher education.

## CONCLUSIONS

The purpose of higher education is to aim for contributions for creating larger society by developing student bodies (DeVitis, 2013). Generally, higher educational institutions exist in order to facilitate and deliver knowledge, advance awareness and communicative disciplines for students by logical thinking, develop sophisticated ideals, and solve challenges in the current status quo (Bok, 2013; Delbanco, 2012; Hacker & Driefus, 2011). However, many colleges and universities face challenges in supporting student degree completion. For example, students often fail to complete a degree due to the problems of social interaction and academic difficulties in college setting, posing a major challenge for higher education facilities in maintaining their students (National Center for Education Statistics, 2011). The phenomenon has been an issue because a successfully completed degree directly influences students' future employment, a level of salary, and labor skill, which is a major purpose of higher education (Murnane & Levy, 1996).

For several decades, a number studies have been conducted for concerning students' adjustment to college, focusing on gender differences, age, social class and national differences, language, cultural distance, as well as social experiences (Amir, 1969; Babiker, Cox, & Miller, 1980; Basu & Ames, 1970; Chataway & Berry, 1989; Deutsch, 1970; Di Marco, 1974; Hull,

1978; Klineberg & Hull, 1979; Lysgaard, 1955; Sewell & Davidsen, 1961; Ward & Searle, 1991). While initial studies regarding college adjustment and persistence had been focused on students' personality (Basu & Ames, 1970; Halamandaris & Power, 1999), scholars also secondly explored the significant "group of convenience" that home- and native-students have closely utilize, and non-home and foreign students have hardly utilized (Bean & Metzner, 1985; Fisher, Murray & Fraser, 1985; Fisher & Hood 1987; Chataway & Berry, 1989; Lu, 1995).

First, one of the primary research designs in this dissertation was to examine how intercollegiate athletic programs in the college environment has benefits students' college social, emotional, and academic adjustment. Although research in students' persistence and supportable programs in higher education has been prominently discussed, there has been little attention to the influence of positive aspects of intercollegiate athletic programs on students' college life. In particular, current research into the constructs of educational persistence models for college students in higher education included academic aspects (academic related skills, motivation for performance, academic objectives, and contextual influences) and non-academic environments (institutional commitment, perceived social support, social involvement, self-efficiency, and global self-concept) (Robbins, Lauver, Davis, Langley, & Carlstrom, 2004). Additionally, while data reported by National Center for Education Statistics (2011) revealed the main challenges for student adjustment are a lack of social relationship and academic setting, particularly, previous research has shown an important role of non-academic environments as social relationships to decrease the rate of dropout from college and improve academic performance in higher education (Murray-Harvey & Slee, 2007; Sung, Koo, Kim, & Dittmore, 2015). Accordingly, this study was able to identify enhancement to students' overall college adjustment by intercollegiate athletic programs as part of the non-academic environment.

The findings in the first study revealed that the students' identification toward intercollegiate athletic programs had a direct influence on improving students' academic adjustment, as well as indirect influences through a mediating role of other non-academic aspects including personal self-esteem and social adjustment. The intangible benefits of intercollegiate athletic programs can assist college administrators and counselors working in higher education to better support students to live well and to persist in the institution. Particularly, this finding gives emphasis to utilizing college sport environments for students who have struggled to adjust in complex nature of higher education.

Second, another research design in this dissertation was to identify factors that generate students' identification toward intercollegiate athletic programs in the college environment recognizing the first finding revealed that identification positively influenced enhancement in students' college adjustment in higher education. Generally, intercollegiate athletic programs generate more than five million dollars from students each year (US Census Bureau, 2003). While college sport programs are powerful businesses in a universities and directly influence students adjustment in college life, it is important to note that positive relationships between the athletic department and students fans. In particular, many scholars examined that the increase in team awareness and consumers' identification toward the team are the most significant role in maintaining long-term relationships with fans (Gladden & Funk, 2002; Goodstein & Butz, 1998; Howard & Crompton, 2004; Jacoby & Kyner, 1973; Milne & McDonald, 1999).

In order to identify the factors surrounding the intercollegiate athletic programs, the study first defined the predictive factors based upon intensive literature reviews. From the Exploratory Factor Analysis, team characteristics, team personnel, service quality, social environment, belief, and domain involvement were extracted. In addition, the six factors significantly influenced the

degree of students' team identification toward a certain college sport team. The findings from the second study revealed that team characteristics including team history, tradition, and team performance in the game had a significant influence to enhance students' team identification in the college setting while organizational investment toward team personnel also increased the level of team identification. Additionally, team exposure through social media, and fan and community affiliations are positively associated with the enhancement of team identification, while the overall service quality from stadium environments including the perception of employees and the stadium itself had less of an effect on improving the level of identification. Lastly, this study observed that the preference of a certain domain involvement of sports assist for students to easily connect with a certain sport team, while the belief toward the team's victories and successes are directly affiliated with enhancing the level of attachment toward the team.

Based upon the suggestion from the previous research, universities have commonly invested in developing out-of-class circumstances to retain students in the institution. For example, administrators encourage first-year students to become involved in various social clubs, residential social events, campus orientations, and community services, because the activities assist students in understanding campus life, tradition, and history of college, as well as to keep social interaction with other students in higher education (Astin, 1984; Barefoot, 2004).

In conclusion, the first study examined how team identification directly and indirectly improves students' adjustment in higher education, while the second study explored predictive factors that generate team identification in the college setting. A greater understanding of intercollegiate athletic programs in higher education could lead college administrators to better advice students who have struggled in college life. Additionally, sport marketers could



efficiently utilize the factors surrounding the program to efficiently improve positive relationships between athletic departments and student fans. Finally, the current studies would provide conceptual evidence that each factor improving the identification toward intercollegiate athletic programs directly and indirectly help major goals of higher education, which assist students' social, emotional, and academic adjustment in higher education.

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**APPENDIX A**

**SURVEY QUESTIONNAIRE FOR STUDY 1**

## Informed Consent Document

**Subject: You are invited to a research survey (Understanding team identification of intercollegiate athletics on School adjustment in higher education)**

Please participate in this study by responding to the following questions. The purpose of this study is to examine the relationship between attachment style in intercollegiate athletic program and school adjustments. The information you provide will help Arkansas to provide correlations between impact of sport and school adjustment. The survey will take approximately 15 minutes to complete.

Your participation is entirely voluntary. You acknowledge that you read the description, including the purpose of the study, the procedures to be used, the potential risks, the anonymity of all responses, as well as the option to withdraw from the study at any time. Your responses will be kept confidential and reported only in-group form. Your completion of the questionnaire will constitute your informed consent to participate.

E-mail the survey administrator at XXXX@XXXX.XXX. Or if you have questions about survey and human subjects, you can contact [irb@uark.edu](mailto:irb@uark.edu).

Edit this form

## Team Identification and College Adjustment: Intangible benefit of intercollegiate athletic program on students' adjustment in higher education

\* Required

\*

1. Strongly Disagree, 5, Strongly Agree

	1 Strongly Disagree	2	3	4	5 Strongly Agree
I feel that I am a person of worth, at least on an equal basis with others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that I have a number of good qualities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to do things as well as most other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take a positive attitude toward myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On the whole, I am satisfied with myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*

1. Strongly Disagree, 5, Strongly Agree

	1 Strongly Disagree	2	3	4	5 Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1 Strongly Disagree	2	3	4	5 Strongly Agree
Razorback athletics wins are very important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends see me as a fan of Razorback athletics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I closely follow Razorback athletics via in person, media, and internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being a fan of Razorback athletics is very important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I dislike Razorback athletics greatest rivals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually display Razorback athletics name or insignia at my place of work, where I live, or on my clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to attend the home games of Razorback athletics this season	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*  
1. Strongly Disagree, 5, Strongly Agree

	1 Strongly Disagree	2	3	4	5 Strongly Agree
I have well-defined academic goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A college degree is important for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1 Strongly Disagree	2	3	4	5 Strongly Agree
I currently enjoy my academic work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*

1. Strongly Disagree, 5, Strongly Agree

	1 Strongly Disagree	2	3	4	5 Strongly Agree
I have difficulties on academic work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with academic performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not use study time efficiently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have trouble concentrating when studying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not put my effort into my academic work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have trouble getting started on homework.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*

1. Strongly Disagree, 5, Strongly Agree

	1 Strongly Disagree	2	3	4	5 Strongly Agree
I am satisfied with variety of courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with quality of courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with program of courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with academic situation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*

1. Strongly Disagree, 5, Strongly Agree

	1 Strongly Disagree	2	3	4	5 Strongly Agree
I am very involved with social activities in the University of Arkansas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have several close social ties.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have adequate social skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with social participation in the University of Arkansas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with social life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*

1. Strongly Disagree, 5, Strongly Agree

	1 Strongly Disagree	2	3	4	5 Strongly Agree
I enjoy meeting people and making friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get along well with roommates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have good friends to talk about problems with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*

1. Strongly Disagree, 5, Strongly Agree

	1 Strongly Disagree	2	3	4	5 Strongly Agree
I am not lonesome for home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1 Strongly Disagree	2	3	4	5 Strongly Agree
I don't feel lonely a lot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would rather not be home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*  
1. Strongly Disagree, 5, Strongly Agree

	1 Strongly Disagree	2	3	4	5 Strongly Agree
I feel tense or nervous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel blue and moody.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that being independent is not easy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that gets muddled too easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worry a lot about college expenses.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have trouble coping with college stress.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Gender \***

- Male
- Female

**Race \***

- White
- African-American
- Asian
- Hispanic
- Others

**Year in School \***

- Freshmen




Sophomore  
 Junior  
 Senior

**AGE**

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**APPENDIX B**

**APPROVAL MEMORANDUM OF HUMAN SUBJECTS COMMITTEE FOR STUDY 1**



Office of Research Compliance  
Institutional Review Board

April 14, 2015

MEMORANDUM

TO: Junmo Sung  
Gi-Yong Koo  
Sunyoong Kim  
Stephen Dittmore

FROM: Ro Windwalker  
IRB Coordinator

RE: PROJECT MODIFICATION

IRB Protocol #: 14-09-094

Protocol Title: *Understanding Team Identification of Intercollegiate Athletics on Social, Emotional, and Academic Adjustments in Higher Education*

Review Type:  EXEMPT  EXPEDITED  FULL IRB

Approved Project Period: Start Date: 04/13/2015 Expiration Date: 09/15/2015

Your request to modify the referenced protocol has been approved by the IRB. **This protocol is currently approved for 400 total participants.** If you wish to make any further modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior* to implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

Please note that this approval does not extend the Approved Project Period. Should you wish to extend your project beyond the current expiration date, you must submit a request for continuation using the UAF IRB form "Continuing Review for IRB Approved Projects." The request should be sent to the IRB Coordinator, 109 MLKG Building.

For protocols requiring FULL IRB review, please submit your request at least one month prior to the current expiration date. (High-risk protocols may require even more time for approval.) For protocols requiring an EXPEDITED or EXEMPT review, submit your request at least two weeks prior to the current expiration date. Failure to obtain approval for a continuation *on or prior* to the currently approved expiration date will result in termination of the protocol and you will be required to submit a new protocol to the IRB before continuing the project. Data collected past the protocol expiration date may need to be eliminated from the dataset should you wish to publish. Only data collected under a currently approved protocol can be certified by the IRB for any purpose.

If you have questions or need any assistance from the IRB, please contact me at 109 MLKG Building, 5-2208, or [irb@uark.edu](mailto:irb@uark.edu).

**APPENDIX C**

**SURVEY QUESTIONNAIRE FOR STUDY 2**

## Informed Consent Document

**Research title: You are invited to a research survey (*Factors generating team identification and its benefits on college students' adjustment.*)**

This is an academic research project. You are invited to participate in this consumer research as a University of Arkansas student ages 18 or older. Please participate in this study by responding to the following questions. The purpose of this study is to identify certain factors affecting on consumer loyalty in intercollegiate sports. The information you provide will help Arkansas to provide correlations between impact of sport and school adjustment. The survey will take approximately 15 minutes to complete.

Your participation in this study is completely voluntary. You acknowledge that you read the description, including the purpose of the study, the procedures to be used, the potential risks, the anonymity of all responses, as well as the option to withdraw from the study at any time. Your responses will be kept confidential and reported only in-group form.

If you have questions or concerns about this study, you may contact the survey administrator at [XXXX@XXXX.XXX](mailto:XXXX@XXXX.XXX) or [XXXX@XXXX.XXX](mailto:XXXX@XXXX.XXX) (Advisor). For questions and concerns about your rights as a research participant, please contact Ro Windwalker, the University's IRB Coordinator, at (479) 575-2208 or by e-mail at [irb@uark.edu](mailto:irb@uark.edu).

Your completion of the questionnaire will constitute your informed consent to participate. We appreciate your willingness to participate in this survey.

[Edit this form](#)

## Factors generating team identification in intercollegiate athletic program

**\* Required**

**Are you at least 18 years of age? \***

Yes  
 No

**Are you a current undergraduate student at the University of Arkansas? \***

Yes  
 No

**Are you a Razorback student-athlete? \***

Yes  
 No

**The Razorbacks are my favorite college football team. \***

Yes  
 No

**\***

	1. Strongly Disagree	2	3	4	5. Strongly Agree
Razorback football team wins are very important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends see me as a fan of Razorback football.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I closely follow Razorback football via in person, media,	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1. Strongly Disagree	2	3	4	5. Strongly Agree
and internet.					
Being a fan of Razorback football is very important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I dislike Razorback football greatest rivals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually display Razorback athletics name or insignia at my place of work, where I live, or on my clothing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to attend Razorback football home games next season.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*					
	1. Strongly Disagree	2	3	4	5. Strongly Agree
I don't care whether the Razorback football team win or lose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is very important that the Razorback football team reach the post-season.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important that the Razorback football team compete for league championships.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1. Strongly Disagree	2	3	4	5. Strongly Agree
The Razorbacks football team demonstrates great teamwork.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Members of the the Razorback football team always give their best effort in games.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Razorbacks football style of play is exciting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Razorback football games are entertaining because of the style of play.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Razorback football team have a history of winning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Razorback football team has a rich history.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Razorback football team has no history	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the manager/head coach of Razorback football team.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Manager/head coach of the Razorback is well known throughout the sport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The manager/head coach of Razorback football team does a good job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	1. Strongly Disagree	2	3	4	5. Strongly Agree
The Razorback football team does not have any star player that I like to watch.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to watch the Razorback's football star player.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Razorback football team has star players that I like to watch.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the colors of the Razorback.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the logo of the Razorback.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Razorback's football uniforms are attractive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*					
	1. Strongly Disagree	2	3	4	5. Strongly Agree
The Razorback has an attractive football stadium.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The football stadium has high quality scoreboards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The football stadium provides comfortable seats.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, the football stadium's layout makes it easy to get where you want to go.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The football stadium offers a wide variety of food choices.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1. Strongly Disagree	2	3	4	5. Strongly Agree
You can rely on the employees at the football stadium being friendly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The attitude of the employees at the football stadium demonstrates their willingness to help attendance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You can rely on the football stadium employees taking actions to address your needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The football stadium employees understand that you rely on their professional knowledge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*					
	1. Strongly Disagree	2	3	4	5. Strongly Agree
Being a fan of the Razorback football team has given me a chance to meet other people with similar interests as myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am part of the "community" of the Razorback football team's fans.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1. Strongly Disagree	2	3	4	5. Strongly Agree
The fans are united to support the Razorback football team.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being part of the group of the Razorback football team's fans is important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Razorback football team represents the city in which I live.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am proud that my city has the Razorback football team.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Razorback football team is a symbol of the city.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is easy for me to follow the Razorback football team through social media.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Magazines report on activities for team fans of the Razorback football..	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I learn about the Razorback football team through social media.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*					
	1. Strongly Disagree	2	3	4	5. Strongly Agree
The Razorback football team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1. Strongly Disagree	2	3	4	5. Strongly Agree
takes discipline very seriously.					
The Razorback football team emphasizes respect for authority.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Razorback football team shows diligent attitudes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Razorback football team plays fairly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*					
	1. Strongly Disagree	2	3	4	5. Strongly Agree
Football is an essential part of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I love all levels of Football (pro, college, amateur).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I watch or read media about Football whenever I can.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know a lot about the rules of Football.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think about Football all the time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Sex *</b>					
<input type="checkbox"/> Male					
<input type="checkbox"/> Female					
<b>Year in School *</b>					
<input type="checkbox"/> Freshman					

Sophomore  
 Junior  
 Senior


**Race \***

White  
 Black / African-American  
 American Indian  
 Hispanic  
 Asian  
 Others

**Age \***

  
  
  
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**APPENDIX D**

**APPROVAL MEMORANDUM OF HUMAN SUBJECTS COMMITTEE FOR STUDY 2**



Office of Research Compliance  
Institutional Review Board

April 28, 2015

MEMORANDUM

TO: Junmo Sung  
Stephen Dittmore

FROM: Ro Windwalker  
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 15-04-690

Protocol Title: *Factors Generating Team Identification and its Benefits on College Students' Adjustment*

Review Type:  EXEMPT  EXPEDITED  FULL IRB

Approved Project Period: Start Date: 04/28/2015 Expiration Date: 04/27/2016

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<https://vpred.uark.edu/units/rscp/index.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

**This protocol has been approved for 400 participants.** If you wish to make any modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 109 MLKG Building, 5-2208, or [irb@uark.edu](mailto:irb@uark.edu).