SCITECH
RESEARCH ORGANISATION

Volume 9, Issue 3
October 5, 2017

Journal of Research in Business, Economics and Management
www.scitecresearch.com

Role of Intercollegiate Athletics' Identification in Student Adjustment to College Life

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Abstract

The study focused on the impact of intercollegiate athletic programs on students' college adjustment. The purpose of this study was to extend existing theory on whether intercollegiate athletic programs significantly assist college students' academic adjustment with roles of social and psychological aspects in college life. Using a sample of 320 undergraduate students, students who have higher identification with college sport teams were found to positively evaluate themselves through active interaction with other college fans, and enhance their level of academic adjustment in higher education. Additionally, team identification had a direct function to enhance academic adjustment while personal self-esteem and social adjustment played significant mediating roles between team identification and academic adjustment. Finally, this study suggests college counselors utilize college sport events for students who have faced major adjustment challenges, such as such as a lack of social relationships and academic difficulties in college life in higher education.

Keywords: Intercollegiate Athletics; College Administration; Team Identification; Higher Education; Student Adjustments; College Administration.

1. Introduction

According to a study from the National Center for Education Statistics (2013) only 42 % of students finished a university degree within six years, while about 7 % of college students dropped out of college entirely. More than 13 % of students completed their college degree at a different institution and 30 % of college students decided not to enroll in college (Jordan, 2014). With the ongoing difficulties of student retention in higher education, research suggests the amicable social environment (Barefoot, 2004; Pascarella & Terenzini, 1991) and the strong sense of belonging toward a certain college or its athletics are significant drivers influencing student campus life (Koo, Sung, & Martinez, 2015; Sung, Koo, Kim, & Dittmore, 2015). In addition, active social experiences derived from positive interaction with other students directly and indirectly promote academic motivations and performance (Gerdes & Mallinckrodt, 1994; Walton & Cohen, 2011).

Koo et al. (2015) indicated that intercollegiate athletics are able not only to integrate students into a social group, but also to enrich their psychological health. Thus, the more students identify with intercollegiate athletics, the higher self-worth they feel, resulting in positive social and emotional adjustment to college. Although a number of studies have revealed that intercollegiate athletics play a significant role in improving social and emotional bond among in-group members, there still exists a scarcity of research on the relationship between intercollegiate athletics and academic adjustment in higher education. It has been argued that "academic adjustment should be conceptualized in this line of research to better understand how the intricate nature of college life is attenuated by intercollegiate athletics" (Koo et al., 2015, p. 261).

Since numerous social scientists have viewed a lack of social relationships with friends as one of the common challenges in higher education influencing college dropout (Rumberger, 2001; Rumberger & Lim, 2008), scrutinizing the effect of non-academic environment (i.e., intercollegiate athletics) on academic environment (i.e., academic adjustment) is critical. This research endeavor could help administrators in both academics and athletics have a better understanding of social and emotional benefits derived from intercollegiate athletics, as well as develop an optimal environment balancing out

social, emotional, and academic adjustment of college students in higher education. Therefore, the purpose of this study was two-fold: 1) to examine the effects of team identification on personal self-esteem, and 2) to scrutinize how the causal relationship between team identification and personal self-esteem further explains a student's social, emotional, and academic adjustment.

2. Literature Review

2.1 Team Identification and Personal Self-Esteem in Higher Education

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). When individuals positively interact with the group members, individuals will 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), while the affiliated group members develop strong boundaries between in-group and out-group members (Buchalter & Frey, 2003; 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).

Team identification is well recognized in sport management as the psychological involvement that an individual has toward a certain sport team, player, or coach (Koo & Hardin, 2008; Trail, Anderson, & Fink, 2000; Wann & Pierce, 2005). Team identification is theoretically consistent with social identity theory 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 identification toward a college sport team allows students to integrate with larger group members and share self-concept attributes with them (Oakes & Turner 1980; Branscombe & Wann, 1991; Koo et al., 2015; Wann, 2000). In addition, individuals who have higher levels of team identification tend to evaluate their values as equal to the team's values (Wann, 2000), and the positive self-evaluation and derogation of being a member of the out-group becomes stronger when the following team competes with a rival team (Brandscombe & Wann, 1991; Oakes & Turner, 1980; Wann, 1996). Based upon the relationships between team identification and personal self-esteem, we provide the following research hypotheses:

H1: Team identification enhances students' personal self-esteem.

2.2 Social and Emotional Adjustments in Higher Education

Personal self-worth, derived from levels of team identification, is positively related with individuals' intangible benefits such as social and emotional health (Koo, et al., 2015; Wann & Pierce, 2005). Along with social interactions, which in turn generate personal self-worth, the intangible benefits derived from social environment are the most important elements in facilitating educational motivation and performance in college life (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), in which positive and negative relationships between levels of team identification and psychological benefits, results in decreased depression, loneliness, and stress as well as increased personal self-esteem and satisfaction of life. This finding parallels Koo et al. (2015)'s study in which team identification and personal self-esteem had direct and indirect influences 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 et al., 2015). 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, students who are highly identified toward a college sport team create social boundaries against other groups, and engage with in-group members through a strong sense of belonging to the group, which

improves psychological health (Pittman & Richmond, 2007, 2008; Shankland et al., 2010; Simek, 2013). In the consideration of these relationships, we provide the following research hypotheses:

H2: Team identification directly enhances students' social adjustment.

H3: Emotional adjustment directly enhances social adjustment.

H4: Personal self-esteem influenced by the level of team identification improves students' social and emotional adjustments.

2.3 Non-Academic Environment and Academic Adjustment in Higher Education

The concept of the academic adjustment relates to the educational potential of a student, including academic motivation, actions to meet the demands, clear goals to study, and overall pleasure with the learning environment (Backer & Siryk, 1989; Walton & Cohen, 2011). While students' academic potential is the most important for students' further success in higher education, many scholars have extended their research to non-academic environments (e.g., social and psychological resources) on students' academic adjustment (Barefoot, 2004; Sung et al., 2015; Walton & Cohen, 2011).

For example, non-academic environment in higher education such as emotional influences and social involvement in college life significantly enhance students' intrinsic value, academic efficacy, school affect, educational expectations and educational aspirations (Sánchez, B., Colón, Y., & Esparza, 2005; Smerdon, 2002). According to Sava (2002), college students' significant level of stress, loneliness, depression, and anxiety negatively influence their academic outcomes and are most reasons to withdrawal classes. In addition, the higher levels of happiness and satisfaction of the college positively increase the functions of students' study and their academic efficacy. It is because the positive and negative thinking is directly related with psychological well-being, and influences students' motivation to achieve academic goal and its' performance (Sánchez, B., Colón, Y., & Esparza, 2005; Smerdon, 2002).

Students' academic performance is also influenced by energetic social circumstance, and a sense of belonging to the university (Arndt, Greenberg, Schimel, Pyszczynski & Solomon, 2002; Murray-Harvey & Slee, 2007; Sung et al., 2015). In particular, a sense of belonging to a social group in campus life has mostly positive relationships with academic motivation and performance because the academic nature in the college is relies heavily on communications of common interests and information between students and faculties, and cultural context in which they live and learn (Murry-Harvey, 2010; Sánchez, B., Colón, Y., & Esparza, 2005; Smerdon, 2002).

As similar concept with a sense of belonging in higher education, students' identification toward intercollegiate athletic programs is a parallel construct to generate common interests and cultures by campus traditions and rituals (Koo et al., 2015; Wann, 2000; Wann & Pierce, 2005). In addition, social interactions with others and memberships of a social group by intercollegiate athletic programs are a significant form of the non-academic environment which assists students' academic experiences (Murray-Harvey & Slee, 2007; Smerdon, 2002; Sung et al., 2015; Walton & Cohen, 2011), Finally, it is anticipated that high identification with a college sports team would directly or indirectly lead to improved student scholastic adjustment in college.

H5: Team identification enhances students' academic adjustment.

H6: Social and emotional adjustments improve academic adjustments

Finally, this study will provide conceptual evidence that intercollegiate athletics as a non-academic environment significantly promotes students' academic adjustment through social and psychological aspects in college life (Arndt et al., 2002; Beyer & Goossens, 2003; Murray-Harvey & Slee, 2007, Koo et al., 2015; Wann, 2006). In addition, this research suggests both academic and athletic administrators should have a better understanding of social and emotional benefits derived from intercollegiate athletics, as well as develop an optimal environment which balances social, emotional, and academic adjustment of college students in higher education. Therefore, the purpose of this study was two-fold: 1) to examine the effects of team identification on personal self-esteem, and 2) to scrutinize how the causal relationship between team identification and personal self-esteem further explains a student's social, emotional, and academic adjustment to college.

3. Methods

3.1 Participants

A purposive sample of 320 undergraduate students from a major public university in the United States participated in this study. The students were asked to identify as a fan of the college team at the given university or not. Only participants who reported as a fan of the team were kept in the sample for the purpose of this study. In addition, this study considered one large institution in NCAA Division I in southeastern region because team success and attendance are important factors influencing team identification.

The student sample consisted of 125 males (38.9%) and 195 females (60.7%) 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 was 21.05 years (SD = 3.35).

3.2 Data Collection Procedure

Students were recruited through undergraduate courses within the university. Students were invited to participate in an online survey by an email. An online survey is more beneficial in reducing costs and rates of missing data, and increasing rates of responses from participants than traditional methods (McDonald & Adam, 2003). Within the invited email, researchers provided the purpose of the study, instructions of the completion, and a consent form with authors' contact numbers for better understanding of the study. In an attempt to raise response rates, students received a second request to complete the survey within a week after an initial invitation. In addition, participants who completely finished received extra course credit. Finally, 320 of the students completed the online questionnaire, from 496 students who were invited to participate.

3.3 Measures

The proposed model included three scales measuring team identification, personal self-esteem, and student's adaptation to college. First, seven statements of Spectator Sport Identification Scale (SSIS: Wann & Branscombe, 1993) were adapted to measure team identification using a 5-point Likert type scale anchored from (1) strongly disagree to (5) strongly agree. The items were slightly modified for the purpose of the study (e.g., "My friends see me as a fan of [University name] athletics). The reliability of SSIS scale in this study was .96, exceeding .70 threshold of acceptable level (Nunnally & Bernstein, 1994).

Second, personal self-esteem was measured via Rosenberg Self-esteem Scale (RSES) (1965). Participations were asked to respond to five items measuring personal self-esteem on a 5-point Likert type scale ranging from (1) strongly disagree to (5) strongly agree. 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). The reliability of the RSES items in this study was demonstrated at .86, which is above the acceptable level of .70 (Nunnally & Bernstein, 1994).

Third, the Student Adaption to College Questionnaire (SACQ: Backer & Siryk, 1989) assessed students' college adjustment. The SACQ contains three subscales including academic, social, and personal/emotional adjustments. Participations responded to the 5-point Likert type scale anchored by (1) strongly disagree to (5) strongly agree. The academic adjustment subscale contained 13 items measuring various academic experiences in college (e.g., "I currently enjoy my academic work"). The social adjustment subscale included 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 tense or nervous in college life"). Internal consistencies of the subscales measured as follows: academic adjustment .93, social adjustment.93, and personal/emotional adjustment .87. All exceeded the acceptable level of .70 (Nunnally & Bernstein, 1994).

3.4 Data Analysis

Data were analyzed using the IBM SPSS 20.0 and AMOS 20.0 programs. This study employed Confirmatory Factor Analysis (CFA) to evaluate psychometric measurement and structural model by the covariance matrix and maximum likelihood estimation (Bentler & Wu, 2005). In particular, studies have indicated significant redundancies among dimensions and in the factor structure of the SACQ (Credé & Niehorster 2012; Taylor & Pastor, 2007). For example, Taylor and Pastor (2007) failed to provide SACQ's dimensionality by the comparison between one- and multi-factor models in confirmatory factor analysis (CFA) due to the lack of both model fits. Also, Credé and Niehorster (2012)'s study found multi-collinearity between intelligence and personality traits while relationship between social demand and attachment style was strongly redundant.

Therefore, this study was intended to evaluate two alternative measurement models such as a second-order model and a bi-factor model in order to provide a better factor structure of items (Chen, West, & Sousa, 2006). These methods have been widely used to examine a hypothesized measurement model when factors in lower-order are correlated as well as to improve item commonality and the specifications of multiple domain factors from general factors (Chen et al., 2006; Gustafsson & Balke, 1993; Mulaik & Quartetti, 1997). In addition, a direct comparison of model fit regarding two models is attainable as the second-order model is nested within the bi-factor model (Chen, West, & Sousa, 2006).

Then, structural equation model (SEM) was conducted to evaluate the hypothesized model including the effect of team identification on personal self-esteem, which leads to students' college adjustment. 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.

4. Results

4.1 Psychometric Evaluation of the Measures

Preliminary data analysis indicated that the univariate normality was supported as none of the absolute value of kurtosis was higher than the recommended cut-off criteria value of 5.00 (Bentler & Wu, 2005). However, the Mardia's normalized estimate of multivariate kurtosis was 18.58, which might not satisfy the issue of multivariate normality in the

sample (Mardia, 1970). Therefore, Bootstrap estimation, which corrects standard errors and the confidence intervals, was used to analyze the multivariate non-normal data for further analysis rather than Maximum Likelihood (ML) estimation as ML estimation may provide biased and/or incorrect results (Byrne, 2013; Cheung & Lau, 2008, McDonald & Adams, 2003; Bentler & Wu, 2005).

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 et al., 2006). Additional loadings to the first item of each latent construct were held to 1 in order to identify the model within the items. The estimates of exact, absolute, parsimonious, and incremental fit indices demonstrated a favorable model fit for the initial second order measurement model: $\chi 2$ (763) = 2105.122, $p < .001$; SRMR =. .075; RMSEA) = .074; CFI = .838. Secondly, a favorable model fit for the initial bi-factor measurement model represented: $\chi 2$ (757) = 2073.521, $p < .001$; SRMR =. 061; RMSEA = .074; CFI = .841.

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, 1) I am satisfied with social participation in the college, and I am satisfied with social life, as well as, 2) I have difficulties on academic work, and I have travel concentrating when studying. When the items assessed the same latent construct, the error terms could be allowed to covary each other.

Since the aforementioned modification was applied to both the second-order and bi-factor models the fit indices for the second-order measurement model indicated a redosnable model: χ 2 (750) = 1533.554, $p < .001$, SRMR = .071, RMSEA = .057, CFI = .906 while those for bi-factor measurement model revealed: χ 2 (741) = 1490.004, $p < .001$, SRMR = .070, RMSEA = .056, CFI = .909. Although the modified both measurement models of bi-factor and second-order model fit indices satisfied the recommended level of model fit to the data, 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 (9) = 43.55, $p < .001$ (Hu & Bentler, 1999; Kelloway, 1998). As a result, this study selected the bi-factor model to further examine causal relationships among the latent constructs.

Table 1. Psychometric Evaluation of the Measures

Items	λ	α	AVE	ϕ2
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,	.833			
Being a fan of [University name] athletics is very important to	.839			
I dislike [University name] athletics greatest rivals	.691			
I usually display [University name] athletics name or insignia at	.958			
I plan to attend the home games of [University name] athletics	.922			
Personal Self-Esteem (PSE)				
I feel that I am a person of worth, at least on an equal basis with	.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 (SD)				
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	.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			
Academic Adjustment (AD)				
I am satisfied with variety of courses	.619	.93	.507	.011 - .299
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 Adjustment (ED)				
I feel tense or nervous.	.650	.87	.523	.071 - .264
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 .739 to .899 for all latent constructs. In addition, 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 scores for each latent factor were higher than the squared phi correlations (ϕ^2) in the measurement model, the measures were found to have satisfactory levels of discriminant validity.

4.2 Decomposition of the SEM

As shown in Table 2, the SEM resulted that the model fit indices have a favorable model fit; χ 2 (742) = 1500.117, $p < .001$, SRMR = .070, RMSEA = .057, CFI = .909, 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.

From decomposition of the relationships from the SEM, the research hypotheses related with effects team identification (H1, H2, and H5) are supported. For example, team identification improves students' personal self-esteem (H1, t = 4.610, $p < .01$) while team identification directly increases the level of students' social adjustment (H2, t = 4.552, $p < .01$) academic adjustment (H5, t = 2.152, p = .03). This relationship resulted that when team identification increases by 1 standard deviation, .291 standard deviation of personal self-esteem, .239 standard deviation of social adjustment, .148 standard deviation of academic adjustment are increased.

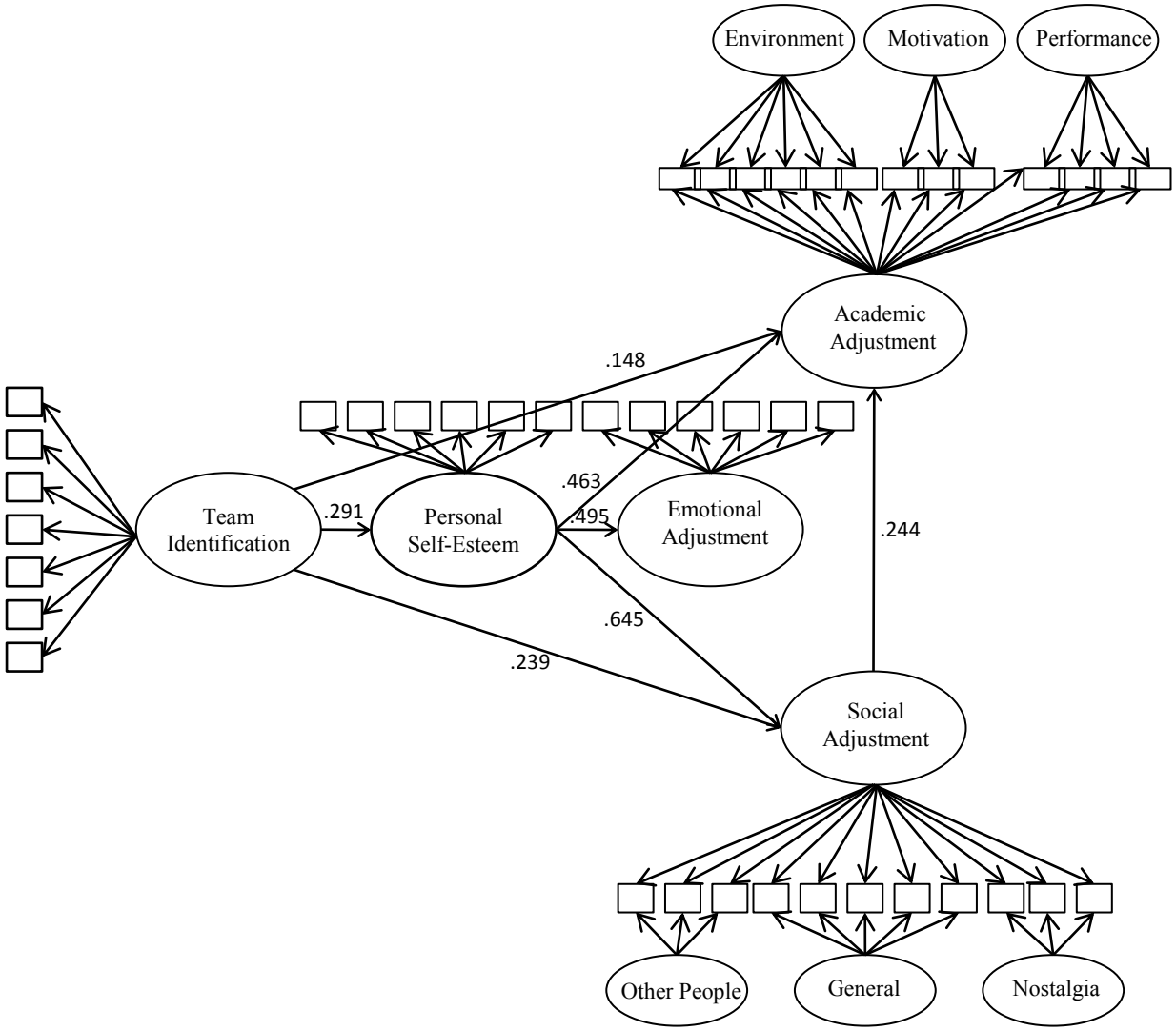
Table 2. Decomposition of Effects with Standardized Values

Outcome	Predictor	Effects		
		Direct	Indirect	Total
Personal Self-Esteem	Team Identification	.291		.291
R^2= .085				
Emotional Adjustment	Team Identification		.144	.144
R^2= .288	Personal Self-Esteem	.495		.495
Social Adjustment	Team Identification	.239	.188	.427
R^2= .563	Personal Self-Esteem	.115		.115
Academic Adjustment	Team Identification	.148	.135 + .045 + .058	.386
R^2= .566	Personal Self-Esteem	.463	.157	.620
	Social Adjustment	.244		.508

Fourth research hypothesis was also supported that 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 deviations in emotional adjustment, and .463 standard deviations in academic adjustment are increased when personal self-esteem increased by 1 standard deviation.

Finally, H3 was rejected, and, H6 was partially supported. For example, the dimension of social adjustment failed to support increases of emotional adjustment (t = 6.312, p = .21). However, social adjustment directly led to academic adjustment (t = 2.217, p = .03) while emotional adjustment did not assist academic adjustment (t = .707, p = .48). These relationships also revealed the meditating role of social adjustment between team identification and academic adjustment. Finally, Figure 1 shows the standardized estimates of the significant components from structural equation model.

Figure 1: The Full SEM Model



Note. Solid lines indicate significant paths at $p < .05$. Values shown next to the solid lines are standardized regression coefficients.

5. Discussion

Many young college students have struggled to adjust to the complex nature of college environment because of difficulties associated with the academic setting and social relationships. As a result, a variety of research has focused on differentiations among social class, cultures, and group of convenience in this adjustment (Hull, 1978; Sung et al., 2015). In addition, previous research revealed the significant role of 'group of convenience' and its positive relationship to students' college adjustment (Fisher & Hood 1988; Lu, 1995). This study attempted to provide evidence of how intercollegiate athletic programs academically lead to students' adjustment in higher education, while also examining the direct and indirect relationships of constructs, including team identification, personal self-esteem, and college adjustments (i.e., social, emotional, and academic adjustment).

One finding from the decomposition of the SEM revealed that students' identification toward an intercollegiate athletic program created 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 by sharing common interests while competing against rival groups (Brandscombe & Wann 1991; Tajfel, 1981; Wann, 2000). It indicates that team identification with intercollegiate athletic programs improves students' personal self-esteem through positive social interaction in college life while intercollegiate athletic programs function to integrate students in college environment. Accordingly, the current study suggests that the identification with a college sport team is a significant tool 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 by team identification leads to positive social, emotional, and academic adjustment in higher education (H4). The relationship of team identification with social and emotional

adjustment is consistent with previous research (Koo et al., 2015). They indicated that the direct relationship between personal self-esteem and team identification enhanced social and emotional well-being in college life. Similarly, this study showed that team identification enhances levels of happiness and satisfaction of life, while leading to declining levels of fear and anxiety through the construct of self-esteem. Thus, while students in higher education are highly engaged in social relations with friends which 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 environments such as team identification (H5), personal self-esteem (H4) and social adjustment (H6) directly enhance academic adjustment in higher education. Previous studies found similar constructs function to enhance academic motivation and performance in higher education (Arndt et al., 2002; Murray-Harvey & Slee, 2007; Sung et al., 2015). In particular, Sung et al (2015) supported the idea that identification toward intercollegiate athletic programs significantly creates students' attachment to a certain university and promotes students' academic performance in higher education.

However, in the relationship among three college adjustments, social adjustment (H3) did not significantly influence emotional adjustment as was hypothesized, nor did emotional adjustment (H6) in college life not influence academic adjustment as was hypothesized. First, the lack of influential relationships among adjustment is inconsistent with previous research, which indicated positive social relationships in college life improve students' psychological well-being (Koo et al., 2015). While 60 percent of participations in this study were female, this gender differences might cause inconsistent results. For example, females have not only less team identification toward intercollegiate athletic programs than males, but also more emotionally focused on copying (Clopton, 2008; Wann & Branscombe 1991; Wann, 1996). In addition, females have higher levels of general anxiety, depression, stress about time management, and worrying about academic performance than men do (Carver, Scheier & Weintraub, 1989; Silverman, LaGreca, & Wassersten, 1995). Second, the historical 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 tension or nervousness, blue and moody, becoming 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 functioned to improve academic adjustment in college life in this study.

In summary, these findings provide evidence that intercollegiate athletics may assist students' emotional adjustment through improved personal self-esteem. In addition, intercollegiate athletic program enhancing students' social adjustment functions to improve students' academic adjustment. In this regard, the current study provides evidence of the intangible benefits for college students generated by intercollegiate athletic programs. College advisors need better knowledge of the functions of intercollegiate athletics for students who have challenges in college adjustments. While student dropout rate has been increased as a result of a lack of social relationships and academic difficulties (National Center for Education Statistics, 2013), Murray-Harvey and Slee (2007) supported non-academic environments in the college setting assists students in improving personal self-worth through integration with social group members, as well as achieving academic goal in higher education. In conjunction with this line of thinking, effective utilization of intercollegiate athletic programs for students' adjustment would decrease students' major challenges in college life in higher education.

Finally, the findings of this study suggest for academic administrators to create positive academic environment for college students to be well adjusted in higher education. In particular, academic adjustment including performance, motivation, and environment has been introduced as a significant factor that fosters students' actual academic success in achievement as a higher grade point average (Baker & Siryk, 1984; Bettencourt, Charlton, Eubanks, Kernahan, & Fuller, 1999; Turner, Chandler, & Heffer, 2009). While the major goal of higher education is to generate well educated students for future career by providing significant academic environment in the college, it is necessary to understand the importance role of academic adjustment and the environment that promote it for college students in higher education.

In addition, this study also suggests that college administrators should develop more appropriate college social environments generated by intercollegiate athletic programs. In particular, Sung et al. (2015) highlighted the importance of the 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, highly identified students are more willing to display the team's logo and colors through a variety of ways and are easily connected with other identified students (Trail et al., 2000; Wann & Pierce, 2005). Currently, many schools have provided tailgate parties for social activities, though it is generally limited to Division I schools in football seasons. In this regards, this study may suggest administrators create social circumstances so that students are consistently able to associate with intercollegiate athletic programs effectively, thereby assisting students' college adjustment as well as success in academy in higher education.

6. Limitations and Future Study

Beyond the investigation of the study, this current study has limitations to suggest for future contribution. First, the participants of the current study are sampled from a major public university in the United States. Level of team

identification may vary among students' gender, personality, and region, as well as an institution's location, division, success, coach, and players, suggesting future studies consider the variety students and college setting.

Second, this study has not addressed significant factors, which develop students' level of team identification toward intercollegiate athletic programs. While college sports have developed into a big business, generating significant intangible benefits for college students, Amstrong (1999) revealed the importance of spectators identified toward a sport team to maintain relationship between sport spectators and sport organization. While this study revealed the role of team identification on students' college adjustment, it is important to understand how students are engaged with intercollegiate athletic programs.

Third, this study has anticipated the improvement of students' academic adjustment rather than actual improvement in academic achievements or a grade point average from the classes. While many researchers have indicated that the significant level of students' academic adjustment (e.g. motivation, environment, behaviors) promotes test scores in the classes and quality of class assignments directly related to their grade point averages, future studies should consider students' actual outcomes to measure their academic success (Baker & Siryk, 1984; Bettencourt, Charlton, Eubanks, Kernahan, & Fuller, 1999; Turner, Chandler, & Heffer, 2009; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004).

Finally, while this study has focused on the overall program of intercollegiate athletics, the study could not specify impacts of different sports. It is possible different levels of sport involvement might impact a student's level of team identification. In this regard, this study suggests for future study to investigate the distinctions among different sport domain identification.

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