THE DEVELOPMENT AND VALIDATION OF A MEASURE OF COLLEGE STUDENT

ATHLETE INTEGRATION

BY

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Abstract

Research has shown that a student's level of institutional integration is a better predictor of college persistence than academic performance (Pascarella & Terenzini, 1980). Tinto (1975) proposed that institutional integration is the student's perception of his/her fit to the university he/she is attending. Student athletes are a unique sub-culture within the general student population (Carodine et al., 2003; Melendez, 2007). Further, research on college student athletes indicates that athletes entering with certain individual characteristics are at a greater risk for academic failure and dropping out than others (Gayles & Hu, 2009; Leppel, 2005; Pascarella et al, 1995). Few researchers have investigated the factors contributing to the college integration of student athletes, and because of the lack of an adequate measure for assessing the integration of college student athletes. The purpose of the current study was to develop and validate a measure of college student athlete integration. The sample included 198 male and female NCAA Division I student athletes. The psychometric properties of the measure were assessed via confirmatory factor analysis, and the validity of the measure of was assessed through evaluation of concurrent-criterion measures, discriminant evidence, and convergent evidence. A four factor model of college student-athlete integration was confirmed including: interrelatedness with teammates, interrelatedness with coaches, competence, and individual status.

quite sure what that meant).

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I am deeply appreciative for each member of my focus group of student-athlete support

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Introduction

Current literature suggests that college student attrition is related to a student's ability to adjust to the social, academic, and structural components of college (Pascarella & Terenzini, 1980; Tinto, 1975). Individual factors, such as pre-college characteristics, and environmental factors such as integration, involvement, and engagement interact to predict students' adjustment to college, which subsequently affects persistence (Berger & Milem, 1999; Pascarella & Terenzini, 1980; Tinto, 1975). Nearly all of the available research on the topic of collegiate adjustment and attrition has investigated the general student population; there are, however, a variety of sub-cultures within that population which must adjust to unique circumstances. Some of these sub-cultures include, non-traditional students, international students, transfer students, and (of particular interest to this research) student athletes.

In the 2005-2006 academic year, 375,000 college students were competing in National Collegiate Athletic Association (NCAA) sports (NCAA, 2006). Athletes are a distinctive population of college students faced with unique challenges that impact their ability to adjust to college. According to the NCAA, 24.1% of male athletic teams and 8% of female athletic teams registered academic progress rates below the NCAA cut-off (NCAA Academic Reform Research, 2006). Scores below the cutoff represent programs which do not meet the academic success and graduation standards accepted by the NCAA. It has been proposed by previous research that the unsatisfactory collegiate academic progress of athletes may be related to a failure to adjust to the challenges that are involved in balancing an athletic and academic career (Carodine, Almond, & Gratto, 2001; Melendez, 2006). Specific burdens placed upon this population include excessive time invested to practice and competition in sport; media scrutiny; physical exhaustion and injuries; balancing social activities with athletic and academic pursuits;

balancing a variety of potentially challenging relationships (e.g., coach, teammates, and family); and the termination of one's athletic career (Broughton & Neyer, 2001; Carodine et al., 2001). It is very likely that both the process and products of student athlete adjustment and persistence mirror that of the general student population, but they may also experience unique circumstances which differentiate them from this population.

Research exploring the academic success of student athletes indicates that both individual factors and environmental factors contribute to a student athlete's ability to succeed in college. Individual characteristics which have been found to be related to student athlete academic success include: participation in particular types of sport (revenue vs. non-revenue) (Gayles & Hu, 2009; Pascarella et al., 1995); gender (Leppel, 2005); self-concept (Sedlacek & Adams-Gaston, 1992); academic commitment; and athletic commitment (Simmons & Van Rheenan, 2000). Environmental factors which have been found to be related to student athlete academic success include: having a support person (Sedlacek & Adams-Gaston, 1992); engagement in institutionally related activities (Gayles & Hu, 2009; Leppel, 2005); and discrimination (Hyatt, 2003). Unfortunately, as found by Pascarella and Terenzini (1980), though academic success is related to persistence it is not the best predictor of voluntary college student withdrawal. Moreover, a paucity of research has actually explored the factors which contribute to the voluntary withdrawal of college student athletes. It is suspected that part of the reason for the lack of empirical studies exploring the persistence of college student athletes is that current measures available for evaluating the construct of college student integration fail to adequately measure the various structures that student athletes must integrate into (Pascarella & Terenzini, 1980).

Pascarella and Terenzini (1980) developed a five subscale measure including: peer group

relations; informal relations with faculty; faculty concern for teaching and student development; academic and intellectual development; and institutional/goal commitment. However, any athletic department administrator, student athlete, or coach would tell you that an NCAA Division I college student-athlete spends a majority of his/her time within the athletic department specifically. Thus, it is likely that integration into the various aspects of the athletic department would be a key consideration when a student athlete is deciding to persist or withdraw from a particular institution. Given the likely importance of athletic integration as a contributor to college student athlete persistence, it would seem crucial that when investigating college student athlete persistence, researchers and support staff have a reliable and valid supplementary measure of athletic department integration in addition to Pascarella & Terenzini's (1980) measure of Social and Academic Integration. The purpose of the current study is to develop and validate a measure of college student-athlete integration into the athletic department.

Research Questions

The research question is as follows: Is the College Student Athlete Integration Scale is a valid measure of college student athlete integration? Construct validity will be assessed based upon the accumulation of evidence from criterion/concurrent measures, factor analysis, content validity, divergent and convergent evidence, and the reliability (Cronbach alpha) of the scale.

Definition of Student Athlete Integration

College student athlete integration is a context specific aspect of college integration. College integration is defined as a student's perception of the goodness of fit between him/herself and the college institution he/she is attending (Pascarella & Terenzini, 1980; Tinto, 1975). Factors contributing to students' perception of fit include: (1) peer-group interactions, (2) interactions with faculty, (3) faculty concern for student development and teaching, (4) academic

and intellectual development, and (5) institutional and goal commitments (Pascarella &
Terenzini, 1980). College integration is measured by Pascarella and Terenzini's (1980)
Institutional Integration Scale. For the purpose of this study college student-athlete integration is
defined as a college student-athlete's perception of the goodness of fit between him/herself and
the athletic department he/she is a member of. The factors contributing to this construct will be
determined through the qualitative inquiry of a focus group of college student athlete success
experts. The purpose of the current study is to both define this construct and develop a measure
for assessing it. Importantly, similar to the way that college integration differs from college
engagement and involvement, college student-athlete integration is based upon the student-
athlete's perception of fit to his/her environment not upon his/her involvement in athletic related
activities or his/her personal effort directed toward athletic success.

Summary

College student integration is defined as a student's perception of his/her goodness of fit
to the university he/she is attending (Tinto, 1975). Integration has been found to be a better
predictor of voluntary college withdrawal than academic performance (Pascarella & Terenzini,
1980). Reliable and valid measures of college student integration assess the various structures
that a student in the general college population must integrate into in order to adjust successfully
to college (Pascarella & Terenzini, 1980). College student-athletes are a unique sub-culture
within the general student body who must adjust to a unique set of college environments (within
the athletic department) (Carodine et al., 2003). Current measures of integration fail to account
for the important environmental structures that student athletes must integrate into. Thus, it is the
purpose of this study to develop and validate a supplemental measure of college student-athlete
integration which could be used in combination with Pascarella and Terenzini's (1980) measure

of social and academic integration to measure the full set of characteristics which might

influence the integration and persistence of college student-athletes.

<center>**Review of the Literature**</center>

Collegiate attrition is a topic that has received significant attention from collegiate administrators and researchers alike. Given the financial and psychosocial resources provided to students by parents, institutions, and the government, it is very important to understand the reasons for and the ways to prevent college-student withdrawal (Brooks & DuBois, 1995). Lower rates of attrition are linked to successful student adjustment/integration into the college environment. Yet, it remains unclear how the unique experience of participating in college sport may influence both integration and persistence. The following literature review is organized to provide the reader with an overview of the unique factors which may contribute to the integration and persistence of college student athletes. The review will begin with an examination of the research defining the characteristics of integration and its relationship to persistence among the general student population. Next, the researcher will explore the unique characteristics which define the experience of college student-athletes. A general review of the literature on college student athlete success will then be examined in order to discover the unique factors contributing to the integration of student athletes. Finally, in an effort to better understand which factors differentiate the persistence choices of college student athletes in comparison to the general student body a review of the literature on student athlete departure and persistence will be conducted.

College Integration: What Is It and How Does It Relate to Persistence?

Collegiate attrition has long been a concern in higher education; college institutions spend significant financial and investigative resources attempting to determine the reasons for dropping out of college in an effort to enhance the rates of college persistence. Prior to the

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development of research on integration, engagement, and involvement, administrators had assumed that college drop-out was largely the result of poor academic performance. However, after reviewing the literature, Tinto (1975) proposed an alternative hypothesis; that is, college attrition is actually the result of poor adjustment to college.

Tinto (1975) defined college adjustment as a student's ability to successfully integrate one's attitudes and values into that of his/her college environment including: peers, faculty, and the institutional structure. Thus, both college adjustment and integration have become important topics among college administrators and researchers. In his model of attrition, Tinto (1975) suggested that a student comes in to college with a specific set of academic, family, skill, and personality characteristics and the interaction of these characteristics with the institutional environment determines the student's integration. If the student successfully modifies his individual characteristics to match the characteristics of the institution, then he will adjust more successfully and will be less likely to drop out of school (Pascarella & Terenzini, 1991). Thus, integration is the degree to which the student's (*internal*) attitudes and values match that of his peers and faculty at the university, as well as the student's ability to maintain the formal and informal structural components necessary for association with the college or subgroups within the college (Tinto, 1975). In other words, integration focuses on the internal negotiation process between a given student's internal perceptions of "self" and their external perceptions of the "institution" they have become a part of. It is the degree of perceived "fit" which is believed to significantly impact persistence. Based upon this theory, Tinto (1975) developed his model of attrition (see Figure 1).

Tinto's (1975) theoretical model provided a way of thinking about student persistence in terms of integration. In 1980, Pascarella and Terenzini set out to examine the empirical validity

of Tinto's (1975) hypothetical model by evaluating the predictive validity of the variables in the model with respect to college dropout. They performed a longitudinal study exploring the influence of the relationship between individual factors, social integration, and academic integration on retention. They examined 773 undergraduate students at a Northeastern residential university with an approximate enrollment of 10,000. The study included two measurements developed specifically for the study. The first questionnaire was given to assess college expectations and select background characteristics prior to enrollment. The second questionnaire consisted of Likert-scale items (designed by the researchers) to tap the constructs identified in Tinto's (1975) theoretical model of college persistence. These constructs included: (1) intellectual development, (2) peer-group interactions, (3) interactions with faculty, (4) faculty concern for student development, and (5) institutional goal commitment. Finally, to evaluate the outcome variable, researchers collected persistence data from the registrar's office in regard to each participant. Principle components analysis was employed to evaluate the factor structure of the scale and a multivariate analysis of covariance, and a setwise discriminant analysis was employed to determine the predictive validity of each construct on voluntary withdrawal after controlling for the effects of pre-college characteristics.

Pascarella and Terenzini (1980) found that each of the five integration subscales significantly differentiated freshman persisters from non-persisters, with persisters having higher scores on all five subscales than non-persisters. In fact, the five integration scales alone correctly classified 79.5% of the sample into either the voluntary withdrawal or persister categories. However, results indicated that among the five subscales only three made significant and unique contributions to the prediction of persistence when controlling for other subscales. Specifically, institutional goal commitment accounted for the greatest amount of variance in persistence,

followed by interactions with faculty, and faculty concern for student development respectively. In contrast to other research findings, the researchers found that neither freshman year grade point average nor involvement in extracurricular activities affected persistence.

Pascarella and Terenzini's (1980) study provided the necessary empirical evidence to support and partially confirm the hypothetical model of persistence proposed by Tinto (1975). Findings demonstrated that academic performance could not predict persistence as well as variables of academic and social integration. Further, the scale developed and validated by Pascarella and Terenzini (1980) provided a uniform method for researchers to consistently measure and assess college student integration, which has better enabled researchers to develop a body of literature supporting the theory of college student integration as it relates to persistence. The major limitations of this study include the age of the data set as well as the inclusion of students from only one institution. Despite these flaws, researchers have been able to consistently replicate the finding that academic and social integration are better predictors of persistence than academic performance. Furthermore, the large body of literature supporting Pascarella and Terenzini's (1980) findings indicate the richness of their research methodology as well as the meaningfulness of the construct of integration as it relates to college persistence.

Despite the widespread use of Tinto's (1975) model of college persistence by academic administrators, several other theories of college persistence have evolved within higher education literature. Current theoretical models of college persistence frequently include the concepts of both involvement and engagement, in addition to integration. While intended to be conceptualized as distinct concepts by theory developers, Astin, Kuh, Tinto, and Pascarella and Terenzini, these terms are frequently used synonymously and interchangeably. Thus, Wolf-Wendel, Ward, and Kinzie (2007) set out to demonstrate that they are, in fact, distinct concepts

with unique components. The purpose of their qualitative study was to determine the unique definition of each construct by evaluating their similarities and differences as they have evolved throughout the higher education literature.

Wolf-Wendel et al. (2007) employed a detailed review of the literature, interviews with scholars in the discipline of higher education, and examinations of the instruments used to measure each of the constructs to determine the differences among them. A semi-structured interview protocol was implemented and interviews were completed by phone and were recorded. In their review of the literature, Wolf-Wendel et al. (2007) found that "Astin (1984) defines involvement as the amount of physical and psychological energy a student devotes to his/her academic experience. The involvement can be both academic and social, though much of the research using the theory of involvement has tended to focus on extracurricular involvement (p. 5)". Importantly, involvement is conceptualized not only as the number of activities one is participating in, but also by the level of energy directed toward those activities. In contrast, via interview Kuh defines engagement by two characteristics, (1) the amount of time and effort directed towards studies and activities that lead to student success, and (2) how the institution allocates resources to create opportunities for students to invest in these activities. Finally, the concept of integration has been defined by Pascarella and Terenzini and Tinto as the extent to which a student is able to modify his/her attitudes and beliefs to better match the institutional culture defined by his/her faculty and peers (Wolf-Wendel et al., 2007).

Engagement differs from involvement in its emphasis on the institution's responsibility to catalyze student effort, where involvement emphasizes student effort apart from consideration of institutional programs offered (Wolf-Wendel et al., 2007). In contrast to both engagement and involvement, integration reflects the student's perception of "fit" to the institution which may or

may not occur as the result of student effort, but is heavily influenced by the programs available at the institution. Scholars in the area of student success agree that integration is more distinctive than engagement and involvement because of the social nature of this construct in comparison to the other two constructs. Moreover, Tinto argues that students can be engaged or involved, but if they don't feel valued by the community they are less likely to persist (Wolf-Wendel et al., 2007).

Engagement and involvement both emphasize the role of varying degrees of student effort in affecting student success outcomes (Wolf-Wendel et al., 2007). In fact, these two constructs are so similar that Astin suggests it is not essential to delineate between the two (Wolf-Wendel et al., 2007). Kuh proposes that the primary difference between the two is the method of collecting data regarding each (Wolf-Wendel et al., 2007). While integration seems to differ more than involvement and engagement, several scholars have argued that it is a required antecedent to involvement and engagement. For example, if a student is to become engaged and involved they must perceive themselves to "fit" the institution in some way. Thus, integration has been selected as the primary predictor variable of interest in the current investigation, because it could be considered the first step towards persistence at the institution.

The paper by Wolf-Wendel et al. (2007) significantly contributed to persistence literature by clarifying the constructs of student engagement, involvement, and integration. By exploring the historical evolution of these theories as well as the opinions of the scholars who have developed them Wolf-Wendel et al. (2007) has made significant strides in defining the similarities and differences among each of these constructs. Clarification of these terms offers direction to this research by enhancing how integration, engagement and involvement are operationally defined with regard to college persistence.

Additionally, Wolf-Wendel et al. (2007) identified important ways that research in each of these areas has fallen short. Specifically, the authors' report that researchers continue to test these theories on non-minority samples, contributing very little to our understanding of how the effects of each construct may differ depending upon unique sub-cultures. Thus, the current review contributes to the body of literature by examining the unique characteristics which contribute to the integration and persistence of the sub-culture of college student athletes.

One aspect of persistence that appears clear throughout the literature is that it is the result of a complex set of interactions among both internal factors unique to the student (e.g. background characteristics, academic preparedness, perceptions of self, and degree of student effort) and external factors unique to the institution (programming available, attitudes of the staff and faculty, traditions, etc). While Pascarella and Terenzini (1980) attempted to better understand the interaction process through the development of their Institutional Integration Scale, statistical procedures available at the time imposed limitations on the degree to which this was possible. However, as statistical procedures became more sophisticated researchers were able to develop models which more accurately represented how persistence decisions actually occur.

Specifically, Cabrera, Nora, and Castaneda (1993) attempted to develop a comprehensive model of student attrition by measuring and accounting for a number of factors (both internal and external) which had been substantiated throughout the literature as helpful in explaining persistence. They utilized survey method to gather information about GPA, institutional commitment, goal commitment, intent to persist, social integration, academic integration, financial attitudes, and encouragement from family and friends from 466 freshman college students at a southern urban institution. Data collection was longitudinal, initial surveys were

administered during the spring semester of participant's freshman year and college departure was tracked (via transcripts) through the following fall semester. Of note, select items from Pascarella and Terenzini's IIS were utilized as both "academic integration," and "social integration" predictors. Results indicated that Cabrera, Nora, and Castaneda's (1993) integrated model accounted for 45 % of the variance in actual persistence. The complexity of the structural relationships identified by Cabrera, Nora, and Castaneda (1993) support the hypothesis that persistence is the result of the interaction between "internal" factors and "external" factors, and that integration, or the student's perception of fit between themselves and the institution is one important piece of the persistence pie. Limitations of this study were that it still excluded many factors which are likely influencing departure decisions; most notably this study did not include assessment of student effort (involvement) or the university's attempts to provide programming which might enhance the student's commitment (engagement).

Despite the differences between integration and involvement/engagement, research does demonstrate that integration is still influenced by the amount of student effort invested into one's academic experience (Berger & Milem, 1999). For example, Berger and Milem (1999) conducted a longitudinal study of first year college students to explore how students' behaviors (involvement) in the first year of college influenced the students' perception of their fit to the college (integration) and how the combination of these two processes affect persistence.

Berger and Milem (1999) administered questionnaires at three different time points throughout students first year of college. The first administration included a survey of general student information collected in August. The second survey, collected in October, consisted of questions assessing a wide range of student behaviors and perceptions related to persistence (Early Collegiate Experiences Survey). The final survey consisted of questions assessing both

involvement and integration (First Year Survey, based on Pascarella and Terenzini, 1980) and was collected in March. The following fall semester, data regarding persistence was collected from the university registrar's office for each of the participants.

Berger and Milem (1999) found that early involvement in the fall semester positively and significantly predicted spring involvement and had indirect effects on social integration, academic integration, and institutional commitment. Furthermore, it was found that both involvement and perceptions of integration significantly and positively predicted persistence. Up to this point in the literature, theorists had hypothesized that each of these variables were collectively influencing persistence, but there was little empirical support for this. Berger and Milem (1999) extended the literature in the area of persistence by demonstrating support for an integrated model of student persistence that includes both behaviors and perceptions by finding that behaviors (involvement) and perceptions (integration) collectively affect persistence. For the purpose of the current review, the researcher will be focused on the construct of integration because the majority of involvement choices for student athletes are pre-determined (or controlled). Since student athlete involvement is heavily controlled it is more likely that the differences in persistence choices are the result of their perception of fit or integration.

Characteristics Which Define the Unique Experience of College Student Athletes

While factors of integration and involvement are essential to athletes and non-athletes alike, the factors which contribute to persistence may differ between groups because of the unique challenges faced by college student-athletes (Carodine et al., 2001). Collegiate sports have become extremely competitive because athletic departments can produce enormous revenue by selling and promoting college sports teams. The pressures placed upon college student athletes are higher than ever. Based upon a review of the literature, Carodine et al. (2001)

concluded that the student athletes face a number of experiences which challenge their ability to be successful in college. For example student-athletes have grueling sport responsibilities which often include a minimum of four hours per day, or 20 hours per week of training which does not include their non-physical responsibilities (i.e. travel, charity and media appearances, sport psychology meetings, etc.) Furthermore, to remain eligible for athletic competition they must meet standards set forth by the National Collegiate Athletic Association (NCAA), so they are often required to attend mandated academic counseling, study halls, and tutoring sessions. They also face media scrutiny and pressure from the community to be successful in their athletic performance.

In addition to many of the unique demands of participating in sport, student-athletes also have to master the challenging cognitive and psychosocial demands faced by all college students. They must integrate into the social environment, develop a career plan, modify personal values, and develop a sense of individuation and autonomy (Carodine et al., 2001). When faced with the unique challenges of participating in college athletics many student-athletes struggle to manage both their responsibilities as a student and their responsibilities as an athlete, eventually failing at one, the other, or both. Moreover, many student-athletes are members of underserved, at risk populations, and without proper support programming will struggle to succeed in a university environment regardless of sport participation (Carodine et al., 2001).These athletic and academic demands would be difficult for most prepared college students to manage, so coupling these responsibilities with the poor entrance scores and underprivileged backgrounds of many college athletes increases the likelihood that they will struggle to adjust to college and may put them at an even greater risk for dropping out (Carodine et al., 2001).

In another review of the literature, Howard-Hamilton and Sina (2001) suggested that

because of the concomitant athletic and academic demands placed upon student athletes, the developmental tasks they face while in college create significant stress and challenges. Scholars in this area have suggested that the three primary areas of psychosocial development for student athletes are athletic, academic, and personal. The effects of each of these areas are not compartmentalized; they mutually affect one another. Further, a failure to maintain balance will likely result in dissatisfaction, stress, psychological problems, and even athletic ineligibility for student athletes.

In exploring how psychosocial development may be influenced by the experience of being a college student athlete, Howard-Hamilton and Sina (2001) applied several developmental theories to the student athlete experience. Specific theorists examined included Erikson, Chickering and Reisser. Based upon Erikson's theory, the authors suggested that student athletes are at risk of over-identifying with sport experiences when developing their ego-identity. This over-identification with the athlete self can leave them at risk for developing a poor sense of self-worth when their athleticism begins to fail them or when they are forced to move on from sport. Further, in applying Chickering and Reisser's theories to student athletes the authors indicated concern about the athlete's ability to establish a sense of autonomy and independence from a source of authority. They suggested that because athletic departments place heavy regulations on student athletes they do not have the opportunity to develop the same degree of autonomy that the general student body does.

In addition to stunting psychosocial development, Howard-Hamilton and Sina (2001) propose that college sport participation may also truncate cognitive and moral development. They argue that the dualistic nature of most athletic competitions and team requirements do not allow student athletes the opportunity to evaluate options and make decisions with regard to their

own moral compass. The authors hypothesized that this type of black and white environment prevents student athletes from developing the kinds of decision making skills that their non athlete counterparts have developed.

Finally, Howard-Hamilton and Sina (2001) reviewed the actual outcomes of being a student athlete. They found that participating in sport while in college may have detrimental effects on cognitive development for male athletes in revenue producing sports and for African-American athletes. However, research also shows that in the later parts of their careers student athletes frequently report more satisfaction with their college experience than non-athletes. Furthermore, African-American athletes who completed their college degree were more likely to secure a higher status job than African-American non athletes.

Howard-Hamilton and Sina (2001) and Carodine et al. (2001) both describe the complex nature of how athletic participation may influence college student athlete success and persistence. In many ways, participation in sport can enhance student access to conditions which may protect them from dropping out of college (i.e. specialized academic programming, monitoring, and social support). In many other ways, however, participating in sport can have detrimental effects on student-athlete development (i.e. autonomy, agency, individuation). For some athletes participating in sport may enhance their likelihood of graduating with a college degree, while for others the unique demands placed on college student athletes may be too much for them to bear, eventually resulting in both sport and college drop out. According to Howard-Hamilton and Sina (2001) and Carodine et al. (2001) hypotheses, it appears likely that dropping out is not the result of just the athletic environment or the individual athlete's characteristics. Rather, dropping out is the product of the individual athlete's perception of how the athletic experience can either enhance or detract from their academic experience, in other words, their

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integration.

Issues Related to the Academic Success of Student Athletes

Few scholars have explored the specific factors which contribute to college student athlete persistence, but several studies have explored the variables which contribute to student athlete success in general. In the majority of these studies, academic success or (GPA) was assessed as the primary outcome variable. Despite the fact that research tends not to support the direct link between academic success and voluntary withdrawal, these findings still provide insight into some of the factors which may be indirectly affecting both academic success and voluntary withdrawal (Pascarella and Terenzini, 1980).

In a study of the effects of motivation on the grade point average of student athletes, Gaston-Gayles (2004) conducted a multiple regression to evaluate the unique contribution of three measures of motivation on current GPA when controlling for background characteristics (gender, race, profile of sport, parent's education, and ACT scores). Gaston-Gayles (2004) administered two hundred and thirty six NCAA Division I student athletes her 30 item (6 point) Likert scale measure assessing athletic and academic motivation. The scale included three subscales, (1) academic motivation, (2) student-athletic motivation, and (3) career athletic motivation. In addition to motivation, she gathered information about student background characteristics and current GPA.

Gaston-Gayles found that precollege characteristics accounted for 24% of the variance in current GPA. ACT scores, father's education, and ethnicity made significant and unique contributions in the final model. Academic and athletic motivations contributed 9% of the unique variance in current GPA after accounting for pre-college characteristics. However, in the final model only ACT scores, ethnicity, and academic motivation made significant and unique

contributions. Higher ACT scores and ratings of academic motivation were predictive of higher current GPA's. Moreover, being a white as opposed to minority student athlete was found to be predictive of higher current GPA's. The major contribution of this study was the finding that academic motivation was predictive of better academic performance for student-athletes regardless of athletic motivation. This challenges previous theorists who have suggested that high athletic motivation is likely to decrease student athlete student success and academic performance. This finding indicates that despite student-athletes' desire to pursue a professional career in athletics, high academic motivation can improve their ability to succeed in college. Unfortunately, as previously stated, successful academic performance is not necessarily predictive of persistence. It is very possible that student-athletes may perform well in the classroom, but difficulties in the athletic arena may lead them to voluntarily withdraw from college. This is an essential reason why factors such as integration into the athletic environment should be explored as it may be an under assessed contributor to the attrition rates of student athletes.

As suggested by Berger and Milem (1999) the effects of integration on persistence may be moderated by a student's ability to become engaged in college. Moreover, student-athlete success in college may be influenced by their ability to become engaged which may subsequently impact integration and persistence. Gayles and Hu (2009) conducted an exploratory study to determine what factors were affecting the engagement of college student athletes and to examine how engagement was affecting the cognitive and affective outcomes of student athletes. They collected data from a national data set of responses from 410 freshman student athletes collected by the NCAA. The data set included information about academic and social success, personal goals, general attitudes toward college, high school and college experiences, and levels

of reading, writing, mathematics, and factual knowledge. The authors then conducted three multiple regression analyses to explore (1) the effects of student-athlete background characteristics on various types of engagement, (2) the unique effects of background characteristics and types of engagement on cognitive and affective outcomes, and (3) the unique effects of high vs. low profile sport participation and various forms of engagement on cognitive and affective outcomes.

Gayles and Hu (2009) found that background characteristics were not significant predictors of student-athlete engagement for all categories of educationally purposeful activities with the exception of interaction with peers outside of one's sport. Student-athletes in high profile sports reported significantly less interaction with peers outside of their sport than did student-athletes in low-profile sports. For the second analysis, gender, race/ethnicity, sport, major, and interaction with peers accounted for 16% of the variance in cultural attitudes and values. Low profile athletes, female athletes, black athletes, and math and science majors reported higher scores on the subscale of cultural attitudes and values than did low-profile athletes, male athletes, white athletes, and pre-professional program majors. Furthermore, interaction with other students was positively related to cultural attitudes and values. The model also reported significant gains in personal self-concept with gender, race/ethnicity, and interaction with students accounting for 10% of the variance in personal self-concept. The model also indicated that interaction with faculty, interaction with other students, and participation in academic related activities accounted for a significant portion of the variance in learning and communication skills (20%). Importantly, an examination of the interaction between sport type and participation in academic related activities indicated that participation in academic related activities had a significant positive effect on cognitive outcomes for low-profile student-athletes,

but had no effect on high-profile student-athletes.

These findings suggest that in some ways engagement has beneficial effects for both student-athletes and non-athletes (i.e. interaction with peers increases self-concept and learning and communication skills). However, it also demonstrates that for certain student-athlete sub-groups the benefits of some types of engagement may be less pronounced than for non-athletes (i.e. the effects of academic related activities on cognitive outcomes for high-profile athletes).This supports the hypothesis that it is the interaction of individual and environmental variables which determines student athlete success, as student athletes with different characteristics will be affected differently by participation in sport. Moreover, it lends credence to the idea that integration (or the athlete's perception of institutional fit) is of greater importance than engagement alone.

Pascarella, Bohr, Nora and Terenzini (1995) conducted an exploratory study to examine (a) differences in the cognitive effects of sport participation for revenue versus non-revenue producing sports, (b) differences in the cognitive effects of sport participation for males versus females, and (c) differences in the cognitive effects of sport participation for students with different pre-college characteristics. Their sample included 2, 416 freshman year students who participated in the National Study of Student Learning. Data included pre-college characteristics, demographic information, aspirations, expectations of college, orientations toward learning, and the College Assessment of Academic Proficiency (CAAP) measure.

Findings indicated that male football and basketball student-athletes had significantly lower end of the year scores on reading comprehension and mathematics than did non-revenue producing intercollegiate male athletes or non-athletes. Furthermore, female student-athletes had significantly lower end of the year scores on reading comprehension than did non-athletes.

Additionally, when assessing CAAP gains over the freshman year, it was found that male athletes in non-revenue producing sports and non-athletes both made modest gains in reading comprehension, and mathematics, while male student-athletes in football and basketball made modest declines on each variable. Results indicated that none of these findings were conditional upon any of the controlled covariates, which included pre-college characteristics, demographic information, aspirations, expectations of college, and orientations toward learning.

These findings demonstrate that athletic participation can have a negative effect on cognitive variables typically enhanced by attending college for both males and females. Given research demonstrating student-athletes lower rates of integration and institutional goal commitment, it is likely that these cognitive impediments caused by sport participation will contribute to the cumulative disadvantage faced by student-athletes in the area of college retention. These findings further support the postulate that student athletes face unique challenges which place them at risk for dropping out of college but that the effects of these challenges are dependent upon the unique characteristics of the individual.

Issues Related to the College Persistence of Student Athletes

In the last decade, college student athletes have been found to record persistence rates higher than the general student population (Melendez, 2007). To explore the specific differences between college student athletes and non athletes Melendez (2007) conducted a cross-sectional study examining the factors contributing to the college adjustment of 101 college student athletes compared to 106 non-athletes. Survey data gathered included scores on the Student Adaptation to College Questionnaire (SACQ) and demographic variables (gender, age, racial/ethnic group membership, year in college, parental education, sport, scholarship status, recreational sport participation, and high school sport participation). Analyses compared athlete scores on the

SACQ to non athlete scores on the SACQ while controlling for demographic variables.

Melendez (2007) found that student athletes reported significantly higher scores than non-athletes on two subscales of the SACQ (academic adjustment and institutional attachment). Moreover, female students reported higher SACQ scores on three subscales (academic adjustment, social adjustment, and institutional attachment). These findings suggest that college student athletes have a unique adjustment experience as compared to non-athletes. Melendez (2007) hypothesizes that the provision of specific support services designed to meet the needs of student athletes may enhance the adjustment of student athletes over non athletes. Additionally, participation in sport may enhance a student's sense of belonging and inclusion at his/her institution. However, Melendez (2007) suspected that athlete vs. non athlete differences were skewed by the inclusion of female student-athletes. He indicated that because female student athletes have fewer opportunities for professional athletic careers beyond college, but are provided with all of the extra advantages of student-athlete support services, they face fewer distractions from the college experience (i.e. professional athletic careers) than male student athletes. He implies that looking at a male athlete vs. male non athlete sample may render less favorable adjustment and persistence rates for male student athletes. Thus, Melendez (2007) appears to indicate that just because student athletes have access to valuable resources that improve adjustment and persistence, certain sub-groups of student athletes may still be at a greater risk for drop-out.

Though college student-athletes typically record persistence rates higher than the general student body, there are several unique individual and environmental factors which contribute to the specific student success issues among college student-athletes. Among the environmental factors differentiating the student success of athletes in contrast to non-athletes, commitment to

the institution may be an important contributor to attrition. Based upon an extensive review of the literature, Hyatt (2003) suggests that student-athletes demonstrate lower institutional-goal commitments and greater athletic commitment than non-athletes because they base their college choice more on the amount of scholarship received rather than on their desire to be part of the particular institutional community. Further, he suggests that athletes often experience discrimination by peers and faculty because they are athletes (Hyatt, 2003). He reports that there is often a perception by faculty and peers that student athletes receive special privileges and are pampered by the athletic department, fostering resentment, prejudice, and discrimination towards student-athletes. When feelings of discrimination are combined with rigorous schedules and intense involvement with members of a sports team it fosters alienation from other members of the institution and contributes heavily to student-athlete isolation. Isolation prevents social and academic integration inhibiting the development of institutional-goal commitment and satisfaction with one's experience at a particular institution. Thus, according to Hyatt, student-athletes enter with less institutional commitment than non-athletes and subsequently experience discrimination which prevents them from developing commitment while they are there, reducing their likelihood of persistence. These ideas, however, have not been tested empirically.

Leppel (2005) conducted an exploratory study examining the individual factors which influence the persistence of student athletes. Specifically he looked at the differences in college students (1) likelihood of persisting at their present institution, (2) likelihood of continuing their college education at a new institution, or (3) likelihood of dropping out of college completely based upon their participation in college sports. Data for this study were obtained from a national data set (Beginning Postsecondary Students) gathered by the National Center for Education Statistics in 1990. Participation in sport related activities increased the probability that a student

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would remain at his/her current institution over dropping out of college completely. However, there were significant within group differences (among student athletes) as a function of gender. Specifically, they found that unsatisfied female college student-athletes were more likely to drop out of school completely than unsatisfied female college students not participating in sport (who were more likely to transfer). In contrast, unsatisfied males student-athletes were more likely to transfer to another institution than unsatisfied male non athletes (who were more likely to drop out completely). Leppel (2005) suspected that the opportunity to participate in sport is a strong motivator for students to remain at their institution. However, if a student is unsatisfied with his/her experience (despite being an athlete) his/her decision to transfer versus dropping out completely is heavily dependent upon his/her gender.

Leppel (2005) makes an important contribution to the existing body of literature on student-athlete persistence by demonstrating that participation in sport activities may differentially affect persistence rates among college students. Moreover, findings suggest that the effects of sport participation on persistence may differ for males compared to females. Much of the literature has speculated that factors contributing to college persistence differ for student athletes compared to non athletes; however, few researchers have actually compared the two groups. This article both substantiates this claim, and furthers our understanding of how sport participation may differentially affect males and females.

Literature has demonstrated empirical evidence supporting the hypothesis that unique factors contribute to the college adjustment of student-athletes compared to the general student body. Some of these factors are attributable to the individual characteristics of the student-athlete, and others are attributable to the unique college environment experienced by the student-athlete. In essence, while some athletes successfully adjust to college, others will flounder and

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eventually exit the sport, the university, or both (Melendez, 2007). These within group differences indicate that when trying to understand the factors contributing to student-athlete departure from college a combination of individual and environmental factors must be considered concomitantly.

In many ways this individual by environment interaction parallels the integration model proposed by Tinto (2005). In other words an athlete brings a unique set of individual characteristics in to the institution which is composed of a unique set of characteristics itself. For the student athlete to be successful he or she must be able to navigate that environment by adjusting his/her values to match the values of the institutional structures. The integration experience of student athletes differs from the experience of other college students in that they must adjust to the athletic department in addition to adjusting to other aspects of college (peers, faculty, academics, etc.).

For some student-athletes this process of integration may be more difficult. Specifically, research indicates that female-student athletes are more susceptible to drop out than female non-athletes (Leppel, 2005). Further, athletes in revenue producing as opposed to non revenue producing sports are at higher risk for cognitive declines across the first year of college, lower rates of college engagement outside of sport, and less interaction with peers outside of sport, (Gayles & Hu, 2009; Pascarella et al., 1995). Additionally, student athletes often experience discrimination which may prevent them from integrating into the general university environment despite successful integration into the athletic department (Hyatt, 2003).

Regardless of difficulties, research indicates that the development of specific coping strategies can improve the adjustment and success of student athletes. Specifically, Sedlacek & Adams-Gaston (1992) found that having a strong support person, engaging in community

involvement, and having a positive self-concept contributed significant and unique variance in predicting first semester GPA, but SAT scores did not. Similarly, Simmons, and Van Rheenen (2000) found that when controlling for background characteristics, high-school GPA, and SAT scores, athletes with higher degrees of academic self-worth had significantly higher cumulative GPA's, while athletes with a higher use of self-handicapping excuses had significantly lower cumulative GPA's. Further, athletic-academic commitment and exploitation made significant and unique contributions to the prediction of cumulative GPA when controlling for background characteristics, high-school GPA, and SAT scores (Simmons & Van Rheenan, 2000). Athletes with higher commitments to sport than to school had significantly lower GPA's, as did athletes who perceived themselves as being exploited by their institution. Though GPA has not been found to be a consistent predictor of persistence, it is likely that the factors contributing to successful academic performance may also contribute to persistence. As such, when trying to improve the rates of persistence among student athletes athletic department administrators should emphasize the development of programming which seeks to enhance individual coping strategies and to provide opportunities for engagement which will improve student athlete integration both in the athletic department and across the university at large.

Summary of the Literature

This review highlights many of the factors contributing to the academic success of college student athletes. However, it also demonstrates that our research understanding of the specific factors contributing to college student athlete persistence is limited. The majority of the studies available are evaluating outcomes such as GPA or cognitive improvement across the first year of college (Gayles & Hu, 2009; Pascarella et al., 1995; Sedlacek & Adams-Gaston, 1992; Simmons & Van Rheenan, 2000). Though these outcomes are often related to voluntary

withdrawal, literature indicates that they are not the best predictors of persistence (Pascarella & Terenzini, 1980). Based upon research studying the general student population, it is far more likely that factors such as integration, engagement, and involvement are affecting a student-athlete's decision to persist or withdrawal rather than GPA or cognitive growth (Pascarella & Terenzini, 1980). As such, it makes sense that future research on college student-athlete success should explore what student-athlete integration and engagement look like and how different types of engagement may be uniquely affecting the persistence rates of student-athletes.

As suggested earlier, integration may be a more relevant concept to explore with regard to student-athletes because for them engagement is heavily controlled by their coaches and administrators within the athletic department. Integration on the other hand will likely differ widely among athletes because it is dependent upon the athlete's subjective perception of his/her fit to the college institution. Measuring the integration of college student athletes may require different measurement scales than those used to assess the integration of non athletes. Specifically, because a significant portion of an athlete's time and energy during college is invested in his/her athletic experience, it is likely that his/her perception of fit into this institutional structure plays a critical role in both integration and persistence. However, because the majority of research exploring integration and persistence have been done on the general student population, traditional measures of integration exclude this important construct (Pascarella & Terenzini, 1980).

Thus, the first important step in studying college student athlete integration and persistence should be the development of a reliable and valid measure that assesses all facets of the student athlete integration process, including their perception of fit into the various structures of their athletic experience. It is proposed that an adequate measure of college student-athlete

integration would assess the negotiation process, or "fit," between the individual's ***internal***

perceptions of self and their perception of the external environment—the athletic department.

The purpose of this study, then, was to develop a measure of college student athlete integration

and evaluate the measure's construct and criterion validity.

Methods

Student-Athletes

The sample of convenience consisted of N = 198 student athletes from four colleges/universities: three from the Midwest and one from the Southeast United States. In order to reduce confounds due to the availability of athletic scholarships and student athlete resources, participants were only recruited from NCAA Division I programs. The following criteria were used to select participants: the participant had to be a student-athlete on a team (e.g., not a student on the team with a non-athletic role), meet the NCAA athletic eligibility standards for participation, and be enrolled as a full time undergraduate student at their institution. The requirements for eligibility are determined and monitored by the NCAA, they include three primary factors: 1) core high school courses completed, 2) high school GPA, and 3) college entrance exam scores. Due to the timing of the data collection, all participants had completed at least three months of college coursework prior to participation. Due to sampling procedures, response rates were not able to be calculated.

Of the 198 participants, 100 were male (50.5%), and there were $n = 127$ freshman (64.1%), $n = 34$ sophomore (17.2%), $n = 21$ junior (10.6%), $n = 12$ senior (6.1 %), and $n = 1$ fifth year student athlete (.5%). Participants were between the ages of 18-24 ($M = 19.28$, $SD = 1.20$). One hundred and thirty three participants were white or European American (67.2%), n = 52 were Black or African American (26.2%), $n = 7$ were Hispanic or Latino (3.5%), $n = 3$ were Native Hawaiian or other Pacific Islander (1.5%), $n = 1$were Asian (0.5%), and $n = 1$were Native American or Alaskan Native (0.5%).

Procedures

Prior to conducting the study, approval was obtained from the Human Subjects

Committee of Lawrence at the University of Kansas. Participants were recruited through a department's Sport Psychologist, an Athletic Academic Counselor, or the CHAMPS Life Skills Director. Permission was requested permission to survey participants via student athlete only classes and student athlete organization meetings. Appropriate athletic directors were also contacted per the recommendation of the internal contact person in order to attain permission for the study. Following the recruitment of institutional participation, the researcher or an associate attended courses and group meetings for student-athletes and requested their participation. They were informed that the assessment was completely anonymous and that no one in their athletic department would see individual survey responses. They were informed that although there were not necessarily any direct benefits to them, this information could potentially be used in the future to improve the support services offered to other NCAA student athletes. Participants were provided with an information statement (per KU Human Subjects Committee requirements) and indicated their consent prior to completing the questionnaire (see Appendix A). The complete battery of assessments including the demographic questionnaire (see Appendix B), the College Student Athlete Integration scale (see Appendix C) and the Institutional Integration Scale (see Appendix D) were then administered to student-athletes.

Measures

    College Student Athlete Integration Scale (CSAI). The college student athlete integration measure was designed to survey college student-athletes about their perceptions of integration into the athletic department in which they were participating. The items and scales in this instrument were developed through several stages to address the content validity of the College Student-Athlete Integration scale. First a focus group was conducted with six members (3 males and 3 females) of one NCAA Division I athletic department staff that had worked and

participated in college athletics for a minimum of six years. The group was comprised of one bi-racial member, one African American/Black member, and one member under the age of 25. One member represented the Sports Medicine Staff, one member represented the Administrative staff, one member represented from Academic Support Staff, one member represented the Coaching Staff, and two members were also on the Student Athlete Development Staff. Three members were former NCAA Division I college student athletes themselves, with one member having only recently graduated.

Athletic department staff members were selected for the focus group rather than student-athletes themselves, because the researcher believed staff members would be better able to understand both the construct of interest and the broad number of ways in which an athletic department may contribute to that construct. While student-athletes may have a valuable perspective regarding their own unique integration experience, staff members have seen the integration of many student-athletes and may be better able to address broad aspects of this process that affect most student-athletes rather than idiosyncratic experiences specific to oneself. Additionally, several of the staff members selected were themselves student-athletes giving them both a broad perspective (staff) and an idiosyncratic perspective (athlete).

Focus group participants were provided an explanation of the purpose of the current research project, an operational definition of college integration, the defined subscales and items of the existing Institutional Integration Scale (Pascarella & Terenzini, 1980), and the researcher's definition of college student-athlete integration into the athletic department (See Appendix E). This information was provided to enhance the group's ability to both understand the focal construct and to identify specific aspects of the college student athlete experience relevant to student athlete integration. They were then asked a series of questions about the college student-

athlete experience (see Appendix E). The purpose of these questions was to determine core categories of the college student-athlete experience that student-athletes must navigate to successfully integrate into their athletic department and to clarifying the characteristics of each category.

After the group was given time to respond privately, their responses were written on the white board and categories were created that reflected logical clustering of these responses. Responses included things like: relationships with coaches, fans, teammates, media, staff, success on the team, status within the team, social status, athletic competence, finding others who are culturally similar to you, developing trust with peers and staff, feeling comfortable in athletic department facilities, and being able to accept rules and regulations. Based upon these responses the group was able to agree upon six latent constructs including: competence, status, interrelatedness with staff, interrelatedness with peers, expectancy from high school to college, and cultural norms.

Based upon the categories identified by the focus group of experts, assessment items were written to reflect aspects of the college athletic experience which student athletes encounter (per category). Items were written by the researcher and one other NCAA Division I student athlete support staff who was also a focus group member. Between 10 and 15 items were written per category. Item responses were written in Likert-scale format similar to that of Pascarella and Terenzini's (1980) original Institutional Integration Scale. The Likert-scale had four points ranging from 1=strongly disagree to 4 = strongly agree. The final preliminary measure consisted of 73 items.

Following the development of the preliminary College Student Athlete Integration scale (CSAI), it was administered to a group of 11 NCAA Division I college student athletes. Pilot

group participants were timed as they completed the measure. It took these participants between 15 and 40 minutes to complete the battery. Following their completion of the measure they were asked questions regarding item clarity, duplicate items, and missing items. Based upon their feedback one correction was made to the IIS questionnaire as it contained a duplicate item, and two new items were added to the CSAI measure. Pilot participants agreed that it was important to include a question regarding the sacrifices they make in their social life as a result of their responsibilities in athletics and a question regarding whether or not they feel their team is supported by people in the community. Based upon findings from pilot testing, items were revised and added resulting in a preliminary measure that consisted of 75 items (see Appendix C for full CSAI measure, see Table 1 for original subscales.

Institutional Integration Scale (IIS). Institutional integration was measured using a questionnaire developed by Pascarella & Terenzini (1980) to study of the relationship between integration and attrition. The purpose of this measure, referred to as the IIS, was to assess how successfully the student had begun to integrate into the larger institution. The original scale contained 34 items assessing five categories of integration to college, which included: peer group relations, informal relations with faculty, faculty concern for teaching and student development, academic and intellectual development, and institutional/goal commitment. Respondents were asked to rate on a 4-point Likert-scale (1= strongly disagree to 4 =strongly agree) how strongly they agreed with each of the items. Pascarella and Terenzini (1979) performed a factor analysis with the 34 items, which resulted in the items clustering in five dimensions of integration. In this study, negatively worded items were reverse coded. The measure yields five sub-scale scores for each category, with higher scores reflecting better integration.

In past research, the IIS subscales demonstrated an acceptable level of reliability for peer

group relations (Cronbach α = .84), informal relations with faculty (Cronbach α = .83), institutional/goal commitment (Cronbach α = .71), faculty concern for teaching and student development (Cronbach α = .82), and academic and intellectual development (Cronbach α = .74) (Pascarella and Terenzini, 1980). In addition to demonstrating adequate internal consistency, Pascarella and Terenzini (1980) found evidence of criterion validity by demonstrating the predictive validity of these measures with regard to student persistence.

Revenue versus non-revenue. Participation in revenue producing sports was defined as participation in men's basketball or football. Participation in non-revenue producing sports was defined as participation in all sports except men's basketball or football. This category was developed following data collection by utilizing responses to the demographic question regarding type of sport participation. Of the 198 participants, 53 participated in revenue producing sports (27%) and n = 145 participated in non-revenue producing sports (73%).

Intention to persist. The students' intention to persist in their *sport* was measured on an 11-point scale (anchors: 0% = not at all, 100% =absolutely certain). The students' intention to persist at their *institution* was also measured on an 11-point scale (anchors: 0% = not at all, 100% = absolutely certain). Finally, the students' likelihood of playing professional sports after college was also measured on an 11-point Likert scale (anchors: 0% = not at all, 100% = absolutely certain). These questions were asked after the demographic questionnaire but before CSAI and IIS items (see Appendix B).

Background. Background questions were selected based on the research literature for their relevance to college integration, persistence, and the success of student athletes. Participants self-reported the sport in which they played, their age, gender, race/ethnicity, playing status, type of scholarship received, academic major, and current GPA. Sport, age,

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major, and estimated current GPA were open ended questions. Gender, race/ethnicity, playing status, and type of scholarship received were forced choice categories. Current playing status on the team was assessed with a single item that asked, "What type of playing time do you receive?" Response categories were: 1= "never play," 2 = "play sometimes," and 3 = "play regularly." One item asked students if and what type of scholarship they received, "What type of athletic scholarship do you receive?" Response categories were: 1 = "no scholarship," 2 = "partial athletic scholarship," and 3 = "full athletic scholarship" see Appendix B).

Plan of Analysis

All analyses for this study's primary research questions occurred within a Structural Equation Modeling (SEM) framework, using IBM SPSS AMOS software (Arbuckle, 2006). Within SEM, the maximum likelihood method was utilized to estimate each models parameters. There were three sets of analyses. First, a confirmatory factor analysis (CFA) was conducted to define and evaluate the factor structure of each scale for the six conceptual domains of the CSAI measure; this analysis was conducted separately for each domain. Second, analyses were conducted to evaluate how well the six domains as a whole reflected the intended construct of college student athlete integration. While this measure was developed for use in future research on persistence and integration, the researcher also intends for the measure to be utilized as a applied tool by student-athlete support staff. As such, the focus of model fitting was on the production of scales with items that did not cross load on multiple latent construct, because the most likely use of the measure will be a mean score. Finally, regression analyses were conducted to evaluate the criterion-concurrent and the construct-validity (convergent and discriminant) of the new measure.

Evaluating the factor structure of each of the six domains of CSAI. Given that items of the CSAI were developed based upon theories of integration (Pascarella & Terenzini, 1980; Tinto, 1975) and constructs identified as relevant to integration by a focus group of experts in the college athlete experience, the selection of CFA procedures was guided by a conceptual understanding of the primary latent constructs. Thus, CFA was chosen over Exploratory Factor Analysis (EFA) because the proposed factors CSAI were based on theory; an EFA is more dependent on data driving the factor structure than theory.

The fit of CSAI items to a specific domain of the CSAI was evaluated separately for each subscale, with items being eliminated based on both item loading and conceptual information. Factor item loadings were evaluated in iterative steps, eliminating one indicator (item) at a time, starting with the item that was the weakest indicator; individual item variances explained by less than 25% of the latent construct (squared multiple correlations; SMC) were considered unacceptable and were eliminated. Once an item was removed, model fit was reassessed and the process repeated until the model achieved acceptable fit. Several fit indices were used to evaluate the relative fit of each single factor model: Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the root mean square approximation (RSMEA). Values greater than .90 on the CFI and TLI, and values less than .08 on the RSMEA indicate acceptable model fit (Brown & Cudeck, 1993). After the CFA was conducted, internal reliability for each scale was computed.

Evaluating the CSAI as a measure of student-athlete integration. In order to evaluate how well the six domains of the CSAI reflect this study's model of college student athlete integration with the athletic department, the fit of the "full model" with all six scale domains included together was evaluated. The same CFI, TLI, and RSMEA criteria were applied to determine acceptable fit. Modification indices were also computed to help identify items

contributing to poor model fit, either through cross loading on multiple factors or having too highly correlated residuals. Finally, the covariance/correlation between latent factors was also considered. A high correlation between factors (i.e., > .75) suggests that two factors do not differentiate the intended construct.

  Evaluating validity of CSAI. The concurrent and construct validity of the finalized CSAI measure was next evaluated. The criterion-concurrent validity of the CSAI was assessed in SEM by evaluating correlations between the CSAI and Institutional Integration Scale (IIS). The literature suggests that the CSAI would moderately correlate with the subscales of the IIS, e.g., *r* = .40 to .70. The construct-discriminant and construct-convergent validity of the CSAI was also evaluated by examining covariances between the CSAI and revenue producing versus non-revenue producing sports and regression paths for intent to persist in the sport and institution on CSAI scale respectively. To evaluate the discriminant validity of the CSAI, the research literature indicated that athletes in revenue producing sports are less likely to be engaged in athletic or academic activities and are more likely to be isolated than athletes in non-revenue producing sports (Hyatt, 2003). Thus, it was anticipated that athletes in revenue producing sports would have significantly lower ratings of integration than athletes in non-revenue producing sports (Gayles & Hu, 2009). To assess the construct-convergent validity of the CSAI, the research literature demonstrates that one of the leading indicators of college dropout and persistence is a student's level of integration. Thus, it was hypothesized that higher scores on the CSAI would be positively correlated with athletes' intention to persist both in sport and school (Pascarella & Terenzini, 1980; Tinto, 1975). The magnitude of the association between CSAI and persistence was expected to be moderate as it is just one of many factors contributing to persistence.

Results

Following the collection of data, statistical analysis were conducted to evaluate the

psychometric properties of each College Student-Athlete Integration subscale, to evaluate the

adequacy of the subscales in collectively measuring the construct of college student-athlete

integration, and to validate a final measure of college student-athlete integration.

Confirmatory Factor Analysis of CSAI Subscales

Preliminary analysis of the CSAI items examined the item statistics (see Table 2) and

proposed factor correlations with the subscale items (see Table 3). The purpose of this step was

to provide the researcher with a bi-variate picture of the inter-relations among items and

subscales and to evaluate the percentage of missing data. Total missing data for the CSAI scale

was < 1%. Following examination of these correlations, a CFA was conducted for each subscale

first, and then for the final model in which all of the subscales were included.

Competence subscale. Analyses were conducted to evaluate the factor structure of the

competence subscale with the original 11 items generated for this domain during measure

development. As seen in Table 4 fit statistics indicated that the base model with all 11 items was

a poor fit to the data $\chi^2 = 110.36$, CFI = .89, TLI = .87, and RSMEA = .089. Evaluation of the

pattern of loadings did not suggest more than one factor, so the researcher began to evaluate if

some items should be eliminated in order to improve fit. After an item was eliminated, the model

was re-evaluated for fit; Table 4 presents the fit statistics for each re-evaluated model. Item 61

was eliminated first due to poor factor loading (SMC = .073) and because conceptually it was

reflective of the student-athlete's perception of their team (an external factor) rather than

themselves. Item 29 was eliminated second due to poor factor loading (SMC = .157) and because

conceptually the area of "strength and conditioning" was likely to be secondary to perceptions of

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competence in sport specific arenas (games/practice). Item 55 was eliminated third due to poor factor loading (SMC = .163) and because conceptually "travel with the team" was likely a less accurate estimate of performance in practice/competition which were already accounted for by other items. Finally, item 66 was eliminated due to poor factor loading (SMC = .227) and because conceptually it was reflective of the student-athlete's perception of their team (again and external factor) rather than themselves. As seen in Table 4, the final model with 7-items approached an acceptable level of fit, $\chi^2 = 37.90$, CFI = .95, TLI = .93, and RSMEA = .095. The process of evaluating individual items for fit with a scale suggested a systematic difference between items: some items appeared to reflect individual's perception of factors outside of themselves (external), such as their team's value in the athletic department, rather than perception of factors related to personal integration with the athletic department—the latter being the intended purpose of developing the measure. These "external" factors appeared to be outside of athletes perception of their own integration into the athletic department, because as defined by Tinto (1975) integration is the product of the internal negotiation between perceptions of oneself and perceptions of the institution they have become a part of (or their "fit"). Finally, based on modification indices, the residuals of items 23 ("I am performing well on my team in games") and 35 ("I am performing well on my team in practice") were correlated, which improve model fit to an acceptable level. Inspection of the two items suggested that shared variance was likely due to the similarity in the wording of each item. Correlating the residuals of these two items allowed the model to systematically account for this shared variance improving model fit while retaining the unique variance accounted for by each item. The fit statistics and items for the final 7-item competence scale are provided in Tables 4 and 5

Status subscale. Analyses were conducted to evaluate the factor structure of the status

scale with 13 items generated for this domain during measure development. As seen in Table 4, fit statistics indicated that the base model—model with all 13 items—was a poor fit to the data χ^2 = 1241.52, CFI = .77, TLI = .72, and RSMEA = .125. The factor loadings for the original model suggested that the status subscale may contain two distinct factors: team status (items: 2, 8, 17, 36, 39, 50) and individual status (24, 30, 44, 56, 62, 67, 70). As the pattern of loadings were evaluated it was discovered that items reflective of the student-athlete's perception of their team (e.g. "My team is respected by other student-athletes") loaded ahead of items reflective of the student-athlete's perception of their own status (e.g. "I am popular in the athletic department") in the structural equation model. This pattern was consistent and discriminated two unique constructs, one reflective of the student-athlete's perception of their team's importance in the athletic department, and one reflective of their own importance in the athletic department.

Model fitting with the two latent constructs, in one model, indicated that the team status model was an acceptable fit, while the individual status model was a poor fit. Items were sequentially eliminated, item 30 was the first item eliminated due to poor factor loading (SMC = .134) and because conceptually "attractiveness" was determined to differ from other individual status items in terms of personal importance in relation to others in the athletic department; all other items measured importance in terms of interpersonal relationships. Second, item 44 was eliminated due to poor factor loading (SMC = .26) and because conceptually it reflected relationships with other student-athletes, but not on a continuum of personal importance in the same way other individual status items did. Third, item 24 was eliminated due to poor factor loading (SMC = .214) and because conceptually the researchers believe the degree of individual status in terms of the student-athlete's "class" lacked clarity because many student-athletes redshirt making class distinctions unclear. As seen in Table 4 the final 2 factor model- 9 items

total (6 items for team status, 4 for individual status) achieved an acceptable level of fit χ^2 = 56.39, CFI = .96, TLI = .95, and RSMEA = .061. The final model included nine items, see Table 4 for sequence of eliminated items and fit statistics, and see Table 5 for the final items included.

Interrelatedness with peers subscale. Analyses were conducted to evaluate the factor structure of the interrelatedness with peers scale with 11 items generated for this domain during measure development. Fit statistics indicated that the original model with all 11 items was a poor fit to the data χ^2 = 109.45, CFI = .84, TLI = .80, and RSMEA = .089. Evaluation of the pattern of loadings did not suggest more than one factor, so the researcher began the elimination of items to improve fit. In reviewing item loading, it was discovered that items reflective of "peer" relationships outside the team unit were loading much lower than items reflective of "peer" relationships with teammates. It is possible that "peer" relationships outside of the team are important with respect to integration, but the current study included an insufficient number of indicators (items) to adequately measure this latent construct. Thus, only items reflective of teammate relationships were retained, all items deleted were conceptually different in that they reflected relatedness with student-athletes outside of one's team. Items eliminated included: 9 (SMC = .004), 11 (SMC = .020), 37 (SMC = .185), and 18 (SMC = .236). The final 9-item model was an acceptable fit to the data χ^2 = 14.82, CFI = .99, TLI = .99, and RSMEA = .018. The final model included nine items, see Table 4 for sequence of eliminated items and see Table 5 for the final items included.

Interrelatedness with staff subscale. Analyses were conducted to evaluate the factor structure of the interrelatedness with staff subscale with the original 11 items generated for this domain during measure development. As seen in Table 4, fit statistics indicated that the base model—model with all 11 items—provided an acceptable fit to the data χ^2 = 84.11, CFI = .94,

TLI = .92, and RSMEA = .073 However, several items demonstrated factor loadings below the cutoff criteria determined by the research, thus individual items were evaluated and eliminated to continue to improve model fit. Evaluation of the pattern of loadings did not suggest more than one factor, so the researcher began the elimination of items to improve fit. In reviewing factor loadings, it was discovered that items reflective of "staff" relationships with persons outside the coaching staff (other athletic department personnel) were loading much lower than items reflective of athlete relationships with "coaches." It is possible that relationships with athletic department staff are important with respect to integration, but the current study included an insufficient number of indicators (items) to adequately measure this latent construct. Thus, only items reflective of athlete relationships with coaches were retained. Items eliminated based on factor loadings and their measurement of relationships outside the "coaching staff" included: 58 (SMC = .084), 19 (SMC = .172), 74 (SMC = .283), 4 (SMC = .221), 64 (SMC = .282) and 52 (SMC = .348). As seen in Table 4, the final model- 6 items- achieved an acceptable level of fit $\chi^2 = 13.05$, CFI = .98, TLI = .97, and RSMEA = .094. The final model included six items, see Table 4 for sequence of eliminated items and see Table 5 for the final items included. This subscale was also re-named to more adequately reflect the items included "Interrelatedness with Coaches," from this point forward this subscale will be referred to accordingly.

Expectations subscale. Analyses were conducted to evaluate the factor structure of the interrelatedness with peers subscale scale with the original 12 items generated for this domain. As seen in Table 2, fit statistics indicated that the base model—model with all 12 items— provided an exceptionally poor fit to the data $\chi^2 = 230.14$, CFI = .58, TLI = .47, and RSMEA = .155). Evaluation of the pattern of loadings did not suggest more than one factor, so the researcher began the elimination of items to improve fit. In examining the items conceptually it

was found that none of the items grouped together as a single construct because, though they were all measuring "met/unmet expectations," the domains measured varied drastically (e.g. expectations of administrators, coaches, teammates, sport training, academic demands). Thus, it was determined that "met/unmet expectations" alone did not reflect a single construct, and that items we had designed were measuring the "met/unmet expectations" of multiple domain specific constructs (e.g. expectations of coaches, expectations of teammates, expectations of performance, expectations of training). Thus, this entire set of items (and their latent construct) was removed from the model.

Culture subscale (rules and demands). Fit statistics for the original 17-item culture subscale indicated a poor fit to the data $\chi^2 = 307.27$, CFI = .82, TLI = .76, and RSMEA = .090 (Table 4). Evaluation of the pattern of loadings did not suggest more than one factor, so the researcher began the elimination of items to improve fit. In reviewing the pattern of factor loadings and conceptual wording of items it was discovered that several items appeared to be measuring another unique construct reflecting "comfortability" in the department. However, similar to the expectations subscale these items were measuring several domains and could not come together as a single construct and were thus eliminated. This included items 34 (SMC = .212), 60 (SMC = .180) 13 (SMC = .313), 28 (SMC = .329), and 54 (SMC = .068). Next, modification indices suggested that the wording of three items might have been too general to reflect the subscale of "culture." For example, item 48 stated "I am confident that I made the right decision in choosing to become a student-athlete at this university." These items were eliminated including: 48 (SMC = .442), 75 (SMC = .322), and 71 (SMC = .382). At this point it became clear that the current model was now measuring the student-athlete's perception of the team and departmental "rules" and the impact of sport "demands" on their college experience

rather than the "culture" of the athletic department. As such, three items were eliminated because they demonstrated poor loadings and were conceptually different from the remaining items reflective of "rules and demands." These items included: 65 (SMC = .168), 40 (SMC = .180 and 21 (SMC = .256). The final model- 6 items- achieved an acceptable level of fit, χ^2 = 17.78, CFI = .97, TLI = .95, and RSMEA = .076 (Table 4). Based on conceptual changes to this subscale it was renamed "rules and demands." See Table 5 for the final items included.

CFA Evaluating the CSAI as a Measure of Student-Athlete Integration

The six domains of the CSAI were next evaluated to determine how well the domains, as a whole, reflected the intended construct of college student athlete integration. Fit statistics for the full 6-factor model indicated unacceptable fit to the data, χ^2 = 945.70, CFI = .87, TLI = .85, and RSMEA = .06; acceptable fit would have indicated that the six domains together reflected the intended construct (see Table 6). Because the full 6-factor model did not adequately fit the data, the conceptual coherence of all six factors for intended integration construct was considered. This examination suggested that the subscales of "team status" and of "rules and demands" did not fit well with the intended conceptualization of college athlete integration. After reviewing the covariances and correlations between these two subscales and other subscales it was discovered that there was significant overlap among both "rules and demands" (three correlations > .60) and "team status" (all five correlations > .51) but great variability in the covariance pattern among these subscales with others (.069 - .123) (see Table 7). This suggested to the researcher that each of these scales were a) not contributing unique variance in the conceptual model of student-athlete integration, and b) may have been measuring a separate but related construct to college student-athlete integration. For team status, the items did not focus on athletes' perception of their individual fit; rather they reflected athletes perception of the teams

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fit with the athletic department. For the rules and demands subscale, the items did not focus on individuals' perception of their fit with the department but rather on their acceptance of external policy. Thus, the four final domains for inclusion in the CSAI construct were, interrelatedness with peers, interrelatedness with coaches, individual status, and competence.

The 4-factor CSAI model was next evaluated for fit. This model was not quite an acceptable fit, $\chi^2 = 407.99$, CFI = .90, TLI = .88, and RSMEA = .065. In order to further refine the 4-factor model, modification indices were utilized to evaluate the contributions of individual items to model misfit. As before, factor item loadings were evaluated in iterative steps, eliminating one indicator (item) at a time, starting with the item that was the weakest indicator based on previously defined criteria, and then re-fitting the revised model. Analyses indicated that item 67, "I receive media coverage" was contributing to model misfit (SMC = .230). In light of the sample gathered, it is likely that this misfit reflected few members of any team actually receiving significant media coverage. As such, it is likely this question was skewed in the direction of little to no media coverage and it was thus eliminated (see Table 6). Model fit for the revised model (without item 67), indicated an improved fit, but it was still not adequate: $\chi^2 = 372.08$, CFI = .91, TLI = .88, and RSMEA = .065. Modification indices indicated item 45 from the interrelatedness with peers subscale was also contributing to poor model fit due to its correlation with item 70 from the individual status subscale. In evaluating item 45 "My teammates listen to me" researchers concluded the item more likely reflected of personal influence rather than perceived integration. This item was thus eliminated. The resulting model was again fit to the data, and it resulted in an improved, but not adequate fit (see Table 6). Modification indices indicated item 16 from the competence subscale was also contributing to poor model fit due to its correlation to the subscale of interrelatedness with coaches. In

evaluating item 16, "I understand the coaches' decision regarding the extent of my participation in competition" it was concluded that this item differed conceptually from other items within this subscale. Specifically, other items in this subscale evaluated the student athlete's perception of their perceived contributions in performance or otherwise. In contrast, item 16 focused on their understanding of the coaches' perception of their contributions, which is conceptually different from the former. This item was eliminated. The final revised 4-factor model (21 items) achieved acceptable fit, $\chi^2 = 269.24$, CFI = .93, TLI = .91, and RSMEA = .057 (see lowermost panel of Table 6). For final set of retained CSAI scale items see Table 8. As a final step, internal reliability of the CSAI was evaluated. All four subscales achieved acceptable reliability scores (> .70, Nunnally, 1978). See Table 9 for CSAI measure descriptive statistics. See Appendix F for the sequence of eliminated items with items by subscale.

Evaluation of Backround Characteristics on CSAI Scores

Relationships between the background characteristics and CSAI final subscale scores were evaluated to determine if these factors should be included in the final model. No significant differences were found between background characteristics of gender, ethnicity, and grade on the CSAI final subscale scores of competence, interrelatedness with peers, individual status, and interrelatedness with coaches. Thus, these factors were not included in final models.

Evaluation of the Validity if the CSAI

The criterion-concurrent validity of the CSAI was assessed in SEM by evaluating regression paths between the CSAI and Institutional Integration Scale (IIS), followed by construct-validity evaluation of the correlations between the CSAI and revenue/non-revenue and intent to persist variables.

Criterion-concurrent validity. Criterion-concurrent validity of the CSAI was assessed

by regressing the IIS on the CSAI. However, prior to evaluating these regression coefficients, the factor structure of the IIS needed to be confirmed. The IIS was originally developed using a principal components analysis (Pascarella & Terenzini, 1980). Although the measure has since been widely used, only one confirmatory factor analysis has been conducted to evaluate the model structure of this measure (French & Oakes, 2004). However, French and Oakes (2004) used summary, mean scores instead of the IIS individual items to reflect the purported factors of the IIS. Thus, evaluation of items within a scale of the IIS was not conducted, which did not then allow for proper evaluation of the structural-validity of the IIS. The goal of the CFA for the IIS procedure was to determine a model of acceptable fit to evaluate as a criterion against the CSAI, not necessarily to improve the quality of the IIS itself (for the original subscales and items see Table 10).

The full IIS model with the purported 6 factors was a poor fit to the data, $\chi^2 = 945.70$, CFI = .87, TLI = .85, and RSMEA = .061. Evaluating the pattern of covariance of the factors suggested potential shared method variance related to item wording contributing to model misfit. Specifically, several items in the measure were worded in such a way that they could have been interpreted as "double negatives" in relation to the Likert anchors (strongly disagree, disagree, agree, strongly agree). For example, item 3 states "Few of the faculty members I have had contact with are generally interested in students" when answered with "strongly disagree" would indicate the participant had contact with many faculty members who were generally interested in students. Though some participants likely took the time to fully understand the meaning of these items, it is likely (esp. considering the pattern of factor loadings) interpretations of these items were inconsistent at best. As such all items beginning with the word "few" were eliminated from the measure, improving model fit statistics, though fit was still found to be poor (see Table 11).

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Importantly, the elimination of all items beginning with the word "few" left the subscale of Faculty Concern for Student Development with only two items, which is not ideal.

In evaluating the pattern of covariance among the factors of the subscales it became apparent that the subscale of Academic and Intellectual Development was significantly contributing to poor model fit, as the correlations between this and other subscales were extremely high (PGI: $r = .71$, IWF: $r = .81$, FCSDT: $r = .84$, IGC: $r = .53$). In a further review of the individual items on this subscale it was determined that these items were likely to be measuring participant levels of satisfaction with their choice of institution rather than their integration into it. This subscale was thus conceptualized as an outcome measure of integration (perception of fit) rather than a measure of the level of integration itself and it was eliminated in its entirety, which improved model fit, although it was still unacceptable (see Table 11).

Subsequently, the pattern of covariance among the factors revealed that the remaining two-item, Faculty Concern for Student Development subscale had exceptionally high correlations to the Interactions with Faculty subscale ($r > .85$) and contributed to model misfit. The two subscales were collapsed into one and model fit was re-evaluated with a three factor model (Interactions with Faculty, Peer Group Interactions, and Institutional and Goal Commitments). Model fit statistics indicated the new model was still a poor fit based (see Table 11).

At this stage, factor item loadings were evaluated in iterative steps, eliminating one indicator (item) at a time, starting with the item that was the weakest indicator based on previously defined criteria. Once an item was removed, model fit was reassessed and the iterative process repeated until the model achieved acceptable fit. In the first elimination, two negatively worded items were eliminated based upon their low loading on the latent construct, items 25

(SMC = .104) and 28 (SMC = .109) (see Table 11). As a result model fit was improved slightly, but it was revealed that item 5 no longer sustained an acceptable loading on the institutional goal commitments construct (SCM = .149) and was thus eliminated (see Table 11). Again, model fit was improved slightly, but item 20 was found to have an unacceptable loading on the latent construct (SCM = .093) and was eliminated (see Table 11). This elimination left the subscale of Institutional and Goal Commitments with a two item factor, which was determined to be insufficient for the purpose of defining the latent construct. Thus, it was decided to eliminate the entire subscale and model fit was improved upon though it didn't reach an acceptable level of fit (see Table 11). In evaluation of the factor loadings it was found that that item 21 (which was also the only remaining reverse scored item) demonstrated an unacceptable loading (SCM = .210) on the latent construct of Peer Group Interactions and was eliminated.

The two factor model was rerun and model fit was found to be improved but still short of acceptable (see Table 11). In evaluating item content, it was determined that the two items which had been collapsed from Faculty Concern for Student Development subscale into Interactions with Faculty subscale were conceptually unique from the other items because the items from the IWF subscale were reflective of the student's perception of their relationships with faculty, while the items from the FCSDT subscale were reflective of the student's perception of the faculty's interest in academic areas. As such, items 18 and 23 were eliminated, the two factor model was re-run and model fit was improved (see Table 11). In a final attempt to achieve an acceptable level of model fit the residuals of items 22 and 7 were correlated based on the modification indices. Following this adjustment an acceptable level of model fit was achieved. As seen in Table 11, the final model- two factors and 11 items- achieved an acceptable level of fit, $\chi^2 =$ 57.86, CFI = .94, TLI = .90, and RSMEA = .82. The final model included two factors and eleven

items, see Table 11 for sequence of eliminated items and see Table 12 for the final items included. See Table 13 for final IIS descriptive statistics and internal consistency for the sample.

With the factor structure of the IIS determined, concurrent validity of the CSAI was next evaluated, assessing the association between CSAI subscales and IIS subscales measured at the same point and time with the same sample. Relations between these subscales were evaluated via structural equation modeling by including all six (confirmed) factors in one model, with covariance pathways between CSAI and IIS scales. The model- six factors and 31 items- neared an acceptable level of fit, χ^2 584.45, CFI = .90, TLI = .88, and RSMEA = .056), supporting the sustainability of the CSAI model fit. Further, correlations between CSAI subscales and IIS subscales demonstrated moderate strength (e.g. peer group interactions and individual status $r = $ .55), supporting the hypothesis that these two measures are assessing related yet different constructs of "integration" (see Table 14 for correlations).

Construct-discriminant validity. Discriminant-validity was evaluated by comparing CSAI subscale scores between athletes participating in revenue producing sports (men's basketball and football) and non-revenue producing sports (all other sport participants). Differences between groups were evaluated by examining in one model the correlations between the four CSAI factors and the single-item variable "sport revenue". It is important to note that though the researcher sought to include as many revenue producing student-athletes as possible, this category was underrepresented in comparison to the non-revenue producing student-athlete sample (revenue $n = 53$, non-revenue $n = 145$). The model achieved an acceptable level of fit, χ^2 = 304.82, $p < .001$, CFI = .92, TLI = .90, and RSMEA = .060. However, correlations between sport revenue and any of the CSAI subscales were not found to be significant (See Table 15).

Construct-convergent validity. Convergent validity was evaluated by regressing the

student-athlete's intention to persist in his/her sport and at his/her institution on the final CSAI subscales via structural equation modeling. Initial model fit was evaluated, and the model achieved an acceptable level of fit, $\chi^2 = 288.23$, $p < .001$, CFI = .95, TLI = .93, and RSMEA = .049. Regression paths from CSAI subscales to "team persistence" and "school persistence" were evaluated and sequentially pruned if not significant until only significant loadings remained (see Table 16). The final model achieved an acceptable level of fit, 6 factors and 22 items, $\chi^2 = 292.48$, $p < .001$, CFI = .95, TLI = .93, and RSMEA = .048. As seen in Table 16, only the CSAI subscale of "competence" was found to significantly correlate with "team persistence," F = 2.19, SE = .36, $p < .001$. Further, as seen in Table 16, only the CSAI subscale of "interrelatedness with peers" was found to significantly predict "institutional persistence," F = 1.26, SE = .44, $p < .01$.

Discussion

Research exploring factors that contribute to college persistence and departure decisions has revealed that persistence is more heavily influenced by factors related to student integration into the college environment rather than actual academic success (i.e. GPA) (Tinto, 1975, Pascarella and Terenzini, 1980). Integration has been defined as the degree to which a student's attitudes and values match that of his/her peers and faculty at the university (Tinto, 1975). In other words, college integration is the student's perception of the goodness of fit between him/herself (*internal* beliefs about oneself) and the academic institution (*external*) he/she is attending. Factors that have been found to contribute to integration include both individual factors (e.g. pre-college characteristics, degree of familial support, academic preparation, and sociocultural factors), and environmental factors (e.g. social structures and academic structures) (Berger & Milem, 1999; Cabrera, Nora, & Castaneda, 1993; Pascarella & Terenzini, 1980; Tinto, 1975).

Measures of institutional integration have been developed and validated for the general student population, and a great deal of research has been conducted to further our understanding of issues related to persistence and integration among this population (French & Oakes, 2004; Nora, & Castaneda, 1993; Pascarella & Terenzini, 1980). However, there are a number of sub-cultures within a university that have unique environments, which may differentiate their integration process from other students at a given institution. One such population is that of college student-athletes who encounter a number of institutional structures specific to their roles as members of a university athletic department (Carodine et al., 2001). If Tinto's (1975) theory of integration is to be applied to this population, it is critical to assess the actual university structures in which they must integrate into in order for them to successfully adjust to and

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eventually persist at their particular institution. Unfortunately, there are no current measures that assess college student-athlete integration into the athletic department, making it difficult to begin exploring factors that might enhance or prohibit successful integration for college student-athletes. Thus, the purpose of the present study was to develop and validate a measure of college student athlete integration into the athletic department.

Developing the Content of the CSAI

To begin the process of developing the CSAI, an operational definition was first developed. Results from a focus group of specialists in college student athlete success indicated six possible domains through which student-athletes integrate into the athletic department. These factors were interrelatedness with peers, interrelatedness with staff, competence, status, expectations, and culture, which were similar to existing integration conceptualizations of Tinto (1975) and Pascarella and Terenzini (1980). Unique to the CSAI, the focus group identified a student athlete's perception of his/her "status" in the athletic department, and the discrepancy between his/her "expectations" (prior to enrollment) and reality (after beginning participation) as essential aspects of college student-athlete integration. Items were generated within each domain and a pilot study was conducted to garner feedback on the items (but not evaluate the structure of the CSAI).

A Four-Factor Model of CSAI

Based on both the focus groups and existing research, it was proposed that the CSAI would consist of 6-factors. Each of the six factors was separately confirmed through model fitting procedures that included removing items that poorly reflected a particular latent construct. This step of the analysis, then, indicated that each of the factors reflected their intended construct.

The focus group intended for the interrelatedness with peers factor to measure the student-athlete's perception of his/her interpersonal or social fit with both his/her teammates and other student-athletes in the athletic department. Through model fitting, only items reflective of interpersonal relationships with teammates grouped together to measure a single construct. The focus group intended for the competence factor to measure the student-athletes perception of his/her value in terms of sport performance on their team. This factor was confirmed as it was intended. The focus group intended for the status factor to measure the student-athlete's perception of his/her own and his/her team's prestige in the athletic department relative to other student-athletes and teams. Through model fitting, the status factor was found to reflect two unique constructs, "team status" (team's prestige in the department) and "individual status" (student-athlete's prestige in the department). The focus group intended for the interrelatedness with staff factor to measure the student-athlete's perception of his/her interpersonal fit with his/her coaches, staff members in the department, and administrators in the department. Model fitting revealed only items reflective of interpersonal relationships with coaches grouped together as a single construct. The focus group intended for the expectations factor to measure the discrepancy between what the student-athlete anticipated his/her experiences in the athletic department would be like and the reality of what his/her experiences actually are. This factor did not group together as a single construct and was dropped from the scale. It is the researchers belief this is factor measured too many domains encompassed in the other subscales, and that the construct as it was intended was secondary to several other factors already assessed. Finally, the focus group intended for the culture factor to measure the student-athletes perception of fit to the environment, rules, and demands of the athletic department as a whole. Through model fitting, only items reflective of the student's perception of fit with departmental rules and demands

grouped together to measure a single construct.

With the exception of the expectations factor (which is believed to be encompassed within other factors), findings of this study provided evidence that six (status split into two factors) of the proposed factors reflected their intended construct. However, analysis evaluating the CSAI as a cohesive construct (i.e., college athlete integration with the athletic department) indicated the six factors, together, did not reflect a single construct. Instead, analyses indicated that college-student athlete integration with the athletic department was better conceptualized as a four-factor construct.

These final factors included, interrelatedness with teammates (formerly interrelatedness with peers), interrelatedness with coaches (formerly interrelatedness with staff), competence, and individual status (formerly one aspect of status). Through the final development phase of the CSAI scale, the researcher's conceptual understanding of the college student-athlete integration construct was refined as it became evident that only factors (and items) reflective of the student-athletes *internal* perceptions of self (his/her competence, relationships, status, etc), rather than their perceptions of the external environment (the team, the departmental rules or expectations) contributed meaningful information to the college student-athlete integration construct. Thus, the team status and rules and demands factors were eliminated. Specifically, team status items did not focus on athletes' perception of their individual fit; rather they reflected athletes perception of the teams fit with the athletic department. For the rules and demands subscale, the items did not focus on individuals' perception of their fit with the department but rather on their acceptance of external policy. Conceptually this fits with our refined understanding that student-athlete integration is the product of the negotiation between that which is *internal* (perceptions of self) and that which is *external* (perceptions of the department or team.

In addition, it was also discovered that only items reflective of the student-athletes integration on their "team" rather than the department as a whole were retained. This differs from the researcher's original hypothesis that integration into the athletic department as a whole would be most critical for a student-athletes commitment and intention to persist at a particular institution. Specifically, it demonstrates that for student athletes their perception of "fit" with their team (e.g. coaches, teammates, sport performance) supersedes their perception of fit with other aspects the larger athletic department or university. This is an important contribution to the integration and higher education literature in that it highlights how distinctively participating in collegiate sport alters the experience of being college student.

Importantly, the retained CSAI factors are consistent with Tinto's proposed model of institutional integration in that two of the categories fall into the "Social System" student's must integrate into, including, interrelatedness with teammates and individual status (reflecting degree of influence/prestige in relationships). As anticipated, these factors reflect sport specific versions of the "Social System" factors Pascarella & Terenzini (1980) and Cabrera, Nora, and Castaneda, (1993) found to be predictive of successful integration and later persistence. Similarly, the confirmed factors of competence and interrelatedness with coaches mirror the "Academic System" categories of academic performance and interrelatedness with faculty proposed by Tinto (1975) in that they represent sport specific types of authority figures and performance arenas student athletes must integrate into to succeed in college.

Through several measurement development phases, including: focus group identification of factors, item development, factor analysis, and validity analysis the construct of college student-athlete integration into the athletic department was refined. Based on this process student-athlete integration is defined as the student athlete's perception of fit between that which

is *internal* (beliefs about self) and that which is *external* (beliefs about the athletic department). Thus, findings of this study suggest that four factors of the CSAI scale (interrelatedness with teammates, interrelatedness with coaches, individual status, and competence) reflect the college student-athlete integration construct.

Validity of the CSAI Scale

Results of this study provided initial support for the construct validity of the four-factor CSAI scale. Specifically, in evaluating criterion-concurrent validity, the CSAI subscales were found to be moderately correlated with a two-factor IIS (Pascarella & Terenzini, 1980). As expected, correlations were in the positive direction indicating that as student-athlete integration increases institutional integration also increases. For example as higher IIS peer group interaction scores were correlated with higher CSAI individual status scores ($r = .55$).

In assessing criterion-concurrent validity, it came to the researcher's attention that despite widespread use of the Institutional Integration Scale (IIS), adequate confirmatory analysis had not been done. As such, the IIS was evaluated via CFA procedures to ensure that the scales correlated to the CSAI were accurately measuring the construct of integration. Results demonstrated that only two of the original factors could be confirmed. The remaining two factors were peer group interactions and faculty interactions with students. It is suspected that much of the problem with the scale was related to poor wording. Several of the items were negatively worded and when respondents also answered in a negative direction it resulted in sentences structured as double negatives. Poor item quality eventually resulted in a limited number of items per scale and the breakdown of the other three factors.

The researcher's inability to confirm the factor structure of the IIS with a student-athlete sample provides additional support for the importance of the CSAI scale for assessing the quality

of integration for student-athletes. The IIS has long been utilized as valid measure of institutional integration for the general student population with rather robust support (Cabrera, Nora, and Castaneda, 1993; Pascarella & Terenzini, 1980). However, when assessing the current sample of college student-athletes the subscales of the IIS were inconsistent suggesting that this measure doesn't fit this particular sample. Thus, to truly evaluate the quality of integration for student-athletes it appears important to include a supplemental measure addressing the unique aspects of the college student-athlete experience.

Tests of discriminant validity of the CSAI—evaluating differences between revenue and non-revenue producing sports on CSAI—did not provide discriminant validity support for the CSAI. Although not as expected, this information does not automatically undermine the validity of CSAI. Though previous research has shown differences among academic related outcome variables between student-athletes' participating in revenue vs. non revenue producing sports, no research has demonstrated this specific difference in terms of adjustment, integration or persistence (Gayles & Hu, 2009; and Howard, Hamilton, & Sina, 2001). Furthermore, the current finding does not preclude the possibility of a difference between student-athletes participating in revenue vs. non-revenue producing sports as the sample of revenue producing student-athletes was relatively small (n = 53, 27%) (and individual differences among those sampled may be different than the population). Furthermore, the current sample included four NCAA Division I institutions, but two of these institutions were major Division I programs, while the other two were mid-major Division I programs. As such, there were qualitative differences between the actual revenue producing teams included in this sample, which may have influenced the researchers ability to identify differences between revenue and non-revenue producing sports. Future research should further investigate this relationship by obtaining a larger sample of

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student-athletes from revenue producing sports.

This study's results provided partial support for the construct-convergent validity of the CSAI. Of the four CSAI sub-scales, competence was found to account for a significant portion of the variance in intention to persist on one's team and interrelatedness was found to account for a significant portion of the variance intention to persist at one's institution. Persistence was not correlated with the remaining two CSAI scales. This pattern of finding is similar to that of Pascarella and Terenzini (1980), who found that out of five subscales measured on the IIS only institutional goal commitment, interactions with faculty, and faculty concern for student development made significant and unique contributions to persistence. Integration is just one small piece of the departure decision pie. Like the Pascarella and Terenzini (1980) study, this study used a single item to assess each persistence domain. Thus, at least some of the lack of association could be due to insufficient measurement of the persistence constructs. Many other factors are likely to impact a student-athletes decision to persist at their institution, such as institutional prestige, scholarship offers elsewhere, family pressure to remain or leave, willingness of the program to release the student-athlete, and loss of eligibility or playing time due to transfer. Additionally, the CSAI scale is intended to be a supplemental measure utilized in combination with other integration measures such as the IIS. As such, it is very likely that when measuring multiple predictor variables (e.g. IIS, CSAI, demographics, etc) and multiple outcome variables, the CSAI will make more meaningful contributions in the overall prediction equation or model. Future research, then, should focus on developing a reliable and valid measure/model of persistence.

Limitations and Future Directions

There were several limitations in this study that suggest ways to improve future research

on this topic. In the process of refining the CSAI scale, there were many items that failed to reflect their intended construct. In addition, the analyses suggested that making an "internal-external" distinction in integration was important, although it was not considered when developing the pool of items for the CSAI. Thus, some constructs may not have had an adequate number of items to assess a domain, which also implies that the domains that could not be included could reflect the intended CSAI construct. Although the use of a 4-point Likert response scale in this study was based on other researchers' work, the narrow range of possible responses could have restricted variability. This possible restriction of range should be addressed in future studies by expanding the response set to at least a 5-point, or preferably a 7-point, Likert scale.

The current sample focused on NCAA Division I student-athletes from four schools. The generalizability of the results then are limited. For measure development, however, the sample sufficed. Research on college student athletes indicates frequent differences between males and females, white student-athletes and non-white student-athletes, and revenue and non-revenue producing sports (Gayles & Hu, 2009; Howard, Hamilton, & Sina, 2001; Leppel, 2005; Melendez, 2007; and Pascarella et al., 1995).

Also, current sampling took place several months into the academic year, at which point many student-athletes may have already departed from the institution. To gather a more representative sample of student-athletes (including both departures and persisters), sampling procedures should take place within the first two months of classes and departures should be tracked over the course of the entire year. Further, the persistence literature indicates notable differences in the importance of "integration" for freshman college students vs. all other classes (Pascarella & Terenzini, 1980; Tinto, 1975). Unfortunatley, this researcher was unable to test for

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age differences due to an insufficient sample of non-freshman participants. Future samples should include a more representative sample of college student athletes. The current study provided initial evidence for the validity of the CSAI scale. However, this study did not evaluate the predictive validity of the CSAI. Thus, the impact of this scale for understanding student athletes' over time persistence at an institution should be evaluated in a future study.

Conclusion

Student-athletes integration into the athletic department is likely to be an important aspect of understanding persistence and departure decisions. The CSAI scale is intended assess one component hypothesized to influence persistence and departure decisions for college student-athletes. If, according to Tinto (1975), college student departure from a university institution is the result of a lack of congruency between student's goals and values and the student's perception of the institution, this new measure could be a useful tool in identifying student athletes who may be at greater risk for dropping out of college. The measure could also provide information to athletic departments about a potential misfit between the athlete and department and seek solution to remedy the incongruence. Importantly, this measure was developed with the explicit intention of being utilized in combination with other measures that address integration into the larger university environment. The CSAI is narrow in scope in that it primarily evaluates the student-athletes perception of "fit" to his/her team. The current study provides substantial support for the importance of this component of integration; however, it does not negate the value in also assessing other aspects of integration including integration with faculty, academic courses, and peers outside of the athletic department.

Furthermore, though many factors impact the departure decision for student-athletes, few of these factors are under the influence of the institution, and specifically the athletic department

itself. However, by having a measure which may more adequately assess the student athlete's sense of belonging to the department (one factor significantly impacting departure decisions), it is much more likely a department could actually develop strategies (or programming) to enhance the likelihood their student-athletes would persist. Ideally, the current study is an initial step toward a line of research which would lead to the development of a comprehensive model of college student-athlete departure reflective of the complex interaction of individual factors (race/ethnicity, gender, type of sport), academic factors (interactions with faculty, engagement and involvement in academic related activities, academic success), institutional goal commitments, and athletic factors (interrelatedness with teammates, interrelatedness with coaches, individual status, and competence) that have been found to impact the unique college experience of student-athletes.

With increasing efforts by the NCAA to ensure the persistence, academic success, and well-being of collegiate student-athletes, athletic departments are investing more financial resources toward programming and staff positions which support the overall functioning of its student-athletes. Integration or an athlete's overall sense of "belonging" within an athletic department has demonstrated itself to be one critical piece of the success of a student-athlete in college. As such, when departments are attempting to identify meaningful programming and evaluating the efficacy of those programming, valid measures of college-student integration could be enormously beneficial.

In its practical application, the CSAI scale could also be utilized by athletic department staff members to identify student athletes at risk of poor integration and/or early departure. In evaluating individual scale results, staff members may then be able to support at risk student-athletes in accessing resources which could remedy particular student-athlete struggles. Further,

with retention becoming an important focal point for NCAA member institutions including the introduction of evaluative criteria and penalties for failing to meet graduation and progress to degree expectations (APR) it is anticipated member institutions will continue to increase allotment of funds toward retention and student success programming. As athletic departments make decisions regarding the investment of financial resources into programming for their student-athletes, it would seem natural to seek the expertise of licensed mental health professionals (e.g. psychologists, and social workers) to most effectively support student-athletes in successfully integrating or adjusting to differences between themselves and the or team they have become a part of.

This research highlights both the importance of integration for the success and persistence of college student-athletes, and the differences between the experiences of college student-athletes and non-athletes. In many ways college student-athletes encounter an institution within an institution as they attempt to meet the demands of both the college at large and the smaller and yet demanding athletic department. For college student-athletes, adjustment and integration cannot be pared down exclusively to academics, athletics, and/or social structures; rather, it is the complex interplay of each of these factors which determines collegiate success and persistence. Unlike the broader expectations of the university, a collegiate student-athlete must learn to navigate the "hidden curriculum" that will abound his/her unique college experience as he/she becomes part of a culture that has similar and yet also unique expectations of its members. It is the hope of this researcher that this study provides an initial small step in the direction toward understanding this "hidden curriculum," in an effort to enhance the experiences and successes of college student-athletes.

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The Development of an Assessment of College Student Athlete Integration

The Department of Psychology and Research in Education at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

We are conducting this study to better understand the factors which affect student athlete integration into college. This will entail your completion of one short questionnaire.

The content of the questionnaires should cause no more discomfort than you would experience in your everyday life. Although participation may not benefit you directly, we believe that the information obtained from this study will help us gain a better understanding of how we can better assist student athletes in their adjustment to college. Your participation is solicited, although strictly voluntary. If you would like additional information concerning this study before or after it is completed, please feel free to contact us by phone or mail.

Completion of the survey indicates your willingness to participate in this project and that you are over the age of eighteen. If you have any additional questions about your rights as a research participant, you may call (785) 864-7429 or (785) 864-7385 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas   66045-7563, email irb@ku.edu.

Sincerely,

Brett C. Haskell   Barbara A. Kerr, Ph.D.
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Appendix B
Demographic Questionnaire

Demographic Information

Last 4 digits of your Student
ID_____   _____

University: (fill   **Year in college (fill**

in)_____   **in)**_____

Age: (fill in)   **Gender (circle):** Male   Female

_____   **Current cumulative college GPA to**

Sport: (fill in)   **date**_____

_____

Major (fill in)

Time taking this survey (circle)   First   Second

If Second, approximately how long ago did you take it the first time (fill

in)_____

Race/Ethnicity (circle):

1. Native American or Alaskan Native   2. Asian

3. Black or African American(not of Hispanic origin)   4. Hispanic or Latino

5. Native Hawaiian or other Pacific Islander   6. White or European American(not of

      Hispanic origin)

What type of playing time do you receive? (circle one):

Never Play   Sometimes Play   Always Play

What type of athletic scholarship do you receive? (circle one):

No Scholarship   Partial Scholarship   Full Scholarship

Following this season/school year, how certain are you that you will continue playing on this team? (circle one
number):

Not at all   0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%   **Absolutely certain**

Following this season/school year how likely are you to continue attending this institution? (circle one
number):

Not at all   0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%   **Absolutely certain**

How likely is it that you will play professional sports after your time at this university?

Not at all   0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%   **Absolutely certain**

College Student Athlete Integration Scale

Department Satisfaction Questionnaire: For the questions below, try not to let your response to one statement influence your responses to other statements. There are NO correct or incorrect answers. Answer according to your own feelings, rather than how you think your peers might answer.

Strongly Disagree 1	Disagree 2	Agree 3	Strongly Agree 4

1. I know that I will make valuable contributions to my team in the future.
2. My team socializes with other athletic teams at this university.
3. Since coming to this university, I have developed close personal relationships with student athletes on my team.
4. I have developed a close relationship with at least one member of the athletic department staff.
5. I've been disappointed in my sport experiences since coming to this university.
6. I understand and accept team rules.
7. My coach believes I will make valuable contributions to my team in the future.
8. My team is respected by other student athletes.
9. Most student athletes at this university have values and attitudes different from my own.
10. My coaches listen to me.
11. I participate in organized activities with other student athletes (e.g. SAAC, FCA)
12. My expectations for my participation in competition have been met.
13. I feel comfortable in the academic center.
14. The rules for student athletes in this athletic department are reasonable.
15. I believe that my current role on my team is important.
16. I understand the coach's decision regarding the extent of my participation in competition.
17. My team is popular with other teams in the athletic department.
18. Since coming to this university, I have developed close personal relationships with student athletes outside of my team.
19. My academic counselor cares about doing what is in my best interest.
20. I feel disappointed by the extent to which my coaches value me.
21. I understand and accept the team captain's expectations of me.
22. The friendships I have made with other student athletes at this university have been personally satisfying.
23. I am performing well on my team in games.
24. I am a respected member of my class on my team.
25. I feel welcomed by the upperclassmen on my team.
26. My expectations of this athletic department have been met.
27. My interactions with my coaches have had a positive influence on my development as a person.
28. I feel comfortable in my locker room/team area.

29. I am performing well on my team in strength and conditioning.
30. I feel attractive to other student athletes.
31. My interpersonal relationships with my teammates have had a positive influence on my development as a student athlete.
32. I have developed a close relationship with at least one member of the coaching staff.
33. My expectations for my relationships with coaches have been met.
34. I feel comfortable in the athletic training room.
35. I am performing well on my team in practice.
36. My team is respected by the athletic department administration.
37. It has been difficult for me to meet and make friends with other student athletes at this university.
38. I feel disappointed by the extent to which my teammates value me.
39. Members of the community support my team.
40. Because of my athletic commitments I am missing out in my social life.
41. My interactions with my coaches have had a positive influence on my development as an athlete.
42. My travel demands as a student athlete are reasonable.
43. My teammates believe I will make valuable contributions to my team in the future.
44. I socialize with other student athletes outside of my team at this university.
45. My teammates listen to me.
46. My coaches care about me.
47. My expectations for how I would be treated by athletic department staff have been met.
48. I am confident that I made the right decision in choosing to become a student athlete at this university.
49. My passion for my sport has decreased since coming to this university.
50. My team is an important part of this athletic department.
51. There are student athletes at this university I can turn to if I have a personal problem.
52. My athletic trainer cares about doing what is in my best interest.
53. I've been disappointed in my relationships with teammates since coming to this university.
54. I am uncomfortable with the degree to which my behaviors and choices are monitored by the athletic department staff.
55. I travel with my team to away competitions.
56. I am popular in the athletic department.
57. There are members of my team who are like me.
58. My strength and conditioning coach cares about doing what is in my best interest.
59. The sport training in this athletic department has been more challenging than I expected.
60. I feel comfortable in the weight room.
61. I am satisfied with my team's performance.
62. People in the athletic department know who I am.
63. The academic demands have been more challenging than I expected.
64. The athletic department administration cares about doing what is in my best interest.
65. I am disappointed with the decrease in my freedom since becoming a student athlete at this

	university.
66.	I believe in my team's future performance potential.
67.	I receive media coverage (radio/television/newspaper).
68.	I have been disappointed in the coaching style at this university.
69.	The expectations for student athletes in this athletic department are reasonable.
70.	I am popular on my team.
71.	It is important that I complete my eligibility as a student athlete at this university.
72.	I feel supported by this institution when it comes to balancing the roles of student and athlete.
73.	The sacrifices I have to make as a student athlete are worth it.
74.	There are athletic department staff members who are like me.
75.	I will continue to participate as a student athlete at this university next year.

Appendix D
Institutional Integration Scale

University Satisfaction Questionnaire: For the questions below, try not to let your response to one statement influence your responses to other statements. There are NO correct or incorrect answers. Answer according to your own feelings, rather than how you think your peers might answer.

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

1. Since coming to this university, I have developed close personal relationships with other students.
2. My nonclassroom interactions with faculty have had a positive influence on my personal growth, values and attitudes.
3. Few of the faculty members I have had contact with are generally interested in students.
4. I am satisfied with the extent of my intellectual development since enrolling at this university.
5. It is important for me to graduate from college.
6. The student friendships that I have developed at this university have been personally satisfying.
7. My nonclassroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.
8. Few of the faculty members I have had contact with are generally outstanding or superior teachers.
9. My academic experience has had a positive influence on my intellectual growth and interest in ideas.
10. I am confident that I made the right decision in choosing to attend this university.
11. My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes and values.
12. My nonclassroom interactions with faculty have had a positive influence on my career goals and aspirations.
13. Few of the faculty members I have had contact with are willing to spend time out of class to discuss issues of interest and importance to students.
14. I am satisfied with my academic experience at this university.
15. It is likely that I will register at this university next fall.
16. My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas.
17. Since coming to this university, I have developed a close, personal relationship with at least one faculty member.
18. Most of the faculty I have had contact with are interested in helping students grow in more than just academic areas.
19. Few of my courses this year have been intellectually stimulating.
20. It is _not_ important to me to graduate from this university.
21. It has been difficult for me to meet and make friends with other students.
22. I am satisfied with the opportunities to meet and interact with informally with faculty members.
23. Most of the faculty I have had contact with are genuinely interested in teaching.
24. My interest in ideas and intellectual matters has increased since coming to this university.
25. I have no idea at all what I want to major in.
26. Few of the students I know would be willing to listen to me and help me if I had a personal problem.
27. I am more likely to attend a cultural event (for example, a concert, lecture or art show) now than I was before coming to this university.
28. Getting good grades is not important to me.
29. Most students at this university have values and attitudes different to my own.
30. I have performed academically as well as I anticipate I would.

Appendix E
Focus Group Handout

The Development and Validation of a Measure of College Student Athlete Integration
Dissertation: Brett C. Haskell
Focus Group Factor Development

Purpose:

The purpose of the following research project is to develop an assessment which measures a college student athlete's level of integration (or sense of belonging) in an athletic department. Previous studies have found that integration into the various structures of the university (social, academic, ideological) determine the likelihood that a college student will persist at that institution. Thus, it is hypothesized that a student-athlete's perception of "fit" or "belonging" within his or athletic department will have a similar impact on his/her decision to persist both in athletics and in academics. The purpose of this focus group is to determine what sub-categories (or factors) underlie a student's perception of fit to their athletic department. Assessment items will be written based upon these categories.

Definitions:

College Integration: College integration is a student's *perception* of the goodness of fit between him/herself and the college institution he/she is attending (Pascarella & Terenzini, 1980; Tinto, 1975).

Factors contributing to students' perception of fit include:
(Pascarella & Terenzini, 1980)

1. Peer-group interactions
2. Interactions with faculty
3. Faculty concern for student development and teaching
4. Academic and intellectual development
5. Institutional and goal commitments

College integration is measured by Pascarella and Terenzini's (1980) assessment of Social and Academic Integration which consists of five subscales based upon the previous factors. Please see the attached assessment.

College Student-Athlete Integration: College student-athlete integration is a college student athlete's *perception* of the goodness of fit between him/herself and the athletic department he/she is a member of.

Importantly, college student athlete integration is based upon the student athlete's *perception of fit* to his/her environment not upon his/her involvement in athletic related activities or his/her personal effort directed toward athletic success.

1. What are some of the specific areas of the athletic department that student athletes must adjust to?

2. What are important aspects of a student athlete's athletic experience which make him/her feel like he/she fits in?

3. What categories would you use to group the characteristics identified?

4. Of the categories identified by the group, please rank order the 6 you believe to be most important to student-athlete integration into the athletic department.

CSAI Items
> **Dark Grey:** Items eliminated from subscale model fitting.
> **Light Grey:** Items eliminated from full model fitting.
> **White:** Final Items

Competence
> 1. I know that I will make valuable contributions to my team in the future.
> 7. My coach believes I will make valuable contributions to my team in the future.
> 15. I believe that my current role on my team is important.
> 16. I understand the coach's decision regarding the extent of my participation in competition.
> 23. I am performing well on my team in games.
> 29. I am performing well on my team in strength and conditioning.
> 35. I am performing well on my team in practice.
> 43. My teammates believe I will make valuable contributions to my team in the future.
> 55. I travel with my team to away competitions.
> 61. I am satisfied with my team's performance.
> 66. I believe in my team's future performance potential.

Status/Individual-Team Status
> 2. My team socializes with other athletic teams at this university.
> 8. My team is respected by other student athletes.
> 17. My team is popular with other teams in the athletic department.
> 24. I am a respected member of my class on my team.
> 30. I feel attractive to other student athletes.
> 36. My team is respected by the athletic department administration.
> 39. Members of the community support my team.
> 44. I socialize with other student athletes outside of my team at this university.
> 50. My team is an important part of this athletic department.
> 56. I am popular in the athletic department.
> 62. People in the athletic department know who I am.
> 67. I receive media coverage (radio/television/newspaper).
> 70. I am popular on my team.

Interrelatedness with Peers/Interrelatedness with Teammates
> 3. Since coming to this university, I have developed close personal relationships with student athletes on my team.
> 9. Most student athletes at this university have values and attitudes different from my own.
> 11. I participate in organized activities with other student athletes (e.g. SAAC, FCA)
> 18. Since coming to this university, I have developed close personal relationships with student athletes outside of my team.
> 22. The friendships I have made with other student athletes at this university have been personally satisfying.
> 25. I feel welcomed by the upperclassmen on my team.

31.My interpersonal relationships with my teammates have had a positive influence on my development as a student athlete.

37.It has been difficult for me to meet and make friends with other student athletes at this university.

45.My teammates listen to me.

51.There are student athletes at this university I can turn to if I have a personal problem.

57.There are members of my team who are like me.

Interrelatedness with Staff/Interrelatedness with Coaches

4. I have developed a close relationship with at least one member of the athletic department staff.

10.My coaches listen to me.

19.My academic counselor cares about doing what is in my best interest.

27.My interactions with my coaches have had a positive influence on my development as a person.

32.I have developed a close relationship with at least one member of the coaching staff.

41.My interactions with my coaches have had a positive influence on my development as an athlete.

46.My coaches care about me.

52.My athletic trainer cares about doing what is in my best interest.

58.My strength and conditioning coach cares about doing what is in my best interest.

64.The athletic department administration cares about doing what is in my best interest.

74.There are athletic department staff members who are like me.

Expectations:

5.I've been disappointed in my sport experiences since coming to this university.

12.My expectations for my participation in competition have been met.

20.I feel disappointed by the extent to which my coaches value me.

26.My expectations of this athletic department have been met.

33.My expectations for my relationships with coaches have been met.

38.I feel disappointed by the extent to which my teammates value me.

47.My expectations for how I would be treated by athletic department staff have been met.

49.My passion for my sport has decreased since coming to this university.

53.I've been disappointed in my relationships with teammates since coming to this university.

59.The sport training in this athletic department has been more challenging than I expected.

63.The academic demands have been more challenging than I expected.

68.I have been disappointed in the coaching style at this university.

Culture/Rules & Demands

6.I understand and accept team rules.

13.I feel comfortable in the academic center.

14.The rules for student athletes in this athletic department are reasonable.

21.I understand and accept the team captain's expectations of me.

28.I feel comfortable in my locker room/team area.

34.I feel comfortable in the athletic training room.

40.Because of my athletic commitments I am missing out in my social life.

42.My travel demands as a student athlete are reasonable.

48.I am confident that I made the right decision in choosing to become a student athlete at this university.

54.I am uncomfortable with the degree to which my behaviors and choices are monitored by the athletic department staff.

60.I feel comfortable in the weight room.

65.I am disappointed with the decrease in my freedom since becoming a student athlete at this university.

69.The expectations for student athletes in this athletic department are reasonable.

71.It is important that I complete my eligibility as a student athlete at this university.

72.I feel supported by this institution when it comes to balancing the roles of student and athlete.

73.The sacrifices I have to make as a student athlete are worth it.

75. I will continue to participate as a student athlete at this university next year.

Table 1

Original CSAI Subscales

Subscale	Items
Competence	1,7,15,23,29,35,43,55,16,61,66
Status	24,30,8,36,2,44,50,17,56,62,67,70,39
Interrelatedness with Peers	18,3,25,31,9,37,22,11,57,51,45
Interrelatedness with Staff	27,41,32,4,19,58,52,46,10,64,74
Expectations	5,26,53,33,12,20,38,47,59,63,68,49
Culture	34,60,13,28,6,2148,71,65,14,69,72,42,73,54,75,40

Table 2

Item Statistics

Item Statistics			
	Mean	Std. Deviation	N
1	3.61	.517	136
2	3.40	.636	136
3	3.69	.509	136
4	3.27	.754	136
5	3.00	.798	136
6	3.60	.561	136
7	3.44	.675	136
8	3.11	.822	136
9	2.54	.758	136
10	3.07	.746	136
11	2.69	.937	136
12	2.85	.882	136
13	3.49	.583	136
14	3.40	.600	136
15	3.34	.681	136
16	3.26	.722	136
17	3.02	.820	136
18	3.04	.806	136
19	3.54	.542	136
20	2.95	.815	136
21	3.34	.575	136
22	3.29	.545	136
23	3.02	.693	136
24	3.33	.609	136
25	3.48	.620	136
26	3.14	.614	136
27	3.13	.707	136
28	3.58	.538	136
29	3.44	.541	136
30	3.14	.650	136
31	3.40	.562	136
32	3.06	.781	136
33	2.89	.791	136
34	3.37	.631	136
35	3.35	.551	136
36	3.14	.694	136
37	3.17	.787	136
38	3.25	.720	136
39	2.85	.784	136
40	2.58	.812	136
41	3.12	.682	136
42	3.08	.508	136
43	3.38	.558	136
44	3.25	.666	136
45	3.19	.602	136
46	3.22	.632	136
47	3.24	.564	136
48	3.30	.715	136
49	2.94	.854	136
50	3.15	.718	136
51	3.34	.670	136
52	3.35	.694	136
53	3.28	.719	136
54	2.74	.843	136
55	3.16	1.00	136
56	2.72	.766	136
57	3.24	.704	136
58	3.47	.643	136
59	2.29	.770	136
60	3.53	.543	136
61	2.66	.912	136
62	3.00	.709	136
63	2.36	.737	136
164	3.22	.553	136
65	2.72	.754	136
66	3.53	.529	136
67	2.25	.902	136
68	2.83	.821	136
69	3.20	.503	136
70	3.10	.658	136
71	3.56	.567	136
72	3.27	.553	136
73	3.36	.541	136
74	2.91	.714	136
75	3.45	.749	136

Table 3

Item Total Bi-Variate Correlations by Scale

Competence		
Item	Item-Total r	R^2
C1	.596	0.355
C15	.693	0.480
C7	.572	0.327
C16	.535	0.286
C23	.578	0.334
C35	.620	0.384
C43	.620	0.384
C29	.394	0.155
C55	.362	0.131
C61	.255	0.065
C66	.454	0.206

Interrelatedness with Peers		
Item	Item-Total r	R^2
IP3	.428	0.183
IP22	.590	0.348
IP25	.391	0.153
IP31	.549	0.301
IP45	.442	0.195
IP51	.526	0.277
IP57	.484	0.234
IPR9	.075	0.006
IP11	.134	0.018
IP18	.411	0.169
IPR37	.388	0.151

Status		
Item	Item-Total r	R^2
S2	.510	0.260
S8	.637	0.406
S17	.749	0.561
S36	.553	0.306
S39	.544	0.296
S50	.628	0.394
S56	.492	0.242
S62	.541	0.293
S67	.406	0.165
S70	.420	0.176
S24	.436	0.190
S30	.356	0.127
S44	.479	0.229

Interrelatedness with Staff		
Item	Item-Total r	R^2
IS10	.571	0.326
IS27	.703	0.494
IS32	.634	0.402
IS41	.688	0.473
IS46	.708	0.501
IS4	.416	0.173
IS19	.333	0.111
IS52	.483	0.233
IS58	.209	0.044
IS64	.437	0.191
IS74	.429	0.184

Expectations				Culture		
Item	Item-Total r	R^2		Item	Item-Total r	R^2
ER5	.571	0.326		C6	.537	0.288
E12	.703	0.494		C13	.480	0.230
ER20	.634	0.402		C14	.610	0.372
E26	.688	0.473		C21	.479	0.229
E33	.708	0.501		C28	.588	0.346
ER38	.416	0.173		C34	.382	0.146
E47	.333	0.111		C42	.416	0.173
ER49	.483	0.233		CR54	.257	0.066
ER53	.209	0.044		C60	.403	0.162
ER59	.437	0.191		C69	.630	0.397
ER63	.429	0.184		C72	.620	0.384
ER68	.571	0.326		C73	.683	0.466
				CR40	.428	0.183
				CR65	.372	0.138
				C71	.608	0.370
				C75	.534	0.285
				C48	.637	0.406

Table 4

SEM Model Fit for CSAI Subscales

Scale	Model	Item Eliminated	Chi-Square	df	RSMEA	CFI	TLI	
Competence	Original	None	110.36	44	.089	.89	.87	
	1	61	97.58	35	.097	.90	.87	
	2	61, 29	73.21	27	.095	.92	.89	
	3	61, 29, 55	54.57	20	.096	.93	.91	
	4	61, 29, 55, 66	37.90	14	.095	.95	.92	
	4a	61, 29, 55, 66	18.43	13	.047	.99	.98	Cor residuals 23 & 35
Status	Original	None	241.52	65	.125	.77	.73	
	Original:2f	None	161.97	64	.094	.87	.85	
	1:2f	30, 44	87.20	43	.077	.94	.92	
	2:2f	30, 44, 24	56.39	34	.061	.96	.95	2 factor split
Interrelatedness with Peers	Original	None	109.45	44	.089	.84	.80	
	1	9	88.96	35	.090	.86	.82	
	2	9, 11	81.59	27	.103	.86	.81	
	3	9, 11, 37	58.19	20	.101	.89	.85	
	4	9, 11, 37, 18	14.82	14	.018	.99	.99	
Interrelatedness with Coaches	Original	58	84.11	43	.073	.94	.92	
	1	58, 19	96.28	35	.098	.91	.88	
	2	58, 19, 74	70.81	27	.095	.93	.90	
	3	58, 19, 74, 4	46.44	2	.085	.96	.94	
	4	58, 19, 74, 4	17.18	9	.071	.98	.97	
	5	58, 19, 74, 4, 64, 52	13.05	5	.094	.98	.96	
Expectations	Original		230.14	44	.155	.58	.47	
Demands and Rules	Original	None	307.27	119	.090	.82	.76	
	1	34, 60, 13, 28, 54	122.29	62	.076	.91	.89	
	2	34, 60, 13, 28, 54, 48, 75, 71	66.58	27	.093	.90	.87	
	3	34, 60, 13, 28, 54, 48, 75, 71, 65	26.95	20	.045	.97	.98	
	4	34, 60, 13, 28, 54, 48, 75, 71, 65, 40	23.41	14	.063	.97	.96	
	5	34, 60, 13, 28, 54, 48, 75, 71, 65, 40, 21	17.78	9	.076	.97	.96	

Table 5

CSAI Items Retained from Subscale CFA

Subscale	Items
Competence	1,7,15,16,23,35,43
Team Status	2,8,17,36,39
Individual Status	56,62,67,70
Interrelatedness with Peers	3,22,25,31,45,51,57
Interrelatedness with Coaches	10,27,32,41,46
Demands and Rules	6,14,42,69,72,73

Table 6

CFA on the CSAI Full Model

Model	Subscale	Item (s) Eliminated	Chi-square	df	RSMEA	CFI	TLI
Original: 6 Factors			945.70	545	.061	.87	.85
	Competence						
	Individual Status						
	Team Status						
	Interrelatedness with Peers						
	Interrelatedness with Coaches						
	Rules and Demands						
2: 4 Factors			407.99	224	.065	.90	.88
	Competence						
	Individual Status						
	Team Status	All: 2,8,17,36,39					
	Interrelatedness with Peers						
	Interrelatedness with Coaches						
	Rules and Demands	All: 6,14,42,69,72,73					
3: 4 Factors			372.08	203	.065	.91	.88
	Competence						
	Individual Status	67					
	Interrelatedness with Peers						
	Interrelatedness with Coaches						
4: 4 Factors			324.27	183	.063	.92	.89
	Competence						
	Individual Status						
	Interrelatedness with Peers	45					
	Interrelatedness with Coaches						
5: 4 Factors			269.24	164	.057	.93	.91
	Competence	16					
	Individual Status						
	Interrelatedness with Peers						
	Interrelatedness with Coaches						

Table 7

Correlations Between Eliminated and Retained Subscales

Subscale	Rules and Demands	Team Status
Interrelatedness with Peers	$r = .68$	$r = .58$
Interrelatedness with Coaches	$r = .69$	$r = .51$
Competence	$r = .62$	$r = .52$
Individual Status	$r = .37$	$r = .53$

Table 8

Final CSAI Factors and Items

Subscale	Items
Competence	1,7,15,23,35,43
Individual Status	56,62,70
Interrelatedness with Coaches	10,27,32,41,46
Interrelatedness with Peers	3,22,25,31,45,51,57

Scoring: For the purpose of comparing subscales, sum scores and divide by the total number of items per scale. For this research, subscales were not averaged because modeling procedures were utilized.

Table 9

CSAI Scale Descriptives and Internal Consistency

Subscale	N	Possible Range	Minimum	Maximum	Mean	SD	Cronbach α
Interrelatedness with Peers	194	6-24	14	24	20.29	2.52	.75
Competence	192	6-24	7	24	20.12	2.91	.84
Individual Status	193	3-12	3	12	8.84	1.80	.74
Interrelatedness with Coaches	192	5-20	6	20	15.70	2.99	.89
Full CSAI Scale	183	21-84	47	84	68.43	8.32	.91

Table 10

IIS Original Factors and Items

Subscale	Items
Peer Group Interactions	1,6,11,16,21,26,29
Interactions with Faculty	2,7,12,17,22
Faculty Concern for Student Development and Teaching	3,8,13,18,23
Academic and Intellectual Development	4,9,14,19,24,27,30
Institutional and Goal Commitments	5,10,15,20,25,28

Table 11

Confirmatory Model Fit Steps for the IIS

Model	Subscale	Item (s) Eliminated	Chi-square	Df	RSMEA	CFI	TLI
Original: 5 Factor	Peer Group Interactions; Interactions with Faculty; Faculty Concern for Student Development and Teaching; Academic and Intellectual Development; Institutional and Goal Commitments		1024.59	395	.09	.63	.56
2: 5 Factor	Peer Group Interactions; Faculty Concern for Student Development and Teaching; Academic and Intellectual Development; Institutional and Goal Commitments	26; 3,8,13; 19	524.21	224	.077	.80	.75
3: 4 Factor	Academic and Intellectual Development; Institutional and Goal Commitments	All: 4,9,14,19,24,27,30	Unidentified	127			
4: 3 Factor	Faculty Concern for Student Development and Teaching	Items 18 & 23 moved to IWF	356.41	132	.093	.79	.73
5: 3 Factor	Institutional and Goal Commitments	25, 28	281.68	101	.095	.82	.76
6: 3 Factor	Institutional and Goal Commitments	5	236.59	87	.083	.85	.79
7: 2 Factor	Institutional and Goal Commitments	All: 20, 10, 15	142.15	53	.092	.89	.84
8: 2 Factor	Institutional and Goal Commitments	21	112.98	43	.091	.91	.86
9: 2 Factor	Interactions with Faculty	18,23	57.86	25	.82	.94	.90 Corr Resid. 22 & 7

Table 12

Final IIS Factors and Items

Subscale	Items
Peer Group Interactions	1,6,11,16,26,29
Interactions with Faculty	2,7,12,17,22

Table 13

Descriptive Statistics and Internal Consistency for the IIS

Subscale	N	Possible Range	Minimum	Maximum	Mean	SD	Cronbach α
Peer Group Interactions	187	6-24	11	24	17.95	2.60	.68
Interactions with Faculty	181	5-20	9	20	14.74	2.50	.77

Table 14:

CSAI and IIS Subscale Correlations

Subscale	Competence	Interrelatedness with Teammates	Interrelatedness with Coaches	Individual Status
Peer Group Interactions	.45	.69	.44	.55
Interactions with Faculty	.40	.48	.45	.55

Table 15

Correlation Between Sport Revenue and CSAI Subscales

Subscale	Sport Revenue
Interrelatedness with Teammates	-.131, $p > .05$
Interrelatedness with Coaches	-.009, $p > .05$
Competence	-.026, $p > .05$
Individual Status	.002, $p > .05$

Table 16

Regression Coefficient Pruning of CSAI Factors to Persistence Factors

Model	Pruning Order	Regression	Estimate	SE	*p-value*	*B*	R^2
Original							
	1	IndStat-IP	-.09	.37	.802	-.03	
	2	IntCoach-TP	.12	.41	.770	.03	
		Comp-TP	1.93	.68	.005	.37	
	3	Comp-IP	-.60	.62	.331	-.13	
	4	InterPeer-TP	.97	.94	.294	.14	
	5	IndStat-TP	-.48	.40	.223	-.14	
		InterPeer-IP	1.49	.89	.093	.24	
	6	InterCoach-IP	.49	.38	.196	.14	
Final							
		Comp-TP	2.19	.36	<.001	.42	.18
		InterPeer-IP	1.26	.44	.005	.21	.04

Figure 1

Tinto (1975) Model of Institutional Departure
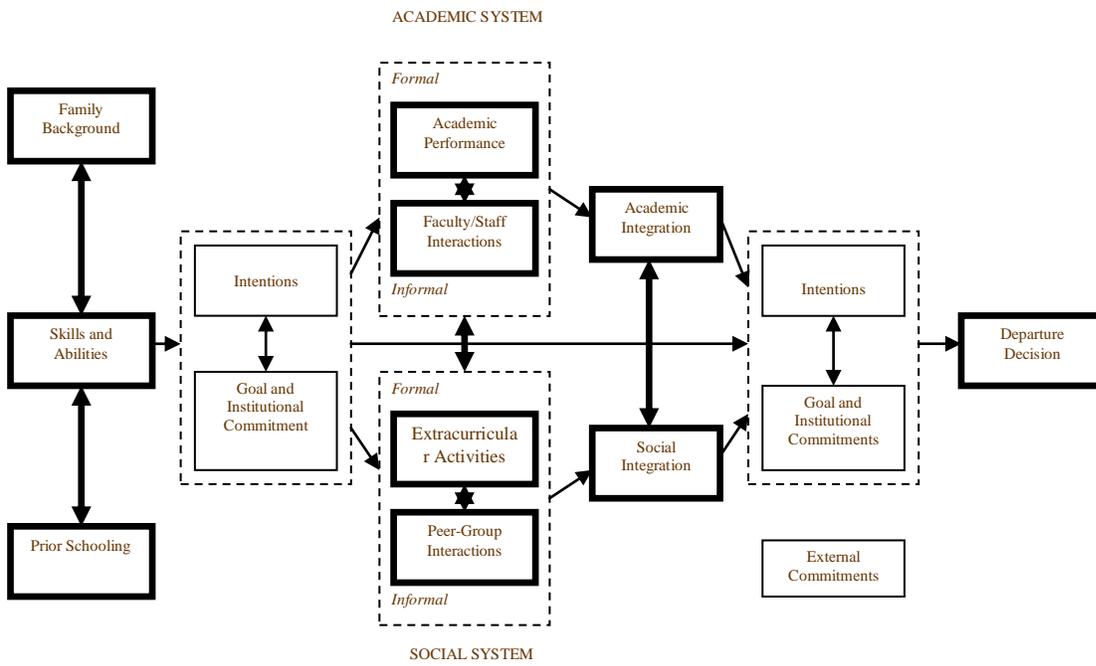
ACADEMIC SYSTEM

SOCIAL SYSTEM
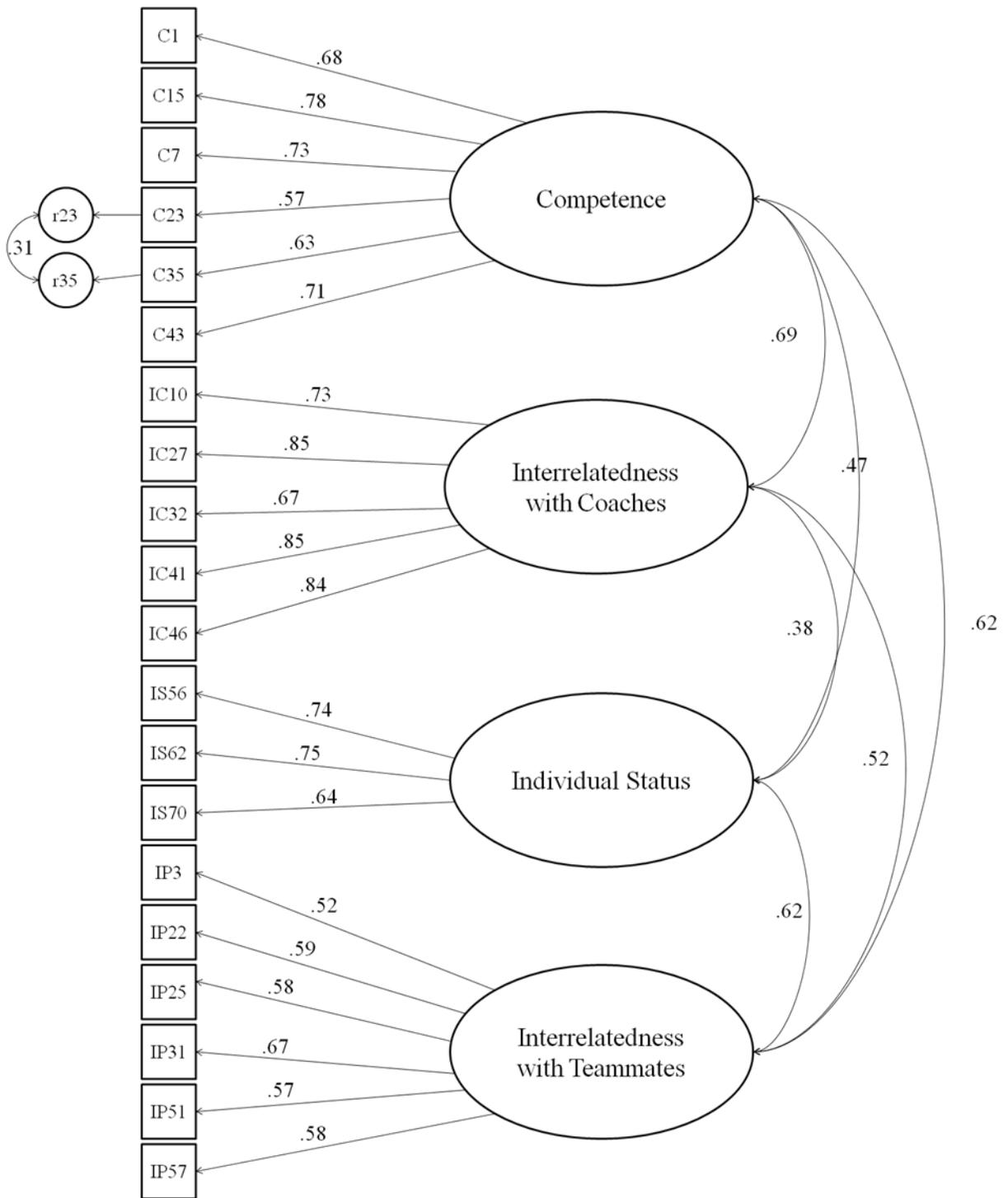
Figure 2

Final CSAI Model

Figure 3

Final Pruned Model with Team and Institutional Persistence Regressed on CSAI