THE IMPACT OF DIVISION II REVENUE AND NON-REVENUE SPORT PARTICIPATION ON STUDENT ENGAGEMENT

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By

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ABSTRACT

The purpose of this study was to examine the impact of NCAA Division II revenue and non-revenue sport participation on student engagement. The engagement measurement for the study was selected items from the National Survey of Student Engagement's *The College Student Report.* The institution studied was a four-year, regional, public institution in Missouri. A case study methodology employing quantitative statistical analysis was utilized to investigate the impact of athletics participation on empirically derived process indicators of involvement in educationally purposeful activities.

The independent variable was participation in intercollegiate athletics at the selected institution. Two categories of independent variable included: athletes and non-athletes and revenue sport and non-revenue sport participants. The dependent variables for the study were selected measures of student engagement from *The College Student Report* acquired from the cooperating institution's Office of Assessment, Information, and Analysis.

Data were analyzed using the following statistical analysis procedures: exploratory factor analysis, descriptive statistics analysis, univariate analysis of covariance, and discriminant function analysis. Exploratory factor analysis was employed to examine commonalities of survey items and to reduce the number of dependent variables for the remaining statistical procedures. Univariate analysis of covariance

examined differences between the categories of independent variables. Finally, discriminant function analysis was conducted to determine if an individuals engagement reports could predict group membership.

Exploratory factor analysis of 42 survey items yielded 11 components consisting of 29 measures. The 29 measures were treated as dependent variables for subsequent analyses. Descriptive analysis indicated mean differences in both categories of independent variable. However, descriptive analysis suggested that athletes were largely as engaged as their non-athlete peers. Similarly, descriptive analysis suggested that revenue sport participants were similarly engaged compared to their non-revenue sport counterparts. However, univariate ANCOVA analyses uncovered three significant differences between both categories of independent variable.

Finally, discriminant analyses generated one significant function for each grouping variable. However, analysis of these results revealed that it is likely that these functions would lead to the incorrect classification of individuals into groups.

THE IMPACT OF DIVISION II REVENUE AND NON-REVENUE SPORT PARTICIPATION ON STUDENT ENGAGEMENT

CHAPTER ONE

INTRODUCTION TO THE STUDY

The following case study was designed to describe and explore the impact of National Collegiate Athletic Association Division II revenue and non-revenue sport participation on the engagement of students in educationally purposeful activities. The measurements used in the study were from the National Survey of Student Engagement survey instrument, *The College Student Report* (National Survey of Student Engagement, 2005). This chapter will provide background information, briefly describe the conceptual underpinnings for this study, address the purpose of the study, identify the statement of the problem and research questions, outline the research hypotheses and limitations of the study, and define key terms used in the study.

Background

Fueled by recent writing and popular media coverage, the impact of college athletics participation on the educational experience of athletes has served as a topic of discussion in higher education. While the presence of intercollegiate athletics has been pervasive, the delicate balancing act for student athletes between sport participation, academic programs, and other college experiences has raised many questions about the quality of the educational experiences for athletes (Eitzen & Sage, 2003; Thelin, 1994).

Sport sociologists often refer to sport as a microcosm of society (Coakley, 2004; Eitzen & Sage, 2003). Deliberations about topics such as gender equity, diversity, and student development in athletics are often reflected in discussions about higher education

in general (Wolf-Wendel, Toma, & Morhpew, 2001). In fact, the notion of the values of equity, diversity, duty, and autonomy are often discussed more thoroughly in context of sport than in other settings (Toma & Cross, 2000). Therefore, Wolf-Wendel, Toma, and Morphew noted that "the experience in intercollegiate athletics can be instructive for institutions generally" (p. 370).

Studies focused on the questions of the impact of athletics participation have yielded mixed results. Some research indicated that athletes are academically under-prepared and earn lower grades than their non-athlete counterparts (Bowen & Levin, 2003; Shulman & Bowen, 2001). However, other studies indicated that no significant difference in cognitive development exists between athletes and their non-athlete peers (Pascarella, Bohr, Nora, & Terenzini, 1995). Still other research contends that, in many cases, where differences in educational experiences do exist between athletes and non-athletes, these differences favor athletes (Umbach, Palmer, Kuh, & Hannah, 2004).

Similarly, conflicting reports exist relative to the social development of student athletes. The contention that intercollegiate athletics participation may lead to social isolation (Astin, 1985; Riemer, Beal, & Schroeder, 2000; Wolf-Wendel, Toma, & Morphew, 2001) is countered by reports that athletes are often more satisfied and involved socially than their non-athlete equivalents (Astin, 1993; Pascarella & Smart, 1991; Ryan, 1989).

The importance of fostering an environment for athletes that is congruent with the goals of the institution can enhance the living and learning environment and assist with achievement of desirable educational outcomes for all students (Howard-Hamilton & Sina, 2001). Similarly, Umbach et al. (2004) noted that "…it is incumbent on colleges

and universities to learn more about the experiences of their student-athletes and determine whether they are taking part in educationally sound activities and benefiting in desired ways from college at levels commensurate with their non-athlete peers" (p. 18).

The primary focus of higher education is not specifically on intellectual development alone (Pascarella & Terenzini, 1991; Wolf-Wendel & Ruel, 1999). In fact, discussions centered on both a sound mind and strong body date to the ancient Greeks. While participation in intercollegiate athletics contributes to the development of a strong body, questions exist about whether the higher education environment provides athletes comparable experiences to their non-athlete counterparts relative to the development of a sound mind. A measure of student engagement to examine the educational experience of students provides information related to a variety of educationally sound practices associated with both learning and personal development. These practices include: reading and writing, preparing for class, interacting with instructors, learning how to effectively collaborate with peers, and working together productively in community services activities (Kuh, 2001). The National Survey of Student Engagement instrument, *The College Student Report,* was specifically designed to measure the extent to which students are involved in educationally sound practices (Kuh, 2001).

Although intercollegiate athletics occupies a high profile role in society today, there is still little evidence about whether student athletes engage in educationally sound practices in a similar manner as other students (Umbach et al, 2004). In the same vein, Coakley (2004) noted that there is limited research on whether athletics participation influences the education and psycho-social development of athletes. Similarly, Astin (1985) called for more research on the impact of peer groups and extracurricular

activities on student involvement. Specifically, in a search to review the most current literature on the topic, an absence of writing specific to participation in NCAA Division II athletics is evident.

Conceptual underpinnings for the study

Historically, much of the writing on human development has focused on an individual's migration through various stages of psycho-social development. Work by Erikson (1959) delineated eight stages of development. Building on Erikson's theory, Marcia's (1964) Model of Ego Identity Status tracked development through four identity statuses. Similarly, Levinson (1978) developed the Life-span theory that identified four eras in the development process, each lasting approximately 25 years, with higher education interest focused on the early adulthood era. Finally, much research on higher education student development has centered on Chickering and Reisser's (1993) Seven Vectors of Student Development.

Learning and personal development have been cited as desired outcomes from the college experience (Astin, 1994; Pascarella & Terenzini, 1991). In efforts to uncover how the learning and personal development outcomes are reached, researchers have found the best predictor to be the time and energy that students devote to educationally appropriate activities (Astin, 1993; Kuh, Schuh, Whitt & Associates, 1991; Pascarella & Terenzini, 1991). In other words, as Astin (1993) simply stated, "Students learn by becoming involved" (p. 133). The following paragraphs will outline the theory referred to as student engagement or student involvement. In this study, the terminology of student engagement and student involvement will be used interchangeably.

Historically, research on college student development has demonstrated that learning and development are enhanced when students participate, are engaged, or are involved in educationally purposeful activities (Astin, 1993; Pascarella & Terenzini, 1991). Likewise, researchers have indicated that institutions can implement practices that lead to high levels of student engagement (Astin, 1985; Chickering & Reisser, 1993; Pascarella & Terenzini, 1991; Tinto, 1993). Student involvement/engagement theory and those practices associated with the theory provide the conceptual underpinnings for this study. Astin (1985), Pacarella (1985), Tinto (1993), and Weidman (1989) have developed theories or models in this vein while Chickering and Gamson (1987) have outlined practices that lead to increased levels of engagement. While the terminology may vary from one theory to another, each of the theories is very similar.

Astin (1985) defined student involvement as the amount of physical and psychological energy devoted to the academic experience. Astin's theory focuses on the behaviors of students. In other words, it is the efforts that students put forth toward the college experience rather than specific thoughts or feelings that impact the experiences of students (Astin). Examples include studying, the amount of time spent on campus, participation in student organizations, and frequent interaction between faculty and students.

Pascarella (1985) outlined a general causal model for exploring student learning and cognitive development. The model focused on five areas: student background and pre-college traits, the structural and organizational characteristics of institutions, student social interaction with faculty and peers, institutional environment, and the quality of student efforts (Pascarella, 1985).

Similarly, Weidman (1989) outlined a model of undergraduate socialization. This model outlines the interaction of several variables. Like other models, Weidman (1989) examined background characteristics, the collegiate experience, parental socialization, and non-college reference groups (Weidman, 1989). Coupled with pre-college normative pressures and in-college normative pressures, students emerge from the college experience with a set of socialization outcomes (Weidman, 1989).

Educationally appropriate activities have been delineated in Chickering and Gamson's (1987) *Seven Principles for Good Practice in Undergraduate Education*. The *Seven Principles* are: "(1) Encourages contact between students and faculty, (2) Develops reciprocity and cooperation among students, (3) Encourages active learning, (4) Gives prompt feedback, (5) Emphasizes time on task, (6) Communicates high expectations, and (7) Respects diverse talents and ways of learning" (Chickering & Gamson, p. 1). Kuh (2001) noted these Principles as "perhaps the best known set of engagement indicators" (p. 1).

The conceptual underpinnings for this study are based on the commonalities found in these models and theories and how these theories relate to practice. That is, the similar theoretical concepts outlined in these theories have been manifested in a set of better practices or process indicators. Of note is that each of these models or theories departs from an emphasis on a psychosocial migration through stages of development. Instead, models of engagement/involvement focus more specifically on the environment and context of the institution as well as the attitudes and behaviors of both students and those individuals occupying influential roles at the institution, such as faculty members, advisors, administrators, and peers (Pascarella & Terenzini, 1991). Students are active

participants in their own development and the social interactions that take place in each specific environment played a large part in the developmental process. These conceptual underpinnings provide the foundation for studying student involvement or engagement.

Statement of the Problem

Although the value of sport in education and the effect of athletics participation continue to be scrutinized (Bowen & Levin, 2003; Coakley, 2003; Shulman & Bowen, 2001), unanswered questions still exist. These unanswered questions led to a three-pronged problem addressed in this study. First, literature review has revealed a lack of information regarding whether and how participation in NCAA Division II athletics impacts the educational experiences of student athletes. Second, there is a lack of information about whether a specific type of sport participation – revenue sports versus non-revenue sports – impacts those athletes differently. Third, as past research regarding the question of engagement/involvement in educationally sound practices by athletes has yielded conflicting results, the potential for previously unidentified value or consequences of Division II athletics participation exists. Consequently, this study sought to address these knowledge gaps and provide practitioners with information to guide policy and practice.

Each vein of the problem that was investigated in this study was supported by previous research. Astin (1985) questioned whether participation in extracurricular activities diminishes the effects of participation by students in other areas. In other words, does athletics participation detract students from other beneficial college experiences? Furthermore, Hill, Burch-Ragan, and Yates (2001) and Umbach, Palmer, Kuh, and Hannah (2004) have called for further research regarding the impact that intercollegiate

sport participation has on the development of student athletes. This type of research allows practitioners to ensure that all students at higher education institutions receive similar benefits from the college experience.

Although past National Survey of Student Engagement respondents identified whether they were a participant on an institution supported athletics team, until the spring 2005 survey administration respondents did not select a response that indicated for what sport they participated on the instrument, but rather wrote-in their respective sport. The current survey instrumentation allows for a more specific study of athletic participation by sport. Therefore, a gap in the knowledge exists about whether participation in revenue or non-revenue generating sports, particularly at the NCAA Division II level, has an effect on student engagement (Umbach, Palmer, Kuh, & Hannah, 2004). Engstrom and Sedlacek (1991) noted the value of studying the sub-groups of revenue and non-revenue sport participants in order to provide practitioners with specific information about the potential differences in experiences among groups.

Finally, this study, specific to NCAA Division II athletics participation sought to uncover unknown benefits, unforeseen consequences, unique characteristics, or specific behaviors that lead to differing levels of student engagement between athletes and non-athletes and between revenue producing sport and non-revenue producing sport participants. This study intended to provide information to practitioners that can help shape programs and policies to benefit athletes and non-athletes alike.

Purpose of the Study

The purpose of this study was to address the lack of information regarding student athlete engagement in research-based effective educational practices at an NCAA

Division II institution. In addition, this study intended to provide information to practitioners about the educational experiences of athletes as compared to their non-athlete contemporaries. This study also explored how the educational experiences of revenue sport producing participants compared to those of non-revenue producing participants. Moreover, this study examined the reports of revenue and non-revenue sport athletes as well as athletes and non-athletes in an effort to determine the membership characteristics of each group.

Researchers have suggested that institutions would do well to learn as much about the undergraduate experiences of students as possible (Hayek et al., 2002; Umbach et al., 2004). This type of program evaluation provides practitioners with more information about program and policy effectiveness and affords institutions the opportunity to provide better advisement to all students.

The study examined whether differences existed in the National Survey of Student Engagement's *College Student Report* selected responses based on participation in revenue and non-revenue generating sports at the selected institution. The study investigated selected student responses based on *The College Student Report's* survey items (NSSE, 2001). NSSE often reports results relative to five sub-scales developed from the survey. The subscales utilized by NSSE are: (1) level of academic challenge, (2) student interaction with faculty members, (3) active and collaborative learning, (4) enriching educational experiences, and (5) supportive campus environment (NSSE, 2001). The National Survey of Student Engagement project refers to the combination of these sub-scales as student engagement (NSSE, 2001). These subscales were comprised from 42 of the survey items from *The College Student Report.*

However, this study analyzed data on an item by item basis utilizing the 42 measurements, due to the fact that weights used in subscale calculation "are not appropriate for intra-institutional comparisons in most cases as the response rate differences among subgroups may not be the same as the ones that exist institution-wide at your school" (NSSE 2005 Codebook, p. 1). Again, the items from *The College Student Report* used for the initial exploratory analyses in this study were those 42 items that determined the calculation of the five subscales. Table 1 provides a description of the variables that were explored in this study.

Furthermore, a four-year, regional, NCAA Division II, public higher education institution was selected for this study. Specifically, this study examined whether differences existed in selected response of the National Survey of Student Engagement's *The College Student Report* (NSSE, 2005) among athletes and non-athletes at the selected institution.

Table 1

Independent and Dependent Variables Explored in the Study

Variables and Categories within the Variables	Data Type
Independent Variables (Factors)	
1. Participation in Division II Athletics	Nominal
1. Athletes	
2. Non-athletes	
2. Sport Type of Participants	Nominal
1. Revenue sports	
2. Non-revenue sports	
Dependent Variables (Measurements)	
1. National Survey of Student Engagement Items Examined	
A. Items (Scale Data)	
1. clquest	22. writemor
2. clpresen	23. writemid
3. classgrp	24. writesml
4. occgrp	25. intern04
5. tutor	26. volntr04
6. commproj	27. lrncom04
7. itacadem	28. resrch04
8. facgrade	29. forlng04
9. facplans	30. stdabr04
10. facideas	31. indstd04
11. facfeed	32. snrx04
12. workhard	33. envstu
13. facother	34. envfac
14. oocideas	35. envadm
15. divrstud	36. acadpr01
16. diffstu2	37. cocurr01
17. analyze	38. envschol
18. synthesz	39. envsuprt
19. evaluate	40. envdivrs
20. applying	41. envnacad
21. readasgn	42. envsocal

Note. Codes for these measures are located in Appendix B.

Research Questions

Framed by the problem and purpose, the following research questions served as a guide for the study:

1. Is there a difference in National Survey of Student Engagement items investigated in the study between athletes and non-athletes?
2. Is there a difference in National Survey of Student Engagement items investigated in the study based on student athlete participation on a revenue or non-revenue generating team?
3. Is it possible to identify the group membership characteristics of student athletes and non-athletes using the National Survey of Student Engagement items utilized in the study?
4. Is it possible to identify the group membership characteristics of revenue and non-revenue producing sports using the National Survey of Student Engagement items utilized in the study?

Hypotheses

The study tested the following null hypotheses:

H_O1. There is no difference in National Survey of Student Engagement items investigated in the study between athletes and non-athletes.

H_O2. There is no difference in National Survey of Student Engagement items investigated in the study based on student athlete participation on a revenue or non-revenue generating team.

H_O3. There are no identifying group membership characteristics of student athletes and non-athletes using the National Survey of Student Engagement items utilized in the study.

H_O4. There are no identifying group membership characteristics of revenue and non-revenue producing sports using the National Survey of Student Engagement items utilized in the study.

Limitations of the Study

This study was limited in at least the following ways. First, results are limited by the degree to which the National Survey of Student Engagement was reliable and valid. Because of self-report results, the study was also limited by the degree to which all participants understood and answered the questions in the National Survey of Student Engagement honestly and accurately. Next, athletics participation is determined on the basis of self selection. Consequently, inherent differences among athletes and non-athletes may exist and were not explored or controlled for in the study. Additionally, underrepresented populations may not participate in intercollegiate athletics at the same rate that they attend the institution studied. Finally, results of this case study provided a description of only those students in the studied population at the selected institution and, although insight or a framework for the study of similar institutions may be generated, the results cannot be generalized to other NCAA Division II institutions.

Definition of Key Terms

This study required the use of a specific vocabulary. In order to clarify terminology, the following terms are defined.

Athletes. Athletes were defined as those individuals that self-reported as a "student-athlete on a team sponsored by your institution's athletics department" (NSSE, 2005) on the National Survey of Student Engagement instrument.

Effective Educational Experiences/Practices/Principles. These experiences/practices/principles include "student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning" (Kuh, 2001, p. 1). Effective educational experiences/practices/principles were characterized in this study by the 42 *College Student Report* items utilized in data analyses.

Non-Athlete. Non-athletes were defined as those individuals that did not self-report "student-athlete on a team sponsored by your institution's athletics department" (NSSE, 2005) on the survey instrument.

Non-Revenue Generating Sports. Non-revenue generating sports were those sports for which an admission fee was not charged to view a contest at the institution studied. At the selected institution, these sports included men's and women's cross country, men's and women's track and field, men's and women's tennis, softball, women's soccer, and baseball.

Revenue Generating Sports. Revenue generating sports were those sports for which admission charge was required to view a contest at the institution studied. At the selected institution, these sports included football, volleyball, men's basketball, and women's basketball.

Student Engagement/Student Involvement. These terms were used interchangeably in the study. Student engagement or student involvement was defined by the level of

participation in educationally sound practices as characterized by the National Survey of Student Engagement. The National Survey of Student Engagement utilized a set of process indicators to measure levels of student engagement. These practices include: reading and writing, preparing for class, interacting with instructors, learning how to effectively collaborate with peers, and working together productively in community service activities (Kuh, 2001). Again, in this study, the student engagement/involvement indicators were those 42 items utilized for analyses.

Summary

Intercollegiate athletics in the United States began with a rowing match between Harvard and Yale in 1852 and has grown to become an integral element at higher education institutions (Eitzen & Sage, 2003). However, questions still exist about the value of the learning from extracurricular activities, such as athletics, that takes place outside of the classroom (Kuh, 1995). Furthermore, Hayek, Carini, O'Day, and Kuh (2002) suggested that institutions should study student engagement to better understand the experiences of their students and to "identify those groups and areas of effective educational practice where improvement would be welcome" (p. 7).

Focused on athletes, this study sought to inform practitioners at the selected institution about the impact of participation in athletics on the overall educational experience of its students as characterized by *The College Student Report* selected survey items. Furthermore, this study may serve as a tool for practitioners at similar institutions to explore student engagement measures for insight and review of programs. In addition, this study intended to provide insight into practices that lead to increased student engagement in educationally sound practices. Furthermore, this study sought to provide

information to practitioners to guide policy, practice, and ultimately, benefit students at the selected institution, both those who participate in athletics and those who do not.

The balance of this study is divided into chapters. Chapter two will provide a review of related literature. Chapter three will outline the design of the study. Chapter four will present the data analyses. Finally, chapter five will address the findings and conclusions of the study, make recommendations for future research, and make recommendations for practitioners.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

It has long been discussed that there is more to the higher education experience than the learning that takes place inside the classroom. The change that takes place during the college experience amounts to more than the process of maturation (Astin, 1993; Pascarella & Terenzini, 1991). Similarly, Kuh (1995) suggested that many experiences that lead to success later in life are better developed outside the classroom. Likewise, Astin (1993) suggested that students learn best by being involved in many activities while Light (2001) noted that learning outside the classroom is vital in higher education.

Similarly, Chickering and Reisser (1993) identified five characteristics that are likely to foster student development. These characteristics typically exist in some form of community, group, or unit. Specifically, development is enhanced when these communities, groups, or units: encourage regular interactions, offer opportunities for shared interest and facing common problems, are small enough that no one feels left out, include people from diverse backgrounds, and serve as a population for reference with norms and acceptable behaviors (Chickering & Reisser, 1993).

Participation in intercollegiate athletics appears to provide a vehicle to enhance student development and for student athletes to engage in many developmentally appropriate practices. In fact, a study of the engagement of student athletes may afford administrators and faculty with insight to develop more effective environments for enhancing student engagement. This chapter will address the following: a brief summary of the history of, and trends and issues in intercollegiate athletics in the United States, a digest of student development theory, a discussion of theory specific to student

involvement/student engagement, a discourse regarding the role and purpose of athletics, a discussion of the literature regarding the impact of college experiences relative to student engagement, a dialogue regarding athlete experiences and student engagement, and finally, a brief discussion of National Survey of Student Engagement emerging research.

Brief History of, and Trends and Issues in Intercollegiate Athletics

Intercollegiate athletics in the United States has developed from clubs that were formed by individuals with common interests. Many of these clubs were originally formed at private eastern colleges during the mid 1800s (Coakley, 2004). Over time, sport came to be seen as educational opportunities or an occasion to change behavior, mold character, and develop cohesion among participants (Coakley, 2004). Sport began to hold a more visible role at higher education institutions. That visibility eventually led to the formation of governing bodies, regulations for participation, and rules of play that are discussed further in this chapter.

As intercollegiate sport continued to expand and develop, prominent issues that existed in society as a whole were reflected in the athletics environment. As race, ethnicity, and gender issues have garnered noteworthy attention in other areas of society, these same issues have warranted attention in athletics. While intercollegiate athletics has provided and continues to provide a popular means for entertainment, college sports have also provided access to higher education for historically underrepresented populations (Hill, Burch-Ragan, & Yates, 2001).

Today and in the future, college sports are likely to continue to generate discussion. Several current issues and future trends have been outlined by Hill, Burch-

Ragan, and Yates (2001) including: the role of athletics related to academic missions, the impact that athletics participation has on the identity, learning, and development of athletes, gambling, alcohol and drug use, sexual assault and violence, the influence of mass media, and the effects of technology. These and other emerging issues are likely to influence discussions about intercollegiate athletics in the future.

Summary of Student Development Theory

While the focus of this research was specific to student engagement and college impact models of student change, it was rooted in student development theory. Student development theory has received a great deal of discussion in higher education for many years. In fact, Pascarella and Terenzini (1991) completed an exhaustive review of 20 years of reported research on student development. Historically, much of this writing has focused on a variety of developmental theories.

Many developmental theories of student change center around an individual's migration through various stages development (Pascarella & Terenzini, 1991). Erikson's (1959) *Eight Developmental Crises* is an example of a landmark psycho-social developmental theory and will be reviewed in the coming paragraphs.

Psycho-social theories view development as a process that takes place as individuals accomplish developmental tasks (Pascarella & Terenzini, 1991). Other psycho-social theories that will be discussed in this chapter include Marcia's (1964) *Model of Ego Identity Status,* Levinson's (1978) *Life-span Theory,* and Chickering and Reisser's (1993) revisions of Chickering's (1969) *Seven Vectors of Student Development.* While this section will provide an overview of four selected theories, a more specific

literature review on these and other student development theories can be found in Porterfield's (2000) and Tatum's (2002) unpublished dissertations.

Erikson's Eight Developmental Crises

Work by Erikson (1959) delineated eight stages or crises of development. Each crisis represents a place in the human development timeline where a resolution requiring serious thought takes place (Erikson). The resolution reached by an individual at each crisis will therefore result in one of three outcomes: development, regression, or no developmental change (Erikson).

These eight developmental crises include: basic trust vs. mistrust, autonomy vs. shame and doubt, initiative vs. guilt, industry vs. inferiority, identity vs. identity confusion, intimacy and distantiation vs. self-absorption, generativity vs. substantiation, and integrity vs. despair and disgust (Erikson). Erikson's fifth stage, identity vs. identity confusion is generally thought to be the principal developmental task for college-age individuals.

Marcia's Model of Ego Identity Status

Building on Erikson's theory, Marcia's (1964) *Model of Ego Identity Status* tracked development through four identity statuses: identity achievement, foreclosure, moratorium, and identity diffusion. Marcia (1964) postulated that development revolves around the resolution of two psycho-social tasks, crisis and commitment. Like Erickson, Marcia identified a crisis as the choice among two competing alternatives while commitment addresses the degree of an individual's investment.

Levinson's Life-span Theory

Similarly, Levinson (1978) developed the *Life-span Theory* that identified four eras in the development process, each lasting approximately 25 years. The four eras are titled: childhood and adolescence, early adulthood, middle adulthood, and late adulthood. The study of traditional age college students is focused on the early adulthood era. During the early adulthood era, individuals begin to shift from seeing oneself as a child or a member of a family to perceiving oneself as an adult (Levinson). At the same time, individuals begin to make choices about career, relationships, values, and life-style in this stage (Levinson).

Chickering and Reisser's Seven Vectors of Student Development

Finally, much research on higher education student development has centered on Chickering and Reisser's (1993) *Seven Vectors of Student Development* theory, a revised version of Chickering's (1969) original theory. This theory has been said to provide a framework for practitioners to better understand what student development is and how it can best be fostered (Chickering & Reisser). Of Chickering's theory, Pascarella and Terenzini (1991) noted that no other psycho-social theorist has had greater influence on the study of student development.

These seven vectors include: developing competence, managing emotions, moving through autonomy toward interdependence, developing mature interpersonal relationships, establishing identity, developing purpose, and developing integrity (Chickering & Reisser, 1993). Chickering and Reisser noted that the vectors are not purely linear, that is, stages may overlap, a stage may be skipped altogether, or an

individual could regress. See Table 1 for a synopsis of the seven vectors and their characteristics.

Table 1

Synopsis of the Seven Vectors of Student Development, Chickering and Reisser (1993)

Vector	Characteristics of the Vector
1. Developing competence	-Intellectual competence -Physical or manual competence -Interpersonal competence
2. Managing emotions	-Develop emotional awareness -Acknowledge emotional signals -Learn appropriate channels for release -Balance self control and self expression
3. Moving through autonomy toward interdependence	-Function with self sufficiency -Pursue interests -Stand on convictions -Organize activities and solve problems -Relationships evolve
4. Developing mature interpersonal relationships	-Tolerance and appreciation of difference -Capacity for intimacy
5. Establishing identity	-Comfort with body and appearance -Comfort with gender and sexual orientation -Sense of self -Sense of self-concept -Self acceptance and self esteem -Personal stability and integration
6. Developing purpose	-Vocational plans and aspirations -Personal interests -Interpersonal and family commitments
7. Developing integrity	-Humanizing values -Personalizing values -Developing congruence

College Impact Models of Student Development

Researchers have developed another set of models outlining student change with origins stemming from student development theory. These can be categorized as "college impact models" and focus less on the internal process of psycho-social student changes and more on the routes, origins, and influences of change (Pascarella & Terenzini, 1991, p. 50). In other words, these theories focus on not only developmental processes and what impacts those practices, but also what colleges can do in an effort to enhance the development of students. In other words, college impact models and related student development theory led to the development, study, and use of process indicators to assess the degree to which students are involved in their higher education experience. In this vein, Chickering and Gamson (1987) developed the *Seven Principles for Good Practice in Higher Education.* Although these practices provide primary groundwork for this study, the practices originate from student development theory – specifically theory focused on the impact that colleges can have on the development of students. The theories of Astin (1985), Pascarella (1985), Tinto (1993), and Weidman (1989) focus on the notion of college impact and corroborate the framework for the study.

Chickering and Gamson's Seven Principles for Good Practice in Undergraduate Education

Chickering and Gamson (1987) developed the *Seven Principles for Good Practice in Undergraduate Education*, often viewed as the benchmark indicators for student involvement/engagement in research based educationally appropriate activities (Kuh, 2001). Process indicators, such as Chickering and Gamson's *Principles* serve two institutional improvement functions (Kuh, Pace & Vesper, 1997). First, these indicators

help institutions uncover the degree to which empirically derived activities are available to students and second, to help focus faculty, staff, and students on such tasks that are associated with growth in terms of desirable outcomes for students (Kuh, Pace & Vesper, 1997).

Specifically, the *Seven Principles for Good Practice in Undergraduate Education* are: "(1) Encourages contact between students and faculty, (2) Develops reciprocity and cooperation among students, (3) Encourages active learning, (4) Gives prompt feedback, (5) Emphasizes time on task, (6) Communicates high expectations, and (7) Respects diverse talents and ways of learning" (Chickering & Gamson, p. 1). In conjunction with these seven principles, establishing learning environments with explicitly communicated high expectations (Education Commission of the States, 1995; Kuh, 2001; Kuh et al., 1991; Pascarella, 2001) are positively related to the satisfaction and achievement of students (Astin, 1993; Bruffee, 1993; Parcarella & Terenzini, 1991). In effect, the application of these principles in appropriate environments adds value to the educational experience of students. Each of these Seven Principles is discussed further.

Encourages contact between students and faculty. Student contact with faculty members both inside and outside of class is important to motivation, increases intellectual commitment, and provides a springboard for thought regarding personal values and future plans (Chickering & Gamson, 1987). For example, athletes interact with faculty on a regular basis to share competition schedules that may conflict with class times, complete grade checks, and to ask academic advisors to complete satisfactory progress reports. Therefore, this interaction may provide out-of-class interactions between student athletes and faculty members that not all students in general experience.

Develops reciprocity and cooperation among students. Chickering and Gamson (1987) noted that high-quality learning is collaborative and social, hones thinking, and intensifies understanding. Although collaborative learning may require some degree of reacculturation, groups end up with knowledge that was not presented to them, but rather created by the group itself (Bruffee, 1999). Athletes are afforded the opportunity to utilize reciprocity and cooperation frequently in their respective competitive situations. For example, in order for a basketball team to run its offense, each team member on the floor must work in a coordinated, cooperative manner to achieve the desired outcome. These experiences may provide a foundation for utilizing these same skills while learning in the classroom.

Encourages active learning. While learning can take place by sitting in class and listening to lectures, it is enhanced when students are afforded the opportunity to have discussions, develop connections to prior experience, and through authentic application (Chickering & Gamson, 1987). The team environment inherent in athletics provides athletes an arena to converse, socialize, externalize, and apply new knowledge taken from a previous experience to a new experience at some time in the future. These opportunities may exist in the classroom as well as on the playing field.

Gives prompt feedback. Assessment and reflection provide students with opportunities to focus learning and develop strategies for improvement (Chickering & Gamson, 1987). Frequent assessments focused on improvement allows students to shift from a traditional, negative evaluation model to a method that is positive in nature – one that focuses on "how many new endeavors have been attempted" and one that allows for "meaningful failures" (Nonaka & Takeuchi, 1995). Additionally, conversationally

organized learning provides for immediate and frequent feedback through social interaction (Bruffee, 1999). Sport participation provides a venue for a great deal of feedback and social interaction. Because of the nature of competition, athletes experience immediate and frequent assessment based on performance outcomes and likewise may be responsive to, rely on, or expect frequent feedback in classroom settings as well.

Emphasizes time on task. Effective time management allows for increased time on task that leads to learning (Chickering & Gamson, 1987). The nature of practice and competition schedules often force athletes to become adept at time management, in order for the athlete to keep up with academic demands, maintain eligibility for participation, and ultimately graduate.

Communicates high expectations. High expectations lead to extra efforts (Chickering & Gamson, 1987). No matter what the preparation level of the student, by expecting more, more is accomplished (Chickering & Gamson). Sport is centered on high expectations. Effort above and beyond the norm is required by athletes in order that expectations are met.

Respects diverse talents and ways of learning. Students should be encouraged to learn in ways that work best on an individual basis (Chickering & Gamson, 1987). Successful sport teams are founded on the coordination of various talents and strengths of individuals. Also, sport provides a vehicle to develop or enhance individuality as well as to improve working together to learn, solve problems, and compete as a team.

Engagement is enhanced through frequent and varied interaction with others. The impact of these cooperative and collaborative learning activities has been widely advocated (Bruffee, 1999; Flannery & Vanterpool, 1990; Millis, 1990; Nonaka &

Takeuchi, 1995). The learning process has been asserted to be more successful when information is relevant, meaningful, and connected with existing knowledge or through common experiences of group members (Bruffee; Flannery & Vanterpool; McCombs & Whisler, 1997). Personal relevance allows individuals to frame learning based on prior knowledge and existing value systems and to share these experiences and values with others in an open, learner-centered environment (Bruffee; Flannery & Vanterpool; Millis; Willower & Licata, 1997).

Astin's Theory of Involvement

Similar to Chickering and Gamson's (1987) research, Astin (1985) outlined a theory of involvement. The primary focus of this theory relates to the amount of energy, both physical and psychological, that students devote to the college experience. Simply stated, "students learn by being involved" (Astin, 1985, p. 133). Specifically, the theory of involvement noted that decidedly involved students devote considerable energy to studying, spend time on campus, participate in student organizations, and interact frequently with both peers and faculty (Astin, 1985).

In addition, Astin's (1985) involvement theory suggested "five basic postulates" (pp. 135-136). In other words, involvement: (1) requires an investment of physical and psychological energy in tasks, people, or activities; (2) occurs along a continuum, where students invest different amounts of energy in different objects; (3) has both qualitative and quantitative features; (4) affects the degree of learning and development which is directly proportional to the quantity and quality of involvement in a particular program; and (5) relates to the effectiveness of any educational policy or practice based on its ability to enhance student involvement (Astin, 1985).

Tinto's Theory of Student Departure

Similar to the Astin theory of involvement is the Tinto (1993) theory of student departure. Tinto noted that students enter an institution with a predetermined set of characteristics including personal and family background, academic skills, attitudes about college, and personal goals and objectives. In other words, students do not enter college as a blank slate, but rather with a set of values and predispositions.

Upon arrival at an institution, student characteristics subsequently change on a continual basis via interactions between the student and the academic and social structure of the college or university (Tinto, 1993). Positive interactions are said to lead to greater integration within the organization, whereby the student shares the attitudes and values of the social structure – faculty, staff, and peers – of the institution (Tinto). Ultimately, the student develops a perception of membership within the organization. This integration process is analogous to the Bruffee (1999) concept of reacculturation. In other words, the student does not just participate in the culture of the institution, but actually becomes part of and contributes to the culture of the institution.

Pascarella's General Model for Assessing Change

Pascarella (1985) developed a model for assessing student change based on his previous work and the work of others in the field. This model outlines the impact that the interactions of five sets of variables have on the learning and development of students.

The first variable is the background and pre-college traits of the student (Pascarella, 1985). For example, this may include the student's aptitude, levels of achievement, personality characteristics, levels of aspiration, and ethnicity. The second variable is the structural and organizational characteristics of the institution (Pascarella,

1985). This variable may include the size of the institution, the faculty to student ratio, the selectivity of the institution, and the residential nature of the institution.

The combination of the first two variables creates the third variable in Pascarella's (1985) theory: the institution environment. Next, the three previous variables influence a fourth case – student interaction with faculty, staff, and peers (Pascarella, 1985). Finally, these clusters, coupled with the students' quality of effort combine to impact learning and development (Pascarella, 1985).

Weidman's Model of Undergraduate Socialization

Finally, Weidman (1989) developed a model of undergraduate socialization that addressed both the psychological and social influences on student change. Like the models previously discussed, Weidman contended that students bring to college a given set of characteristics. The primary difference between Weidman's theory and others is the contribution that non-college influences have on the student's learning and development. These factors include parents, peers, current and potential employers, and community influences.

Although Weidman (1989) postulated an interaction between the student and college influences such as faculty, staff, and peers, he also accounted for these outside, or non-college, influences. These inside- and outside-of-college influences contribute to the student's socialization process, through which personal goals are achieved. However, students must evaluate and balance these various influences that ultimately shape the student's attitudes, beliefs, and values (Weidman, 1989).

These various theories addressed the impact of the college experience on the learning and development of students. While differences do exist, they are overshadowed

by the similarities. Each theory discussed the importance of student efforts as well as the importance of the interactions that take place throughout the higher education experience. In other words, it is these engagement or involvement factors that propagate change among students. Furthermore, college impact theories can be applied in practice. Each of the college impact theories explored in this section are congruent with Chickering and Gamson's (1987) *Principles*. See Table 2 for a synthesis of the theories' interrelatedness to practice.

Table 2

Theory and Practice Meet: Selected College Impact Models of Development and Chickering and Gamson's (1987) Seven Principles for Good Practice in Higher Education

Seven Principles for Good Practice in Higher Education (Chickering & Gamson, 1987)	Student Involvement Theory (Astin, 1985)	Theory of Student Departure (Tinto, 1993)	General Model for Assessing Change (Pascarella, 1985)	Model of Undergraduate Socialization (Weidman, 1989)
Student/faculty contact	Student/faculty Interaction	Student/faculty Interaction	Interaction with faculty	Interpersonal interaction
Cooperation among students	Interaction with people	Peer group interactions	Interaction with peers	Interpersonal interaction
Encourages active learning	Participation by student in learning process	Cooperative and collaborative learning	Interactions with socialization agents	Academic normative context
Prompt feedback	Focus on intended outcomes/results	Feedback	Interaction with socialization agents	Academic normative context
Time on task	Quality and quantity of effort	Student investment in learning	Quality of effort	Academic normative context
High expectations	Achieving maximum student involvement and learning	Realistic expectations	Institutional characteristics and environment	Institutional mission, quality, and curriculum
Diverse talents and learning styles	Provides a frame for working with all students	Multiple communities, integration	Institutional environment	Academic and social integration

These engagement/involvement behaviors are reflected in the National Survey of Student Engagement survey instrument *The College Student Report*, which utilizes process indicators to assess the degree to which students are involved in educationally appropriate activities. Educationally appropriate activities are broken into five categories

or subscales: (a) level of academic challenge; (b) active and collaborative learning; (c) student-faculty interaction; (d) enriching education experiences; and (e) supportive campus environment (NSSE, 2001). These varied experiences are referred to as student engagement. Noting the importance of these experiences, Carini, Kuh, and Klein (2004) suggested "student engagement is generally considered to be among the better predictors of learning and personal development" (p. 2).

Participation in athletics may satisfy many of these engagement requirements. Foremost is the sense of community that exists among sports teams (Wolf-Wendel, Toma, & Morphew, 2001). Moreover, the peer group is thought to provide the greatest influence on a student's involvement (Astin, 1993). The nature of athletics provides a vehicle for the peer group influence to be realized. In fact, athletes have noted that sport participation enhanced sharing a common goal, engaging in frequent interaction, sharing adversity, recognizing individual contributions, and holding one another accountable (Wolf-Wendel, Toma, & Morphew). In addition, athletes have coaches to guide them throughout the college experience and are exposed to diversity through interactions with teammates (Wolf-Wendel, Toma, & Morphew).

The Structure and Role of Intercollegiate Athletics

Athletics has long occupied a prominent position at higher education institutions. In order to best understand intercollegiate athletics, it is necessary to outline the structure and role of sport in the higher education environment.

The Structure of Intercollegiate Athletics

Generally speaking, institutions of higher education sponsoring intercollegiate sport activities maintain membership in, or are affiliated with, one of two national

intercollegiate sport organizations: the National Collegiate Athletics Association (NCAA) or the National Association of Intercollegiate Athletics (NAIA).

Taking its present name in 1910, the NCAA was originally formed as the Intercollegiate Athletic Association of the United States to address numerous injuries and deaths that had occurred in football in the early 1900s (NCAA, 2005). The NCAA was divided into three divisions in 1973: division I, division II, and division III.

The association's governance structure is membership-controlled. Each division operates under different rules, developed by division membership, that are related to eligibility requirements and scholarship limitations. However, although rules and governance differences exist among divisions, all divisions share a core purpose: "to govern competition in a fair, safe, equitable and sportsmanlike manner, and to integrate intercollegiate athletics into higher education so that the educational experience of the student-athlete is paramount" (NCAA, 2005, ¶ 2).

The NAIA had identified its purpose as one "to promote the education and development of students through intercollegiate athletic participation" (NAIA, 2005, ¶ 1). The NAIA took its current name in 1952 after it was originally an organization of a basketball tournament for small colleges (NAIA, 2005).

At the request of its membership, the NAIA created two separate divisions in 1970 and began sponsoring women's championships in 1980. Division differences are related to eligibility and scholarship requirements. Similar to the NCAA, the NAIA is governed by member institutions. Each member institution in good standing is guaranteed a vote on governance issues at the annual meeting (NAIA, 2005).

The Role of Intercollegiate Athletics

Participation in intercollegiate sport is an avocation, rather than a vocation. Primarily, students who chose to participate in sport must balance their athletic endeavors with academic, social, and the other requisite responsibilities associated with college (NCAA, 2005). However, proponents of sport in education contend that participation in athletics adds to, rather than detracts from, the educational experience (Coakley, 2004; Eitzen & Sage, 2003).

Popular arguments for sport in education include increased involvement in school activities; increased interest in academic activities; and increased self esteem, heightened responsibility, sharpened teamwork skills, and focus on achievement orientation required for occupational success (Coakley, 2004). Others include the promotion of alumni and community support for all school programs and increased opportunities for students to develop and display skills valued in society at large (Coakley, 2004).

Conversely, others have argued that sport should not be an integral part of the educational experience (Coakley, 2004; Eitzen & Sage, 2004). Arguments against sport in education settings center on distractions from academics, deprivation of resources from academic programs, and unnecessary pressures placed on the achievement of athletes (Coakley, 2004).

Other studies have raised concerns regarding the role of athletics as related to educational values. A study of thirty selective institutions comprised of NCAA Division I public and private institutions, Division IAA Ivy League institutions, Division III coeducational liberal arts colleges, Division III universities, and Division III women's colleges suggested that athletes do not do as well academically as their non-athlete

counterparts (Shulman & Bowen, 2001). Moreover, the *College and Beyond* data that were analyzed in the study also indicated that athletes also underperformed academically relative to how they may have been expected to perform (Shulman & Bowen). Finally, Shulman and Bowen noted a growing gap between athletics and educational values that was shown to be more pronounced over time.

A similar study of thirty-three selective institutions that do not offer athletic scholarships led to several findings (Bowen & Levin, 2003). First, recruited athletes were found to have a noteworthy admissions advantage over other applicants (Bowen & Levin). In addition, recruited athletes reached their respective campuses with lower SAT scores than both non-recruited (walk-on) athletes and students in general, earned lower grades than other athletes and other students, and earned lower grades than expected based on their academic credentials (Bowen & Levin). Furthermore, these differences were confined to athletes. Other groups with time commitments similar to those of athletes did not earn lower grades (Bowen & Levin).

The studies of Shulman and Bowen (2001) and Bowen and Levin (2003) corroborated many of the findings summarized in a report by the Knight Commission (1991) that outlined any number of improprieties taking place in big-time intercollegiate athletics. These concerns included NCAA sanctions, illegal payments received by athletes, and poor graduation rates (Knight Commission, 1991). However, rarely, if at all, have these studies, related to the role of intercollegiate athletics, examined what takes place at NCAA Division II.

College Experiences and Students in General

Researchers have emphasized the impact of active participation in activities outside of the classroom (Astin, 1993; Kuh, 1994; Light, 2001; Pascarella & Terenzini, 1991). These engagement behaviors appear to significantly influence the development of students. Light (2001) reported that students who make connections between what takes place inside the classroom with what takes place outside the classroom noted a more satisfying college experience. Similarly, an analysis of data collected using the Cooperative Institutional Research Program (CIRP) data indicated that nearly any form of student involvement enhances learning and student development (Astin, 1993). Noteworthy is the effect that these experiences have on students. In fact, Light (2001) noted that "even at colleges as academically focused and intense as Harvard, most graduates have far clearer memories of their singing, or writing, or volunteer tutoring…than of the details of the class on American history they took in sophomore year" (p. 13).

Any number of activities can serve as an impact agent for student involvement. For example, fine arts activities provide opportunities for students to interact with and learn from other students. Light (2001) noted that some of the most powerful learning experiences come from students working together toward a common goal, such as working toward a performance. In addition, Kuh and others (1994) noted that living in an academic oriented residence hall has been connected with growth in both critical thinking and intellectual development while participation in student government enhanced student understanding and appreciation of difference.

In another study, authors found that certain groups of college activities and environmental factors impacted the development of a student's continuous learning skills (Hayek & Kuh, 1999). Studying data collected from the College Student Experiences Questionnaire (CSEQ), college activities that were found to influence the development and learning included note taking, class discussion participation, the practical application of course content, and explaining course content to other students (Hayek & Kuh, 1999). Furthermore, the authors noted effort that students applied to science and technology also impacted learning and development. Environmental factors include interaction with diverse peers for males and participation in extracurricular activities (athletics, recreation, cultural arts, and performing arts) for females (Hayek & Kuh, 1999).

Other types of academic involvement are said to have beneficial effects on student engagement, including honors courses, study abroad, internships, racial/cultural workshops, independent research projects, class presentations, and taking essay exams (Astin, 1993). Each of these activities requires effort on the part of the student. Quality of effort on the part of the student is said to be the most important factor in student learning and development (Hu & Kuh, 2001).

In a related study, Porterfield (2000) examined the impact of residential life program participation on student development outcomes as measured by the Student Developmental Task and Lifestyle Assessment (SDTLA). Studying traditional aged, full time, degree seeking students, Porterfield found that while seniors were within the normal developmental range as other traditional aged seniors in the study, participation in the residential life program was not strongly correlated to the outcomes measured by the SDTLA. Furthermore, Porterfield recommended that future study should examine the

impact of other co-curricular experiences on student development. Additionally, Porterfield suggested the use of other student development assessment models as well as controlling for other variables such as pre-college academic ability.

Specific National Survey of Student Engagement research has yielded many findings. These findings include both positive and negative highlights. Among the positive findings are that almost all students either ask questions or contribute in class, most students work with other students on class projects, and half of all first year students and seniors have had serious conversations with students from different racial and ethnic backgrounds (NSSE, 2001). Conversely, about 20 percent of first year students and seniors indicated their institution does not emphasize studying and time spent on academic work, nearly half of first year students never had outside of class discussions with a faculty member, and some racial and ethnic groups reported less positive relationships with other students and faculty members (NSSE, 2001).

In a study of Greek-letter organizations, Hayek, Carini, O'Day, and Kuh (2002) outlined two conclusions. First, members of these organizations are at least as engaged in educational practices as other students (Hayek, et al). In addition, Hayek and others noted that in many cases these members fare better than their non-Greek contemporaries. Secondly, the study noted that these favorable student engagement scores applied in general – for men and women, for first year and senior level students, and for those students housed in a Greek house or somewhere else. However, Hayek and others noted that at any given institution, students involved in certain groups may be less engaged than their peers.

Moreover, NSSE (2001) stated that institutions of comparable size and mission vary on the degree to which students are engaged. The study noted that students at small institutions and liberal arts colleges reported greater engagement than did their peers at larger schools (NSSE, 2001).

More recently, Kuh (2003) examined patterns of student engagement based on results of the National Survey of Student Engagement. Kuh noted several findings. First, smaller institutions generally engage students more effectively. Next, engagement differs more within a particular institution type than it does between institution types. Third, research results suggest that institutions can identify disengaged students and attempt to involve them in educationally purposeful activities (Kuh, 2003).

Furthermore, Kuh (2003) noted that full time students and students living on campus are more likely to be engaged. Also worth mentioning is that racial and ethnic groups appeared to engage at a comparable degree to their white counterparts. Although these groups are similarly engaged, Kuh indicated that students of color did report lower grades than do white students.

College Experiences and Athletes

Although participation in intercollegiate athletics may separate athletes from other college students due to time commitments from practice and travel to and from competition, athletes and their non-athlete contemporaries face many similar challenges during college. However, even though similarities may well outnumber differences, contradictory reports regarding the college experience of athletes and non-athletes exist. This section will address previous research regarding athletes and non-athletes.

A study of 370 NCAA Division I athletes completed by Curry, Rehm, and Bernuth (1997) demonstrated a lack of difference between perceptions of self-concept among athletes and non-athletes. Using the Self-Perception Scale for College Students, the authors determined that athletes and non-athletes perceived similar age- and stage-appropriate levels of development.

In a longitudinal study, Astin (1999) found that participants in intercollegiate athletics are less likely to drop out. Astin also noted that athletic involvement is associated with higher satisfaction in some areas. These results also indicated that athletes experienced isolation from the peer group effects due to long practice hours and extensive travel associated with participation. However, isolation due to athletic participation was not dissimilar from the isolation experienced by an especially studious person (Astin).

When analyzing College Student Experiences Questionnaire data, Hayek & Kuh (1999) found that athletics as well as art, music and theatre had little influence on results. Participation in extracurricular activities, important to the inter- and intra-personal development and thought to provide other valuable skills following college, produced no significant differences in most models (Hayek & Kuh, 1999).

Furthermore, sports participation was found to have a negative impact on first-year males by Astin (1993). In addition, a significant negative cognitive impact of football and basketball participants existed in the first three years of participation, independent of the size of the institution (Pascarella, Truckenmiller, Nora, Terenzini, Edison, & Hagedorn, 1999).

In their study, Pascarella and others (1999) examined National Study of Student Learning (NSSL) data from 18 participating institutions. This study resulted in several general conclusions. First, with the exception of the reading comprehension area, female athletes were found to be equal in cognitive development to their non-athlete peers (Pascarella et al, 1999). Secondly, while examining differences between male athletes in non-revenue producing sports and non-athletes, Pascarella and others (1999) found no difference in cognitive development.

However, the study indicated a pattern of significant differences in cognitive development areas (writing skills, reading comprehension, and critical thinking skills) between male football and basketball players when compared to their non-athlete contemporaries (Pascarella et al, 1999). Similarly, these differences held true when male football and basketball players were compared to other male athletes in non-revenue producing sports.

Pascarella and others (1999) noted that although differences between groups were modest, the study's findings suggested that male football and basketball players "are not receiving the same cognitive benefits from an undergraduate education as are other men" (p. 16). Furthermore, these differences were consistent across the NCAA Divisions included in the study.

In their conclusions, Pascarella and others (1999) posited that revenue producing sport participation requires a great deal of time and energy and therefore leaves a disproportionate amount available to devote to the academic experience. In the same vein, Watt and Moore (2001) noted that not only do athletes face the similar challenges associated with college as non-athletes, but also athletes must deal with additional

different challenges such as training and practice, injury treatment and rehabilitation, and travel to competition. These conclusions leave questions about student athlete perceptions of student engagement that can be addressed in this current study.

In a study of a NCAA Division II football program, Tatum (2002) found that the participants of the football program were significantly more developed than non-participants on five subtask outcomes of the Student Developmental Task and Lifestyle Assessment (SDTLA). Specifically, the five subscales where football program participants were found to have significant developmental differences were: establishing and clarifying purpose, career planning, lifestyle planning, peer relationships, and salubrious lifelstyle (Tatum). Furthermore, Tatum noted that descriptive analysis of those data revealed that the football program participants scored higher on average than non-participants on every dependent variable examined in the study. Therefore, Tatum concluded that football program participants examined in the study were largely developmentally equal to other students at that time at that institution. Of particular interest to the proposed study, Tatum suggested that future study of the impact of co-curricular activities should control for the pre-college academic ability of students.

Similarly, Umbach and Kuh (2004) examined differences between athletes and non-athletes using the National Survey of Student Engagement. This study consisted of 12,559 student athletes representing 395 four-year colleges and universities from both the NCAA and NAIA. Generally, student-athletes were found to be more engaged than their non-athlete contemporaries. Specifically, first-year athletes were found to experience greater levels of academic challenge in reading, writing, and the amount of time spent studying (Umbach & Kuh). Additionally, first-year athletes interacted more frequently

with faculty members and were more likely to report gains in personal and social competencies than were non-athletes (Umbach & Kuh). However, the study was unable to examine differences between revenue and non-revenue producing sports.

Finally, Umbach, Palmer, Kuh, and Hannah (2004) explored differences in Spring of 2003 National Survey of Student Engagement scores between athletes and non-athletes representing 395 institutions across all NCAA and NAIA divisions. Athletes reported engagement similar to their non-athlete peers. Male student athletes were as academically challenged, interacted with faculty as frequently, and participated as frequently in collaborative learning activities as their non-athlete peers (Umbach, et. al). Also, female athletes were also comparably academically challenged to their non-athlete contemporaries (Umbach, et. al). Both female and male athletes noted greater academic and social support than did the non-athletes. While the results of the Umbach, et. al (2004) study indicated that male athletes may earn to some extent lower grades than their peers, it also noted that these athletes have analogous or conceivably better educational experiences than do their non-athlete peers.

Emerging National Survey of Student Engagement Research

This chapter has reviewed some of the research being generated by the National Survey of Student Engagement. However, there are many more areas of research emerging from NSSE and the NSSE Institute that are not specifically related to this study. Furthermore, there are two areas where research using the National Survey of Student Engagement is emerging. These ongoing research projects are entitled Project DEEP (Documenting Effective Educational Practice) and BEAMS (Building Engagement

and Attainment of Minority Students) (NSSE, 2006). Each project utilizes NSSE data to explore specific higher education interest areas.

Project DEEP was launched by the NSSE Institute in the fall of 2002 (NSSE, 2006). The project focused on twenty high performing colleges and universities. Also, these DEEP institutions selected for study had higher than predicted graduation rates and higher than predicted scores on the five NSSE subscales (NSSE). The intent of the study was to uncover what institutions with highly engaged students do to achieve these higher than expected levels of engagement.

The BEAMS Project is designed to analyze student engagement and implement plans to improve engagement, learning, persistence, and success at historically Black colleges and universities, Hispanic serving institutions, and Tribal colleges and universities (NSSE, 2006). The BEAMS project offers five ways for campuses to make progress toward these goals: information from NSSE survey administrations, designing plans to improve student engagement and learning, collaborative activities to assist in the implementation of action plans, web-based support, and the opportunity to report on initiatives and successes (NSSE, 2006).

Summary

Intercollegiate athletics continue to hold a prominent place in the higher education culture. At the same time, practitioners have debated whether the value placed by society on sport participation is congruent with the benefits gained by participants (Bowen & Levin, 2003; Shulman & Bowen, 2001; Coakley, 2004; Eitzen & Sage, 2003). While these arguments center on a variety of topics, the learning and development of athletes as compared to non-athletes has garnered attention. Much has been written about learning

and development experiences that take place outside the classroom (Astin, 1993; Kuh, 1994; Parcarella & Terenzini, 1991) Therefore, college impact and engagement models provide the necessary background for this study.

Studies focused on the questions of the impact of athletics participation have resulted in mixed conclusions. Some research indicated that athletes are academically under-prepared and earn lower grades than non-athletes (Bowen & Levin, 2003; Shulman & Bowen, 2001). However, other studies indicated that no significant difference in cognitive development exists between athletes and non-athlete peers (Pascarella et al., 1995). Still other research contends that, in many cases, where differences in educational experiences do exist between athletes and non-athletes, these differences favor athletes (Umbach, Palmer, Kuh, & Hannah, 2004).

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

Intercollegiate athletics play a high profile role at higher education institutions. In fact, some researchers contend that there are lessons to be learned about equity, diversity, and student development from athletics departments (Wolf-Wendel, Toma, & Morphew, 2001). With a goal of increasing desired student outcomes, university administrators would do well to arrange experiences with this end in mind (Kuh, 2001). However, whether participants in intercollegiate athletics have the same campus life experiences as non-athletes continues to warrant discussion (Bowen & Levin, 2003). Research on the impact of intercollegiate athletics participation on student involvement has yielded inconsistent results. A case study methodology is proposed to examine participation in athletics and the revenue status of specific sports on college student engagement in effective educational practices as measured by the National Survey of Student Engagement's *The College Student Report.*

Statement of the Problem

The value of sport in education and the effect of athletics participation continue to be scrutinized (Bowen & Levin, 2003; Coakley, 2003; Shulman & Bowen, 2001) and has led to many unanswered questions. These unanswered questions led to a three-pronged problem addressed in this study. First, literature review has revealed a lack of information regarding whether and how participation in NCAA Division II athletics impacts the educational experiences of student athletes. Second, there is a lack of information about whether a specific type of sport participation – revenue sports versus non-revenue sports – impacts those athletes differently. Third, as past research regarding the question of

engagement/involvement in educationally sound practices by athletes has yielded conflicting results, the potential for previously unidentified value or consequences of Division II athletics participation exists. Consequently, this study attempted to address these knowledge gaps and provide practitioners with information to guide policy and practice.

Each part of the problem that was investigated in this study is supported by previous research. Astin (1985) questioned whether participation in extracurricular activities diminishes the effects of participation by students in other areas. In other words, does athletics participation detract students from other beneficial college experiences? Furthermore, Hill, Burch-Ragan, and Yates (2001) and Umbach, Palmer, Kuh, and Hannah (2004) have called for further research regarding the impact that intercollegiate sport participation has on the development of student athletes. This type of research better allows practitioners to ensure that all students at higher education institutions receive similar benefits from the college experience.

Although past National Survey of Student Engagement respondents identified whether they were a participant on an institution supported athletics team, until the spring 2005 survey administration respondents did not indicate through selected response on which team they participated. Therefore, there is a gap in knowledge about whether participation in revenue or non-revenue generating sports has an effect on student engagement (Umbach, Palmer, Kuh, & Hannah, 2004). Engstrom and Sedlacek (1991) also noted the value of study of the sub-groups of revenue and non-revenue sport participants in order to provide practitioners with specific information about these programs.

Finally, this study, specific to NCAA Division II athletics participation may uncover unknown benefits, unforeseen consequences, unique characteristics, or specific behaviors that lead to differing levels of student engagement between athletes and non-athletes and between revenue producing sport and non-revenue producing sport participants. This information may provide practitioners with information that can help shape programs to benefit athletes and non-athletes alike.

Purpose of the Study

The purpose of this study was to address the lack of information regarding student athlete engagement in research-based effective educational practices at an NCAA Division II institution. In addition, this study intended to provide information to practitioners about the educational experiences of athletes as compared to their non-athlete contemporaries. This study also explored how the educational experiences of revenue sport producing participants compared to those of non-revenue producing participants. Moreover, this study examined the reports of both revenue and non-revenue sport athletes and non-athletes in an effort to determine the membership qualities of each group.

Researchers have suggested that institutions would do well to learn as much about the undergraduate experiences of students as possible (Hayek et al., 2002; Umbach et al., 2004). This type of program evaluation provides practitioners with more information about program effectiveness and affords institutions the opportunity to provide better advisement to all students.

A four-year, regional, NCAA Division II, public higher education institution was selected for the study. Specifically, this study examined whether differences existed in

the National Survey of Student Engagement's *The College Student Report* (NSSE, 2005) responses among athletes and non-athletes at the selected institution. Furthermore, this study examined whether differences existed in the National Survey of Student Engagement's *College Student Report* based on participation in revenue and non-revenue generating sports at the selected institution. The study initially investigated 42 student responses from *The College Student Report* (NSSE, 2001). NSSE often reports results on five sub-scales developed from the survey. The subscales frequently referred to by NSSE are (1) level of academic challenge, (2) student interaction with faculty members, (3) active and collaborative learning, (4) enriching educational experiences, and (5) supportive campus environment (NSSE, 2001). The National Survey of Student Engagement project refers to the combination of these sub-scales as student engagement (NSSE, 2001). These subscales are comprised from 42 of the items from *The College Student Report.* However, this study analyzed data on an item by item basis, due to the fact that weights used in subscale calculation "are not appropriate for intra-institutional comparisons in most cases as the response rate differences among subgroups may not be the same as the ones that exist institution-wide at your school" (NSSE 2005 Codebook, p. 1). The items from *The College Student Report* used for initial analyses in this study were those 42 items that determined the calculation of the five subscales. Finally, this study explored the individual item reports of the participants on 29 measurements derived from an exploratory factor analysis.

Research Questions

Framed by the problem and purpose, the following research questions served as a guide for the study:

1. Is there a difference in National Survey of Student Engagement items investigated in the study between athletes and non-athletes?
2. Is there a difference in National Survey of Student Engagement items investigated in the study based on student athlete participation on a revenue or non-revenue generating team?
3. Is it possible to identify the group membership characteristics of student athletes and non-athletes using the National Survey of Student Engagement items utilized in the study?
4. Is it possible to identify the group membership characteristics of revenue and non-revenue producing sports using the National Survey of Student Engagement items utilized in the study?

Hypotheses

The study tested the following null hypotheses:

H_O1. There is no difference in National Survey of Student Engagement items investigated in the study between athletes and non-athletes.

H_O2. There is no difference in National Survey of Student Engagement items investigated in the study based on student athlete participation on a revenue or non-revenue generating team.

H_O3. There are no identifying group membership characteristics of student athletes and non-athletes using the National Survey of Student Engagement items utilized in the study.

H_O4. There are no identifying group membership characteristics of revenue and non-revenue producing sports using the National Survey of Student Engagement items utilized in the study.

Methodology

The following describes the research design, study group, data collection, instrumentation, and data analysis used for the completion of this case study research.

Research design. This study utilized a factorial design using self-reported data. The independent variables or factors that were examined in this study were participation in intercollegiate athletics (athletes vs. non-athletes) and the sport type of participants (revenue sports vs. non-revenue sports). The dependent variables or measurements that were initially examined by factor analysis in the study included 42 National Survey of Student Engagement individual survey items. These 42 survey items are typically weighted and clustered into five sub-scales by NSSE. The sub-scales consist of (a) level of academic challenge, (b) active and collaborative learning, (c) student-faculty interaction, (d) enriching educational experiences, and (e) supportive campus environment. However, this study did not calculate subscales due to the concern that the weights used for these calculations may not be appropriate for intra-institutional comparisons (NSSE, 2005). Following a data reduction from the initial 42 items through factor analysis, the study investigated those remaining functions identified from the analysis. The remaining analyses (univariate ANCOVA's and discriminant analyses) utilized the measures generated from the factor analysis and treated those as dependent variables (ANCOVA's) and as independents (discriminant analyses). Additionally,

exploration of these items individually was intended to provide more information for practitioners at the selected institution.

The case study of the selected institution utilized a snapshot of National Survey of Student Engagement data that was bounded by time and place. The time and place of the snapshot was the spring 2005 National Survey of Student Engagement survey administration at the selected institution. In addition, this study assumed that students responded accurately, honestly, and identified themselves correctly. The survey instrument employed a rating scale method for data collection on the 42 sub-scale items and single response selection for demographic information.

Study Group. The study group consisted of students at the selected institution who completed the National Survey of Student Engagement during the spring academic term of 2005. The subjects consisted of first year students and seniors at the institution who were in attendance at the selected institution in the previous term. Therefore, students that transferred to the selected institution or originally enrolled in classes at the selected institution during the term that the instrument was administered were not selected. While the instrument was administered electronically by the National Survey of Student Engagement, local coordination efforts were handled by the selected institution's Office of Assessment and Information Analysis (OAIA).

Two factors were used to build the study, intercollegiate athletics participation (athletes vs. non-athletes) and the sport type of participants (revenue sports vs. non-revenue sports). The participants identified as athletes for the purpose of the study were those students who self-reported on the NSSE instrument as a participant on a university sponsored intercollegiate athletics team. Subsequently, the OAIA provided the researcher

with scores for all students that completed the instrument in the spring of 2005. Next, the researcher coded the data into the following groups: athletes, non-athletes, revenue sport athletes, and non-revenue sport athletes. Furthermore, the OAIA provided the researcher with the ACT score of the survey respondents to serve as a covariant in the univariate ANCOVA testing in an effort to control for pre-college academic characteristics of the participants. As the NSSE data utilized for this study was institutional data, the OAIA secured informed consent from participants through its customary assessment procedures. The OAIA ensured the confidentiality of participants by removing all identifiers from the data set prior to the researcher's investigation of the data.

Data Collection. The NSSE is one component of the university-wide assessment system, overseen and administered by the OAIA. Surveys are administered electronically by the OAIA staff whenever possible. However, as the NSSE provides institutions with an entirely web-based option, assessment administration and data collection occurred from an off-campus source. Particularly, the survey administration that was examined in this study was completed by NSSE staff based at Indiana University. The researcher secured a letter from the OAIA stating that the data required to complete the study were made available at such time when the research proposal and the necessary Institutional Review Board procedures had been approved.

The OAIA provides student population data files for qualified students to NSSE who then contacted the students. The NSSE instrument is administered at the selected institution on an annual basis in the spring term of the academic year by the Indiana University Center for Postsecondary Research and Planning. In this case study, the NSSE instrument was administered to freshman and seniors that were enrolled at the institution

the prior term. The OAIA followed the NSSE survey administration guidelines. These guidelines included: (a) students received all correspondence via email, including customized correspondence endorsed by institution officials, (b) students were notified by NSSE by electronic invitation to complete the web survey, (c) students completed a web version of the instrument, (d) the responses were submitted directly to NSSE, and (e) the NSSE compiled institution results and returned those reports to the selected institution (NSSE, 2006).

Instrumentation. The National Survey of Student Engagement (NSSE) was designed by the Indiana University Center for Postsecondary Research and Planning. The NSSE, as well as the content of the instrument know as *The College Student Report,* is based on literature regarding the amount of time and energy students devote toward educationally purposeful activities, such as work by Astin, Kuh, Pace, and Pascarella and Terenzini. The NSSE instrument is designed to "assess the extent to which students are engaged in empirically derived good educational practices and what they gain from their college experience" (Kuh, 2001, p. 2). See Appendix A for more information about the survey instrument.

Finally, the NSSE is reported to have very good psychometric properties (Kuh, 2001). The vast majority of items meets or exceeds recommended levels for both validity and reliability and is reported to have acceptable correlation, kurtosis, and skewness indicators (Kuh, 2001). A comprehensive document addressing the conceptual framework and psychometric properties is available from the National Survey of Student Engagement.

Data Analysis. All statistical analysis in the study was conducted using SPSS Graduate Pack 14.0 for Windows statistical software. The intent of the data analyses used for this study was to answer the four research questions outlined earlier in this chapter. A 0.10 significance level was established to challenge null hypotheses due to the fact that making a type I error would not lead to substantive consequences (Stevens, 1996).

Descriptive and summary statistics have been reported for the variables examined in the study. The independent variable or factors in the study were participation on intercollegiate athletics teams sponsored by the institution and revenue and non-revenue sport participation status. Dependent variables or measurements were derived from NSSE scores as reported in *The College Student Report* from 42 survey items. These 42 items are traditionally clustered to form five subscales, including (a) level of academic challenge; (b) active and collaborative learning; (c) student-faculty interaction; (d) enriching education experiences; and (e) supportive campus environment (NSSE, 2001). Also, individual survey measurements (Measures) derived from an exploratory factor analysis served as categories of dependent variables for tests of mean differences and for analysis in the study to predict or classify membership in a group.

The investigator has provided descriptive analysis on all variable data. Furthermore, data were examined using the univariate analysis of variance (ANCOVA) to test the significance of group differences on a dependent variable (Mertler & Vannatta, 2005). In addition, the researcher completed follow up tests of discriminant function analysis to predict, classify or describe group membership (Mertler & Vannatta, 2005). See Figure 1 for a conceptual display of the research design that was employed in the study.

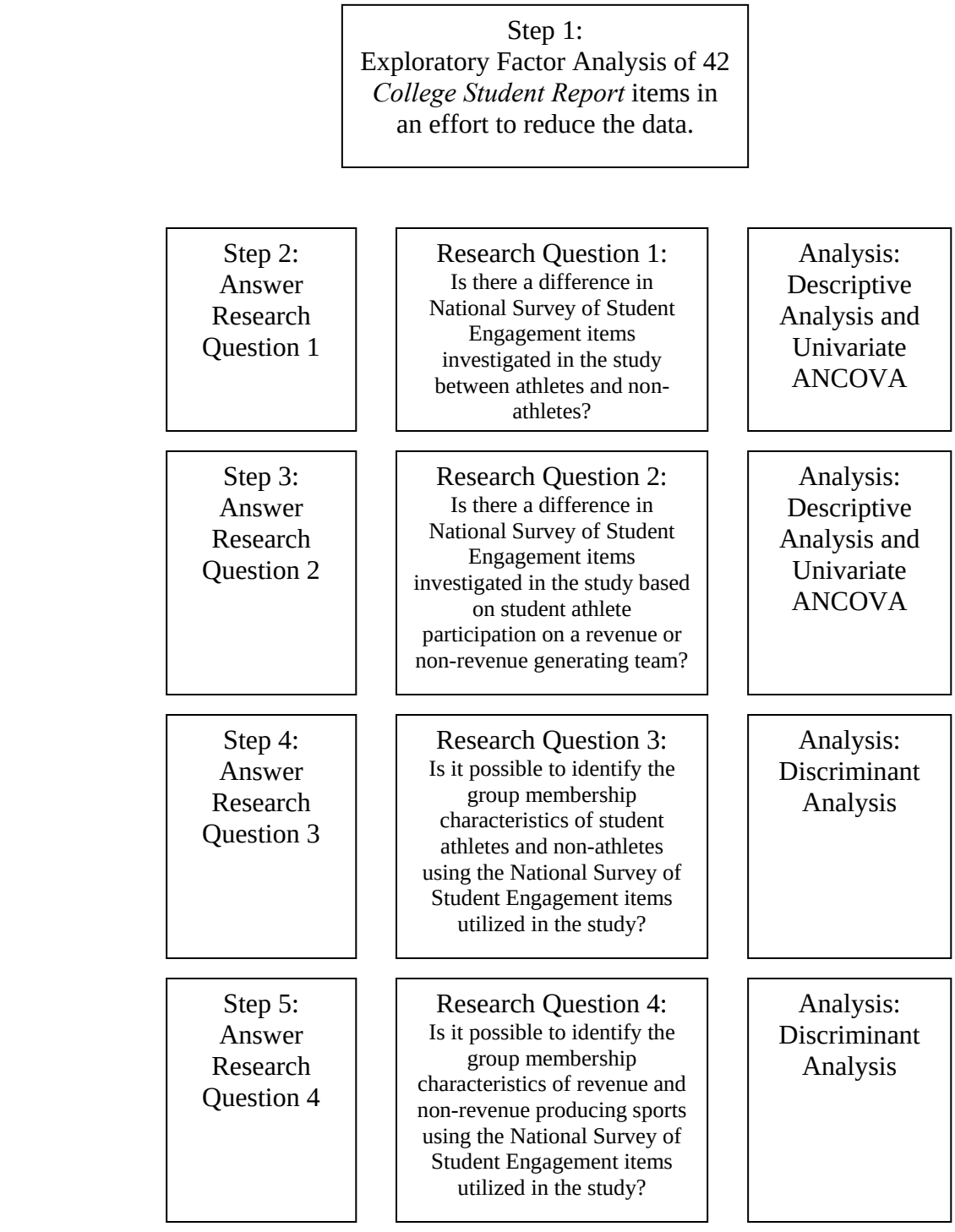

Figure 1: A conceptual model of the research design employed in the study, addressing research questions two through five of the model. Research question one was related to descriptive statistics.

Summary

The selected institution for this study is a four-year, regional, public Midwestern university sponsoring 15 National Collegiate Athletic Association Division II sports. The unit of analysis in the study will be freshmen and seniors at the selected institution. The selected institution regularly collects student data in its self-evaluation process. Descriptive analyses will be provided for all variable data in the study. Univariate analysis of covariance (ANCOVA) was computed using SPSS Version 14.0 software to check for significant group differences for each dependent variable while utilizing ACT total score as the covariate in an effort to control for pre-college academic characteristics (Mertler & Vannatta, 2005). Groups studied included athletes and non-athletes, and revenue and non-revenue sport participation. Finally, a discriminant function analysis will be performed to classify, predict or describe group membership (Mertler & Vannatta).

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter provides both the presentation and analyses of those data collected to test the research hypotheses outlined in the study. The data were initially collected by the National Survey of Student Engagement on behalf of the selected institution and provided to the researcher by the cooperating institution's Office of Assessment, Information and Analysis (OAIA). The cooperating institution is a regional, public university in Missouri. The narrative to follow includes sections that review the problem and purposes of the study, the research design, and the study group. Additional sections provide exploratory factor analysis, descriptive analysis, univariate analysis of covariance (ANCOVA), and discriminant function analysis of the data. Finally, this chapter includes a summary of the presentation and analysis of the data.

Problem and Purposes Overview

Although the value of sport in education and the effect of athletics participation continue to be scrutinized (Bowen & Levin, 2003; Coakley, 2003; Shulman & Bowen, 2001), unanswered questions still exist. These questions led to a three-pronged problem addressed by the study. First, literature review has revealed a lack of information regarding whether and how participation in NCAA Division II athletics impacts the educational experiences of student athletes. Second, there is a lack of information about whether a specific type of sport participation – revenue sports versus non-revenue sports – impacts those athletes differently. Third, as past research regarding the question of engagement/involvement in educationally sound practices by athletes has yielded

conflicting results, the potential for previously unidentified value or consequences of Division II athletics participation exists.

Consequently, this study was designed to examine the impact of athletics participation on student engagement in educationally purposeful activities at an NCAA division II, regional, public university in Missouri. As a result, it was anticipated that the study would provide information to university practitioners, both in and outside of athletics, to guide policy and practice. The results of this study may provide particular benefit to NCAA division II, regional, public universities.

Design of the Study

The scope of this case study was limited to data collected by a single institution. The study examined two independent variables that consisted of nominal and categorical data. The first independent variable, participation in Division II athletics, was divided into two (2) categories: athletes and non-athletes. The second independent variable, sport type of participants, was also divided into two (2) categories: revenue sports and non-revenue sports. An exploratory factor analysis was conducted to determine if the 42 survey items used by NSSE to calculate five subscales could be reduced to fewer factors. Univariate analyses of covariance (ANCOVA) were computed to test for significant group differences between each category of independent variable (athlete/non-athlete and revenue/non-revenue participant) for each of the dependent variables while holding ACT score constant in an effort to control for pre-college academic characteristics (Mertler & Vannatta, 2005). The dependent variables utilized in the exploratory factor analysis consisted of the 42 National Survey of Student Engagement items traditionally used to calculate the following five sub-scales: level of academic challenge, active and

collaborative learning, student faculty interaction, enriching educational experiences, and supportive campus environment (NSSE, 2005). Each of the dependent variables consisted of scale data. Finally, discriminant function analyses were used to determine if a student's self-reports on *The College Student Report* could predict membership in one of the four categories or groups of the independent variables: athlete, non-athlete, revenue sport athlete, or non-revenue sport athlete (Mertler & Vannatta).

Study Group

The study group consisted of students at the selected institution who completed the National Survey of Student Engagement during the spring 2005 academic term. First year students and seniors at the institution studied who were in attendance the previous term served as the population. Therefore, students that transferred to the selected institution or originally enrolled in classes at the selected institution during the term that the instrument was administered were not selected. While the instrument was administered electronically by National Survey of Student Engagement personnel, local coordination efforts were handled by the selected institution's Office of Assessment and Information Analysis (OAIA).

Two factors were used to build the study, intercollegiate athletics participation (athletes vs. non-athletes) and the sport type of participants (revenue sports vs. non-revenue sports). The participants identified as athletes for the purpose of the study were those students who self-reported on the NSSE instrument as a participant on a university sponsored intercollegiate athletics team. Subsequently, the OAIA provided the researcher with scores for the following groups: all students, athletes, and non-athletes. When available, the OAIA provided the researcher with the ACT score of the survey

respondents so that the researcher was able to use the ACT score of respondents in an effort to control for pre-college academic characteristics. Because the NSSE is institutional data, the OAIA secured informed consent from participants through its customary assessment procedures. Finally, the OAIA protected the confidentiality of participants prior to researcher investigation of the data.

The proportions of athletes to non-athletes examined in the study were similar to those at the cooperating institution. In both instances, athletes represent approximately five percent of the total student population. The final study group consisted of 778 survey respondents. However, in the case of each analyses conducted in the study, some respondents were eliminated by SPSS version 14.0 Graduate Pack due to missing or excluded data. These cases are described further in each analysis section to follow.

Exploratory Factor Analysis

Exploratory factor analysis was conducted to determine what, if any, underlying structure existed on the following 42 NSSE survey items: asked questions in class or contributed to class discussions *(clquest),* made a class presentation *(clpresen),* worked with other students on projects during class *(classgrp),* worked with classmates outside of class to prepare assignments *(occgrp),* tutored or taught other students *(tutor),* participated in a community-based project *(commproj),* used an electronic medium to discuss or complete an assignment *(itacadem),* discussed grades or assignments with an instructor *(facgrade),* talked about career plans with a faculty member or advisor *(facplans),* discussed ideas from your readings or classes with faculty members outside of class *(facideas),* received prompt feedback from faculty on your academic performance *(facfeed),* worked harder than you thought you could to meet an instructor's standards or

expectations (*workhard*), worked with faculty members on activities other than coursework (*facother*), discussed ideas from your readings or classes with others outside of class (*oocideas*), had serious conversations with students of a different race or ethnicity than your own (*divrstud*), had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values (*diffstu2*), coursework emphasized analyzing (*analyze*), coursework emphasized synthesizing (*synthesz*), coursework emphasized making judgments (*evaluate*), coursework emphasized applying (*applying*), number of assigned course readings (*readasgn*), number of 20 page or more papers (*writemor*), number of five to 19 page papers (*writemid*), number of five page or fewer papers (*writesml*), practicum or internship (*intern*), community service and volunteer work (*volntr04*), participate in a learning community (*lrncom04*), work on a research project with a faculty member outside of class (*resrch04*), foreign language coursework (*forlng04*), study abroad (*stdabr04*), independent study (*indstd04*), culminating senior experience (*snrx04*), relationships with students (*envstu*), relationships with faculty (*envfac*), relationships with administration (*envadm*), hours preparing for class (*acadpr01*), hours participating in co-curricular activities (*cocurr01*), institution emphasizes spending time on academics (*envschol*), institution provides support to succeed academically (*envsuprt*), institution encourages contact among students from different economic, social, racial, and ethnic backgrounds (*envdivrs*), institution helps you cope with non-academic responsibilities (*envnacad*), and the institution provides support for you to thrive socially (*envsocal*) (NSSE Codebook, 2005).

Principle components analysis was conducted utilizing a varimax rotation. The resultant Scree Plot indicated that 11 components should be retained (See Figure 1). Mertler and Vannatta (2005) noted that the Scree Plot is a fairly reliable method to determine which components to retain when the number of respondents is greater than 250 and the communalities are greater than 0.30. In the exploratory factor analysis conducted for the study, 684 cases were included and all communalities were greater than 0.30. In addition, each of the components that were retained had Eigenvalues over 1.00.

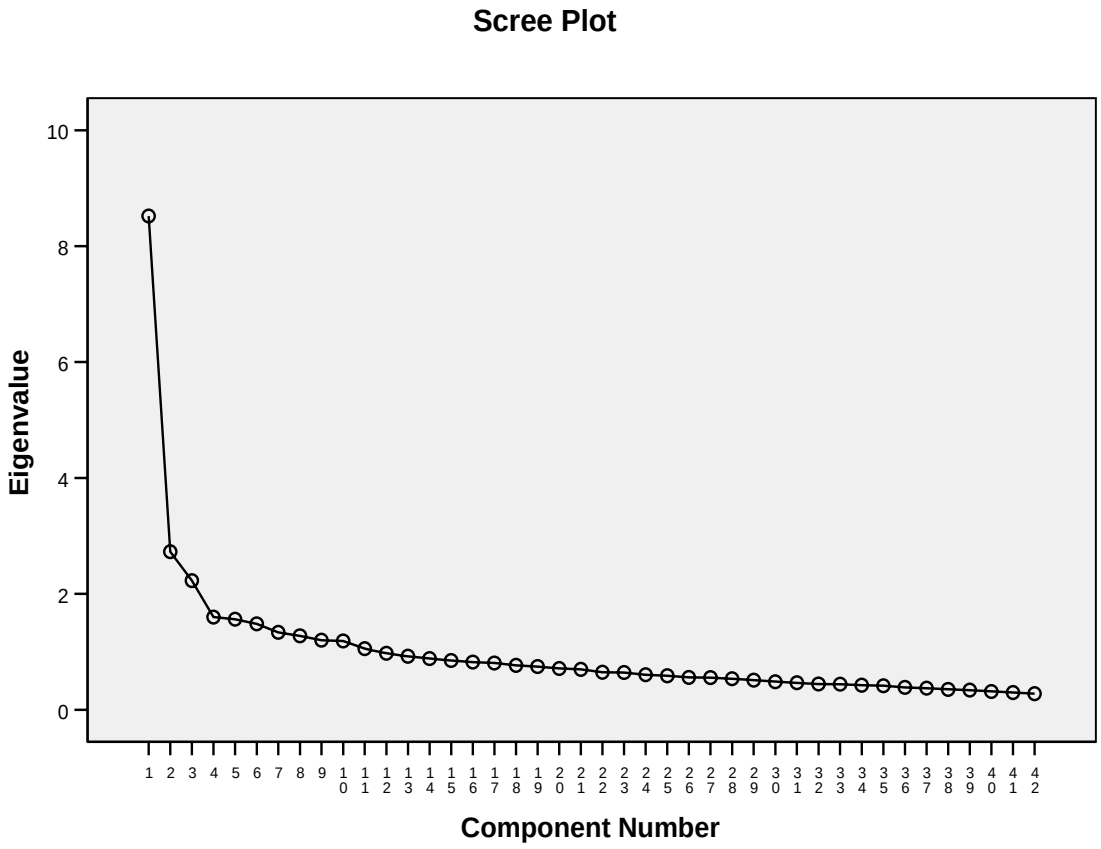

Figure 1 shows the scree plot of the exploratory factor analysis used in the study.

The rotated solution of the exploratory factor analysis yielded 11 components. All loadings for each of the 11 components were positive. Table 1 presents each component,

its label, the associated loading, and the factors from the analysis that were included in each loading.

Table 1

Component Loadings for Exploratory Factor Analysis

Component Name and Associated Factors	Survey Code	Loading
Component 1: Coursework Emphasis		
Analyzing the basic elements of and idea…	analyze	.785
Synthesizing and organizing ideas…	synthesz	.790
Making judgments about the value of information…	evaluate	.756
Applying theories or concepts…	applying	.762
Component 2: Faculty Discussions		
Discussed grades or assignments…	facgrade	.705
Talked about career plans	facplans	.644
Discussed ideas from your readings or classes…	facideas	.641
Component 3: Institutional Support		
Providing the support you need…academically	envsuprt	.609
Encouraging contact among students from different	envdivrs	.757
Helping you cope…non-academic responsibilities	envnacad	.795
Providing the support you need to thrive socially.	envsocal	.762
Component 4: Co-curricular Involvement		
Participating in co-curricular activities…	cocurr01	.543
Component 5: Learning Experiences		
Study abroad	stdabr04	.627
Independent study or self-designed major	indstd04	.721
Culminating senior experience	snrx04	.581
Component 6: Relationships		
Relationships with: Other Students	envstu	.695
Relationships with: Faculty Members	envfac	.766
Relationships with: Administrative…	envadm	.691
Component 7: Interaction with Classmates		
Made a class presentation	clpresen	.613
Worked with other students…during class	classgrp	.671
Worked with classmates outside of class…	eocgrp	.750
Component 8: Conversation with Diverse Students		
Had serious conversations…a different race or ethnicity…	divrstud	.772
Had serious conversations…religious beliefs, political…	diffstu2	.835
Component 9: Writing		
Number of written…20 pages or more	writemor	.575
Number of written…between 5 and 19 pages	writemid	.715
Number or written…fewer than 5 pages	writesml	.689
Component 10: Class Preparation		
Preparing for class…	acadpr01	.747
Component 11: Out of Class Experiences		
Practicum, internship…	intern04	.534
Community service or volunteer work	volntr04	.711

Descriptive Analysis Results

Further analyses were conducted for each of the components (*N*=11) retained from the factor analysis. In addition, further analyses utilized the Measures (*N*=29) identified for each component. These 29 Measures were treated as the dependent variables for the univariate analyses of covariances (ANCOVAs) and the independents for the discriminant analyses. Table 2 details the group size for each of the analyses conducted in the study using the spring 2005 National Survey of Student Engagement (NSSE) data set for the selected institution.

Table 2

Group Size by Analysis Method

Analysis Method and Independent or Grouping Variable	Group Size
Analysis of Covariance (ANCOVA)	629
Athletes	32
Non-athletes	597
Analysis of Covariance (ANCOVA)	31
Revenue Sport Athletes	12
Non-revenue Sport Athletes	19
Discriminant Analysis	671
Athletes	37
Non-athletes	634
Discriminant Analysis	36
Revenue Sport Athletes	14
Non-revenue Sport Athletes	22

In the case of each analysis conducted, differences in the number of cases analyzed differ due to missing or out of range group codes or missing variables. Therefore, each analysis *N* differs from the total participant number (*N*=778) that completed *The College Student Report.* Each *N* is reported with its respective analysis.

Descriptive statistics were computed and reviewed for each of the 29 Measures and for each category of independent variable. Table 4 presents the mean and standard deviation scores for each category of independent variable: athletes, non-athletes, revenue sport athletes, and non-revenue sport athletes.

The descriptive statistics analysis revealed differences among the categories of independent variables (athlete, non-athlete, revenue sport participant, non-revenue sport participant). As Table 3 revealed, athletes had higher mean scores than non-athletes on 13 of the 29 dependent variables while means scores for 15 items favored non-athletes. The means scores for one of the variables (*diffstu2*) were equal. The dependent variable with the greatest mean difference was the number of hours per week spent participating in co-curricular activities (*cocurr01*), with an athlete mean of 4.31 (*SD*=1.96) and a non-athlete mean of 2.34 (*SD*=1.40). While mean differences did exist, descriptive statistics analysis led to the conclusion that athletes may be overall as engaged as non-athletes.

Similarly, revenue sport athletes reported higher mean scores than non-revenue sport participants on only nine of the 29 dependent variables. Also, in this case, Table 3 revealed that the dependent variable with greatest mean difference was the number of hours per week spent participating in co-curricular activities (*cocurr01*), with an revenue sport athlete mean of 4.92 (*SD*=2.02) and a non-revenue sport participant mean of 3.84 (*SD*=1.86). Thus, mean differences between revenue and non-revenue athletes appear to exist, although the argument for similar levels of engagement is valid.

Table 3

Summary Statistical Analysis Results by NSSE College Student Report Items (N=29) by Participation Status

Dependent Variable	(*N*=32) Athlete *M*	*SD*	(*N*=597) Non-athlete *M*	*SD*	(*N*=12) Revenue *M*	*SD*	(*N*=19) Non-revenue *M*	*SD*
Coursework Emphasis Measures								
Analyze	2.84	.677	2.94	.845	2.83	.835	2.84	.602
Synthesz	2.59	.875	2.74	.812	2.75	.965	2.53	.841
Evaluate	2.47	.803	2.76	.835	2.58	.793	2.47	.772
Applying	2.75	.950	2.93	.850	2.75	1.22	2.79	.787
Faculty Discussion Measures								
Facgrade	2.50	.718	2.81	.851	2.33	.778	2.63	.684
Facplans	2.38	.833	2.43	.881	2.33	.778	2.37	.895
Facideas	2.03	.933	1.93	.859	1.75	.866	2.21	.976
Institutional Support Measures								
Envsuprt	2.91	.641	3.04	.734	2.58	.669	3.11	.567
Envdivrs	2.47	.842	2.48	.907	2.25	.965	2.58	.769
Envnacad	2.22	.751	2.15	.848	1.92	.669	2.37	.761
Envsocal	2.25	.916	2.39	.835	2.08	.996	2.32	.885
Co-curricular Involvement Measure								
Cocurr01	4.31	1.96	2.34	1.40	4.92	2.02	3.84	1.86
Learning Experiences Measures								
Stdabr04	2.16	.808	1.98	.709	2.08	.669	2.16	.898
Indstd04	2.16	.628	2.08	.815	2.17	.577	2.11	.658
Snrx04	2.56	.914	2.38	1.05	2.50	1.17	2.58	.769
Relationships Measures								
Envstu	5.78	1.18	5.79	1.15	5.67	1.30	5.79	1.13
Envfac	5.31	1.23	5.38	1.16	5.17	1.19	5.47	1.26
Envadm	4.81	1.45	4.73	1.37	4.75	1.36	5.05	1.23
Classmate Interaction Measures								
Clpresen	2.66	1.00	2.55	.851	2.75	1.14	2.53	.905
Classgrp	2.53	.950	2.51	.825	2.75	.965	2.42	.961
Occgrp	2.81	.821	2.80	.847	2.83	.937	2.79	.787
Diversity Conversation Measures								
Divrstud	2.44	.948	2.28	.946	2.50	.798	2.42	1.07
Diffstu2	2.59	.979	2.59	.905	2.50	.798	2.74	1.05
Writing Measures								
Writemor	1.44	.669	1.30	.598	1.42	.669	1.37	.597
Writemid	2.25	.672	2.27	.838	2.17	.718	2.32	.671
Writesml	2.88	.793	2.93	.973	2.58	.669	3.16	.688
Class Preparation Measure								
Acadpr01	3.66	1.64	3.60	1.43	3.50	1.57	3.53	1.43
Out of Class Experience Measures								
Intern04	2.87	.871	3.03	.838	2.67	.985	3.00	.816
Volntr04	2.97	.822	3.23	.979	2.50	1.00	3.26	.562

Univariate Analysis of Covariance

Univariate analysis of covariance was conducted on each independent variable category (athletes vs. non-athletes, revenue sport vs. non-revenue sport) for each of the

29 Measures yielded by the exploratory factor analysis. Respondent ACT scores were used as the covariate in an effort to control for pre-college academic characteristics. A significance level of 0.10 was established for these statistical procedures based on the design of the study.

Considering participation on a team sponsored by the institution's athletics department as the independent variable (*athlete*), ANCOVA results with ACT total score held at 22.10 indicated significant differences between athletes and non-athletes on three of the Measures. The significant differences were as follows: (1) discussed grades or assignments with an instructor (*facgrade*) (ΔM=0.31, F=4.01, p=.05); (2) coursework emphasized making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions (*evaluate*) (ΔM=0.29, F=3.77, p=.05); and (3) hours per 7-day week spent participating in co-curricular activities (*cocurr01*) (ΔM=1.97, F=57.7, p=.00). While descriptive statistics analysis indicated similarity among the groups, statistically significant mean differences existed between athletes and non-athletes. Consequently, null hypothesis one was rejected based on these significant differences. Table 4 displays the results of this univariate ANCOVA.

Table 4

Univariate Analysis of Covariance of the 29 Measures Generated from Exploratory Factor Analysis by Athletics Participation Status (athlete)

(N=629)

Dependent Variable	*SS*	*df*	*F*	*p*
Coursework emphasized				
Analyze	.216	1	.313	.576
Synthesz	.622	1	.938	.333
Evaluate	2.621	1	3.767	.053*
Applying	.932	1	1.277	.259
Faculty discussions				
Facgrade	2.86	1	4.012	.046*
Facplans	.083	1	.108	.743
Facideas	.292	1	.292	.532
Institutional support				
Envsuprt	.474	1	.900	.343
Envdivrs	.004	1	.004	.947
Envnacad	.116	1	.164	.685
Envsocal	.614	1	.873	.350
Co-curricular involvement				
Cocurr01	118.369	1	57.7	.000*
Learning experiences				
Stdabr04	.913	1	1.786	.182
Indstd04	.196	1	.300	.584
Snrx04	1.114	1	1.042	.308
Relationships				
Envstu	.000	1	.000	.993
Envfac	.098	1	.073	.786
Envadm	.195	1	.104	.747
Interaction with classmates				
Clpresen	.369	1	.499	.480
Classgrp	.010	1	.014	.906
Occgrp	.002	1	.002	.962
Conversation with diverse students				
Divrstud	.724	1	.808	.369
Diffstu2	.002	1	.002	.963
Writing				
Writemor	.575	1	1.583	.209
Writemid	.007	1	.010	.919
Writesml	.104	1	.111	.739
Class preparation				
Acadpr01	.117	1	.056	.812
Out of class experiences				
Intern04	.702	1	1.001	.317
Volntr04	2.081	1	2.207	.138

Note. *=$p<.05$
Covariate of ACT total score evaluated at 22.10

Next, considering the revenue status of the sport (*revstatu*) as the independent variable and utilizing ACT total score held at 21.61 as the covariate, ANCOVA results indicated significant differences between revenue sport athletes and non-revenue sport athletes on three of the Measures treated as dependent variables: (1) providing the support you need to help you succeed academically (*envsuprt*) (F=6.673, p=.015); (2) community service or volunteer work (*volntr04*) (F=6.853, p=.014); and (3) number of written papers or reports of fewer than five pages (*writesml*) (F=9.716, p=.004). In sum, the ANCOVA analysis indicated that revenue sport athletes differed significantly from non-revenue sport athletes in these three categories of dependent variable. Consequently, null hypothesis two was rejected based on these significant differences. Table 5 displays the results of this univariate ANCOVA.

Table 5

Univariate Analysis of Covariance of 29 NSSE Responses by Revenue Status (revstatu) (N=31)

Dependent Variable	*SS*	*df*	*F*	*p*
Coursework emphasis				
Analyze	.064	1	.134	.717
Synthesz	.408	1	.498	.486
Evaluate	.147	1	.234	.632
Applying	.004	1	.004	.949
Faculty discussions				
Facgrade	.496	1	.924	.345
Facplans	.001	1	.001	.976
Facideas	1.102	1	1.229	.277
Envsuprt	2.428	1	6.673	.015*
Institutional support				
Envdivrs	.514	1	.699	.410
Envnacad	.806	1	1.579	.219
Envsocal	.493	1	.555	.463
Co-curricular involvement				
Cocurr01	4.058	1	1.146	.294
Learning experiences				
Stdabr04	.004	1	.006	.938
Indstd04	.093	1	.234	.632
Snrx04	.004	1	.004	.948
Relationships				
Envstu	.314	1	.214	.647
Envfac	.411	1	.261	.614
Envadm	.170	1	.101	.753
Interaction with classmates				
Clpresen	.606	1	.596	.447
Classgrp	.552	1	.578	.453
Occgrp	.010	1	.014	.906
Conversation with diverse students				
Divrstud	.285	1	.305	.585
Diffstu2	.074	1	.082	.776
Writing				
Writemor	.004	1	.010	.920
Writemid	.261	1	.537	.470
Writesml	3.763	1	9.716	.004*
Class preparation				
Acadpr01	.058	1	.026	.874
Out of class experiences				
Intern04	1.319	1	1.707	.202
Volntr04	4.081	1	6.853	.014*

Note. *=$p<.05$

Covariate of ACT total score evaluated at 21.61

Discriminant Function Analysis

Two discriminant analyses were conducted to determine if the 29 Measures derived from exploratory factor analysis could be used to predict membership into any of the following groups: athletes and non-athletes and revenue sport participants and non-revenue sport participants. Table 6 displays the results of tests of equality of group means for the three statistically significant Measures for the first discriminant analysis test utilizing athletics participation as the grouping variable.

This analysis, using participation status (*athlete*) as the grouping variable, generated one significant function, Λ=.881, X^2(5, N=671)=84.31, p=.000, indicating that the function of predictors significantly differentiated between athletes and non-athletes. Table 7 describes the function generated by the discriminant analysis and lists the classification function coefficients.

Table 6

Athletics Participation Discriminant Analysis Results of Significant Mean Differences

Grouping Variable: Athletics participation status (athlete)

Measure	*Λ*	*F*	*df1*	*df2*	*p*
Discussed grades or assignments with an instructor (*facgrade*)	.995	3.25	1	669	.072*
Hours per 7 day week spent participating in co-curricular activites (*cocurr01*)	.904	71.33	1	669	.000*
Practicum, internship, field experience, Co-op experience, or clinical assignment (*intern04*)	.996	2.905	1	669	.089*

*Note. *=p<.10*

Table 7

Athletics Participation Classification Function Coefficients

		Are you a student athlete on a team sponsored by your institution's athletics department?	
Function	Survey Code	No	Yes
Discussed grades or assignments…	*facgrade*	3.301	2.727
Hours per 7-day week…co-curricular…	*cocurr01*	.435	1.573
Community service or volunteer work	*volntr04*	2.752	2.240

While 93.6 percent of original grouped cases were correctly classified and 93.2 percent of cross validated grouped cases were correctly classified (see Table 8), tests for equality of group means resulted in only three (of 29) significant variables (p=<.10). In addition, the squared canonical correlation ($.34^2$=.11) provides an effect size for the function. This reveals that 11% of the variance is accounted for by the dependent variable. Combined with the fact that only three of 29 Measures had significant mean differences, it is likely that the generated function will not be completely accurate for classifying individuals into athlete and non-athlete groups (Mertler &Vannatta, 2005). Therefore, null hypothesis three was accepted.

Table 8

Athletics Participation Classification Results

		Are you a student-athlete on a team sponsored by your institution's athletics department?	Predicted Group Membership		Total
			No	Yes	
Original(b)	Count	No	621	16	637
		Yes	27	10	37
		Ungrouped cases	16	2	18
	%	No	97.49	2.51	100
		Yes	72.97	27.03	100
		Ungrouped cases	88.89	11.11	100
Cross-validated(a)	Count	No	621	16	637
		Yes	30	7	37
	%	No	97.49	2.51	100
		Yes	81.08	18.92	100

Note. *Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.*

b *93.6% of original grouped cases correctly classified.*

c *93.2% of cross-validated grouped cases correctly classified.*

In addition, exploring function means at group centroids provides a visual display of the predicted group membership. See Figure 2 for a graphical representation of the athletics participation status means at group centroids.

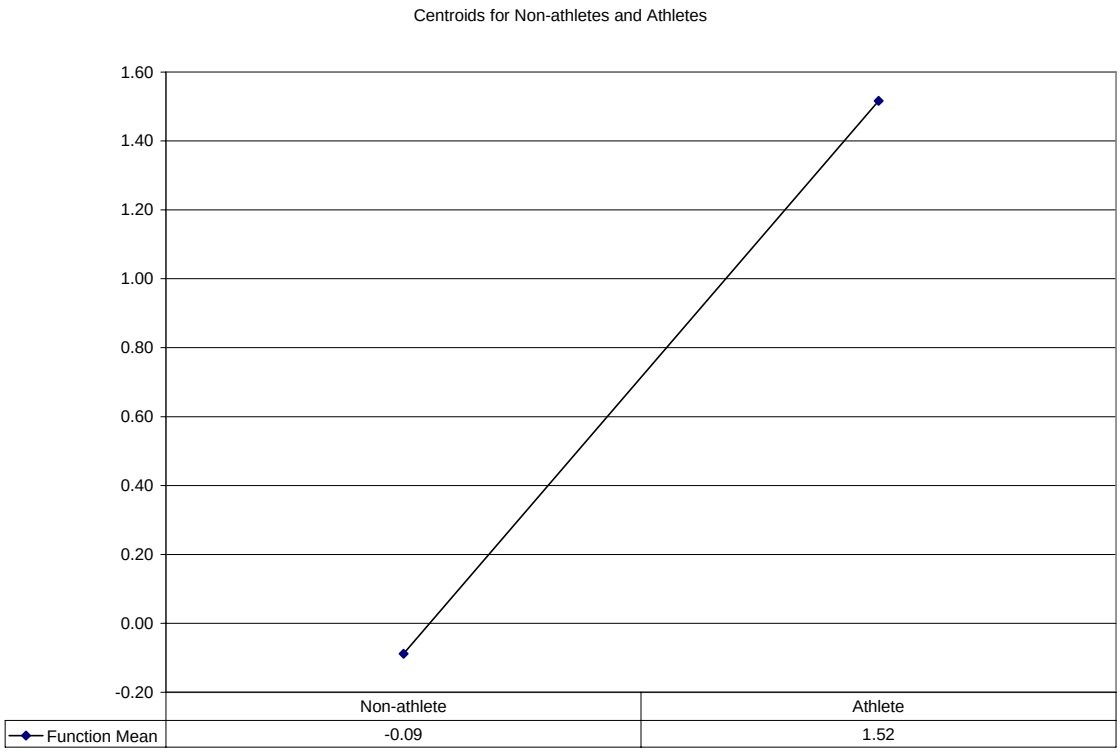

Figure 2 indicates how the reports of individuals from the significant function generated will lead to classification in one of two groups.

The second discriminant analysis utilized the revenue status (*revstatu*) of participants as the grouping variable. This analysis resulted in four significant group mean differences (see Table 9).

Moreover, this analysis also generated one significant function, Λ=.641, X^2(3, N=36)=14.44, p=.002, indicating that the function of predictors significantly differentiated between revenue sport athletes and non-revenue sport participants. Table 10 describes the function generated by the discriminant analysis and lists the classification function coefficients.

Table 9

Revenue Sport Status Discriminant Analysis Results of Significant Mean Differences

Grouping Variable: Revenue Status (revstatu)

Measure	*Λ*	*F*	*df1*	*df2*	*p*
Providing you the support you need to help you succeed academically (*envsuprt*)	.898	3.85	1	34	.058*
Hours per 7 day week spent participating in co-curricular activites (*cocurr01*)	.892	4.13	1	34	.050*
Number of written papers or reports of fewer than 5 pages (*writesml*)	.849	6.03	1	34	.019
Community service or volunteer work (*volntr04*)	.900	3.758	1	34	.061

*Note. *=p<.10*

Table 10

Revenue Sport Status Classification Function Coefficients

		Revenue status	
Function	Survey Code	Non-revenue	Revenue
Hours per 7-day week…co-curricular…	*cocurr01*	.297	.857
Number of written…	*writesml*	5.24	3.86
Community service or volunteer work	*voluntr04*	4.95	3.86

Classification results indicated that 80.6 percent of original grouped cases were correctly classified and 80.6 percent of cross validated grouped cases were correctly

classified. However, tests for equality of group means resulted in just four (of 29) significant variables (p=<.10). In addition, the squared canonical correlation ($.59^2$=.35) provides an effect size for the function. This reveals that 35% of the variance is accounted for by the dependent variable. In this analysis, only four of 29 differences were significant. Table 11 depicts these classification results. Therefore it is likely that the generated function will not be accurate for classifying individuals into revenue sport and non-revenue sport groups (Mertler & Vannatta, 2005). Therefore, null hypothesis four was not rejected.

Table 11

Revenue Status Classification Results

		Revenue Status	Predicted Group Membership		Total
			Non-Revenue	Revenue	
Original(b)	Count	Non-Revenue	20	2	22
		Revenue	5	9	14
		Ungrouped cases	565	91	656
	%	Non-Revenue	90.91	9.09	100
		Revenue	35.71	64.29	100
		Ungrouped cases	86.13	13.87	100
Cross-validated(a)	Count	Non-Revenue	20	2	22
		Revenue	5	9	14
	%	Non-Revenue	90.91	9.09	100
		Revenue	35.71	64.29	100

Note. *Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.*

b *80.6% of original grouped cases correctly classified.*

c *80.6% of cross-validated grouped cases correctly classified.*

Finally, plotting function means at group centroids allow for a graphical display of the classification function from the discriminant analysis. See Figure 3 for a graphical display of the revenue sport status function means at group centroids.

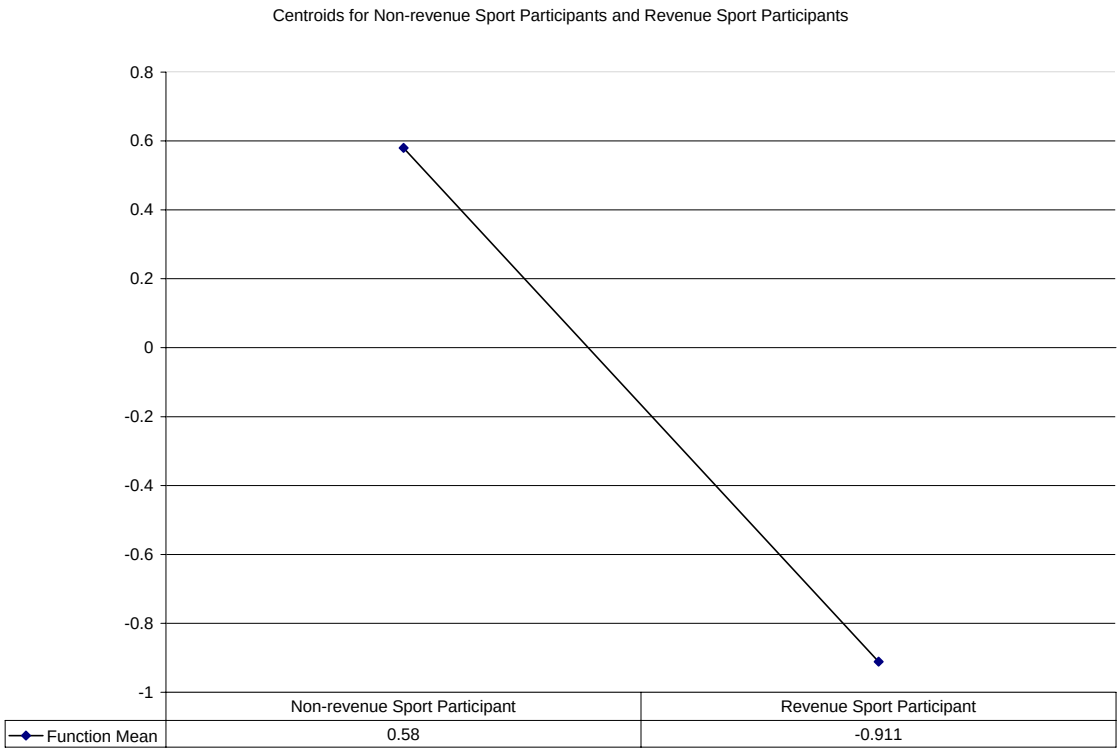

Figure 3 suggests survey respondents are likely to be classified as non-revenue or revenue sport participants based on the significant function generated by discriminant analysis.

Summary

This study was designed to examine the impact of athletics participation on student engagement measures as characterized by the National Survey of Student Engagement's *College Student Report.* Data were analyzed using factor analysis, descriptive statistics, univariate analyses of covariance, and discriminant function analysis.

Factor analysis provided a reduction in the data that were used for further analyses in the study, resulting in 11 components created from 42 original dependent variables. These components were labeled: (1) Coursework emphasis; (2) Faculty discussions; (3) Institutional support; (4) Co-curricular involvement; (5) Learning

experiences; (6) Relationships; (7) Interaction with classmates; (8) Conversation with diverse students; (9) Writing; (10) Class preparation; and (11) Out of class experiences. In addition, the Measures (29) that comprised the 11 factors were treated as dependent variables for subsequent analyses.

Descriptive analysis yielded useful information. These descriptive statistics analyses uncovered that the largest mean difference was the number of hours per week spent participating in co-curricular activities (*cocurr01*). This mean difference held true between both categories of independent variables being investigated, both athletes and non-athletes and revenue sport athletes and non-revenue sport athletes. Furthermore, descriptive statistics analysis revealed that athletes had higher mean scores on 13 Measures (of 29) while revenue sport athletes reported higher mean scores on just 9 of the 29 Measures.

Univariate ANCOVA indicated that, with ACT total score as the covariate, significant differences existed between athletes and non-athletes on three of the Measures treated as dependent variables: (1) discussed grades or assignments with an instructor (*facgrade*) (F=4.01, p=.05); (2) coursework emphasized making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions (*evaluate*) (F=3.77, p=.05); and (3) hours per 7-day week spent participating in co-curricular activities (*cocurr01*) (F=57.7, p=.00). This analysis led to the rejection of null hypothesis one. Moreover, a second univariate ANCOVA, with ACT total score as the covariate, revealed that significant differences also existed between revenue sport athletes and non-revenue sport athletes on three of the measures treated as dependent variables: (1) providing the

support you need to help you succeed academically (*envsuprt*) (F=6.673, p=.015); (2) community service or volunteer work (*volntr04*) (F=6.853, p=.014); and (3) number of written papers or reports of fewer than five pages (*writesml*) (F=9.716, p=.004). Based on these results, null hypothesis two was also rejected.

Finally, two discriminant analyses were conducted. The first was conducted to determine if it is possible to predict participation on an athletics department sponsored team. The second discriminant analysis was conducted to determine if it is possible to predict the revenue status of an athlete. Although both analyses yielded one significant function, there were too few significant group mean differences and too little variance accounted for to rely on the models as highly accurate predictors of group membership. Thus, both null hypotheses 3 and 4 were accepted (failed to reject).

CHAPTER FIVE

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Intercollegiate athletics has long been viewed as an integral part of the higher education experience. Learning experiences outside the classroom, such as those purported to exist in sport, are often viewed as valuable happenings for participants as well as an embedded part of the culture and mission at many institutions. However, concern exists about whether the experiences of athletes are comparable to the experiences of non-athletes. Consequently, this study examined the significance of intercollegiate athletics participation as well as the revenue sport status of participants and its impact on student engagement. This chapter reviews the problem, purpose, null hypotheses, study group, statistical methods, and independent and dependent variables of the study. Moreover, findings, conclusions, recommendations, and a summary of the study are included in this chapter.

Problem of the Study

The value of sport in education and the effect of athletics participation continue to be scrutinized (Bowen & Levin, 2003; Coakley, 2003; Shulman & Bowen, 2001). However, unanswered questions led to a three-pronged problem that was examined in this study. First, literature review has revealed a lack of information regarding whether and how participation in NCAA Division II athletics impacts the educational experiences of student athletes. Second, there is a lack of information about whether a specific type of sport participation – revenue sports versus non-revenue sports – impacts those athletes differently. Third, as past research regarding the question of engagement/involvement in educationally sound practices by athletes has yielded conflicting results, the potential for

previously unidentified value or consequences of Division II athletics participation exists. Consequently, this study sought to address these knowledge gaps and provide practitioners with information to guide policy and practice.

This study, specific to NCAA Division II athletics participation, sought to uncover unknown benefits, unforeseen consequences, unique characteristics, or specific behaviors that lead to differing levels of student engagement between athletes and non-athletes and between revenue producing sport and non-revenue producing sport participants. This study intended to provide information to practitioners that can help shape programs to benefit athletes and non-athletes alike.

Purpose of the Study

The purpose of this study was to examine the significance of athletics participation and revenue sport status on engagement in research-based effective educational practices at a four-year, regional, public NCAA Division II institution. In addition, this study provided information to practitioners about the educational experiences of athletes as compared to their non-athlete contemporaries. This study also explored how the educational experiences of revenue producing sport participants compared to those of non-revenue producing sport participants. Moreover, this study examined the reports of both revenue and non-revenue sport athletes and non-athletes in an effort to determine the characteristics of each group. Thus, it was anticipated that this type of program evaluation would provide practitioners with more information about program effectiveness and would afford institutions the opportunity to provide better advisement to all students.

Null Hypotheses

In order to investigate the problem, address the purpose, and to answer the research questions of the study, the following null hypotheses were tested.

H_O1. There is no difference in National Survey of Student Engagement items investigated in the study between athletes and non-athletes.

H_O2. There is no difference in National Survey of Student Engagement items investigated in the study based on student athlete participation on a revenue or non-revenue generating team.

H_O3. There are no identifying group membership characteristics of student athletes and non-athletes using the National Survey of Student Engagement items utilized in the study.

H_O4. There are no identifying group membership characteristics of revenue and non-revenue producing sports using the National Survey of Student Engagement items utilized in the study.

Study Group

The study group consisted of students at the selected institution who completed the National Survey of Student Engagement during the spring 2005 academic term. The subjects consisted of first year students and seniors at the institution who were in attendance at the selected institution in the previous term. Therefore, students that transferred to the selected institution or originally enrolled in classes at the selected institution during the term that the instrument was administered were not selected. While the instrument was administered electronically by National Survey of Student

Engagement staff, local coordination efforts were handled by the selected institution's Office of Assessment and Information Analysis (OAIA).

Intercollegiate athletics participation (athletes vs. non-athletes) and the sport type of participants (revenue sports vs. non-revenue sports) were the factors used to build the study. Athletes were those students who self-reported on the NSSE instrument as a participant on a university sponsored intercollegiate athletics team. Revenue sport participation was coded by the investigator. Subsequently, the OAIA provided the researcher with survey scores. When available, the OAIA provided the researcher with the ACT score of the survey which was utilized in an effort to control for pre-college academic characteristics. Because the NSSE is institutional data, the OAIA secured informed consent from participants through its customary assessment procedures. In addition, the OAIA protected the confidentiality of participants prior to researcher investigation of the data.

The final study group consisted of 778 survey respondents. However, in the cases of each of the analyses conducted in the study, some respondents were eliminated by SPSS Graduate Pack version 14.0 due to missing or excluded data. These cases were described specifically in Chapter Four.

Statistical Methods

Exploratory factor analysis was conducted in an effort to reduce the original 42 *College Student Report* items that were used by NSSE in calculating five sub-scales. The five sub-scales were not analyzed in this study due to the fact that the weights used to calculate sub-scales are not appropriate for intra-institutional comparisons (2005 NSSE Codebook, 2005). Factor analyses yielded 11 components comprised of 29 Measures

from the original 42 survey items. These Measures (29) were treated as dependent variables for descriptive statistics and univariate ANCOVA's and as the independents for the discriminant analyses.

Descriptive statistics were calculated including mean and standard deviation values for the Measures (dependent variables) derived from the exploratory factor analysis. In addition, these descriptive statistics were provided for each category of independent variable: athlete, non-athlete, revenue sport athlete, and non-revenue sport athlete.

In addition, univariate analyses of covariance were computed to check for significant group differences between categories of independent variables (Mertler & Vannatta, 2005). The total ACT score of respondents was used as the covariate in these analyses in an effort to control for pre-college academic characteristics.

Finally, discriminant analyses were computed to uncover whether a survey respondent could be classified into one of the groups (athlete, non-athlete, revenue sport athlete, non-revenue sport athlete) examined in the study (Mertler & Vannatta, 2005).

Independent Variables

Intercollegiate athletics participation at the cooperating institution served as the independent variable for the study. The independent variable was divided into four categories: (1) athlete, (2) non-athlete, (3) revenue sport athlete, and (4) non-revenue sport athlete. For statistical analyses, independent variable data were categorically coded. The athletics participation code was provided in the NSSE data set. However, the revenue status code was entered into the data set by the researcher. Revenue sports at the institution studied included football, men's and women's basketball, and volleyball. Non-

revenue sports at the institution studied included, men's and women's cross country, women's soccer, men's and women's indoor track, baseball, softball, men's and women's outdoor track, and men's and women's tennis.

Dependent Variables

Freshman and senior student respondent's NSSE *College Student Report* scores were provided to the investigator by the cooperating institution's OAIA. The dependent variable data were collected via the web during the spring 2005 academic term. All dependent variable data were scale data.

Dependent variables for the exploratory factor analysis consisted of 42 scale items from *The College Student Report* that are used by NSSE to calculate five sub-scales. The factor analysis yielded 11 components comprised of 29 measurements. These 29 measurements were treated as dependent variables for descriptive statistics and univariate ANCOVA's and as independents for discriminant analyses. Univariate ANCOVA analyses were conducted to test for significant differences between the independent variables. Discriminant analyses were computed to determine if an individual's survey responses could predict membership in a group. The purpose of these analyses methods was to allow the investigator to better understand the impact of intercollegiate athletics participation on student engagement at the selected institution and to provide information to practitioners at the institution to inform decisions and improve advisement to students, both those who participate in intercollegiate athletics and those who do not.

Findings

Careful examination of the data collected for the purpose of answering the problem and the research questions of this study led to the following findings.

Research Question One

The first research question asked if intercollegiate athletics participation at the selected institution impacted the engagement scores of students. Initial examination of descriptive statistics revealed that athletes had higher mean scores than non-athletes on 13 of the 29 dependent variables. The largest difference was regarding the number of hours per week spent participating in co-curricular activities (*cocurr01*) measure (ΔM=2.25). In other words, through thorough examination of descriptive statistics, the case can be made that athletes were largely as engaged as non-athletes.

Closer inspection of the univariate ANCOVA for participation on a team sponsored by the institution's athletics department (*athlete*) indicated three significant differences among athletes and non-athletes. These included the discussed grades or assignments with an instructor (*facgrade*) measurement (F=4.01, p=.05); the coursework emphasized making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions (*evaluate*) measurement (F=3.77, p=.05); and the hours per 7-day week spent participating in co-curricular activities (*cocurr01*) measurement (F=57.7, p=.00). Since significant differences existed, null hypothesis one was rejected on the basis of these three univariate ANCOVA's. In other words, the reports of athletes and non-athletes indicated that some statistically significant differences in engagement indicators existed.

Research Question Two

The second research question asked if revenue or non-revenue sport participation at the selected institution impacted the engagement scores of students. Descriptive

statistics revealed the largest observed difference between revenue sport and non-revenue sport athletes existed in the number of hours per week spent participating in co-curricular activities (*cocurr01*) measure (ΔM=1.08). Assessment of the univariate ANCOVA for the revenue status of the participant's sport (*revstatu*) revealed significant differences on three of the 29 measures. These included the providing the support you need to help you succeed academically (*envsuprt*) measure (F=6.673, p=.015); the community service or volunteer work (*volntr04*) measure (F=6.853, p=.014); and the number of written papers or reports of fewer than five pages (*writesml*) measure (F=9.716, p=.004). On the basis on these univariate ANCOVA's, null hypothesis two was rejected.

These results indicated that non-revenue sport athletes reported different experiences than their revenue sport counterparts. These differences were revealed in both descriptive statistics analyses and univariate ANCOVA analyses. In eight of the 29 instances from descriptive statistics analysis, these differences favored the revenue sport athletes. Although NCAA rules govern the number of hours per week spent participating in athletics-related activities, revenue sport athletes reported that they spent more hours per week participating in co-curricular activities than did non-revenue sport athletes.

Research Question Three

Research question three explored whether or not it would be possible to predict the group membership of athletes and non-athletes on the basis of NSSE Measures examined in the study. The discriminant analysis using participation on an athletics department sponsored team (*athlete*) as the grouping variable generated one significant function, Λ=.881, X^2(5, N=671)=84.31, p=.000, indicating that the function of predictors significantly differentiated between athletes and non-athletes. While 93.6 percent of

original grouped cases were correctly classified and 93.2 percent of cross validated grouped cases were correctly classified, tests for equality of group means resulted in only three (of 29) significant variables (p=<.10). In addition, the squared canonical correlation ($.34^2$=.11) provides an effect size for the function. This reveals that 11% of the variance is accounted for by the dependent variable. Since in this case only three of 29 were significant, it is likely that the generated function will not be accurate for classifying individuals into athlete and non-athlete groups in all cases (Mertler & Vannatta, 2005). Therefore, null hypothesis three was accepted (failed to reject).

These results indicated that classification of individuals into one of two groups (athletes and non-athletes) would likely lead to classification errors. However, it is unknown how a larger population would affect these results.

Research Question Four

Research question four explored whether or not it would be possible to predict the group membership of revenue sport athletes and non-revenue sport athletes on the basis of *The College Student Report* items examined in the study. The analysis using revenue status (*revstatu*) of participants as the grouping variable also generated one significant function, Λ=.641, $X^2(3, N=36)=14.44$, p=.002, indicating that the function of predictors significantly differentiated between revenue sport athletes and non-revenue sport participants. Classification results indicated that 80.6 percent of original grouped cases were correctly classified and 80.6 percent of cross validated grouped cases were correctly classified. However, tests for equality of group means resulted in just four (of 29) significant variables (p=<.10). In addition, the squared canonical correlation ($.59^2$=.35) provides an effect size for the function. This reveals that 35% of the variance is

accounted for by the dependent variable. In this analysis, only four of 29 differences were significant, it is therefore likely that the generated function will not be accurate for classifying individuals into revenue sport and non-revenue sport groups (Mertler & Vannatta, 2005). Therefore, the results failed to reject null hypothesis four.

As in the case of athletes and non-athletes, revenue and non-revenue athletes classification would likely lead to errors. There were 34 athletes in the population. It is unknown how a larger population of athletes would impact classification results.

Conclusions

The purpose of this study was to examine the impact that athletics participation in both revenue and non-revenue intercollegiate sport had on the engagement of students as measured by the National Survey of Student Engagement's *College Student Report.* The institution studied was a four year, regional, public, NCAA division II university in Missouri. The conclusions that follow are based on the study's findings.

First, descriptive statistics revealed that athletes had higher mean scores on 13 of the 29 measures while non-athletes had higher mean scores on 15 of 29 measures. Athletes and non-athletes had the same mean score on one measure. Univariate analysis of covariance findings, with ACT total score as the covariate, indicated that three significant differences in NSSE measures existed between athletes and non-athletes. Two of these differences favored non-athletes (*facgrade*, *evaluate*) while one favored athletes (*cocurr01*). In other words, non-athletes reported more discussions with faculty members about grades and assignments and that coursework emphasized making judgments about course content. At the same time, athletes reported spending more time participating in co-curricular activities than their non-athlete contemporaries. For the remaining 26 items,

no significant differences were uncovered. Null hypothesis one was rejected due to the significant differences from the three univariate ANCOVA's. However, from careful consideration of the descriptive analysis and the remaining univariate ANCOVA's, it is likely that athletes and non-athletes at the cooperating institution are similarly engaged.

Next, descriptive analysis uncovered that revenue sport athletes reported higher mean scores than non-revenue sport athletes on nine of the 29 measures. Therefore, non-revenue sport athletes reported higher mean scores on the remaining 20 measures. In addition, univariate analysis of covariance, with ACT total score as the covariate, revealed that three statistically significant differences existed between revenue and non-revenue sport athletes (*envsuprt*, *volntr04*, and *writesml*). All of these differences favored non-revenue sport athletes. In other words, non-revenue sport athletes reported that the institution studied provided more support needed to succeed academically, have done or plan to do more volunteering or community service work, and have written more papers or reports fewer than 5 pages than their revenue sport counterparts. Although the study was limited to one collection of data and while three (of 29 variables tested) statistically significant differences did exist, it is concluded that revenue sport athletes from this snapshot may be overall similarly engaged as their non-revenue sport counterparts. However, since a large majority of mean differences from the descriptive analysis favored non-revenue athletes and the three statistically significant differences from univariate ANCOVA analysis favored non-revenue athletes, it is also concluded that practitioners should monitor the levels of engagement of revenue sport athletes closely.

Finally, efforts to determine group membership for both athletes and non-athletes and revenue sport and non-revenue sport athletes were not possible. Although the two

discriminant analyses for both grouping variables (*athlete*, *revstatu*) resulted in significant functions, tests for the equality of means yielded only 3 and 4 significant variables respectively. In addition, neither function accounted for an acceptable amount of the variance. Although one significant classification function was revealed for each analysis, it is likely that both of these functions would lead to incorrect classifications.

Discussion and Recommendations

This section includes both a discussion of the study and recommendations for future research that might build upon this study. Both the discussion and the recommendations are derived from literature review and the findings and conclusions of the study.

Discussion

The role of athletics related to academic missions and the impact that athletics participation has on the identity, learning, and development has been identified as an area for exploration (Hill, Burch-Ragan, & Yates, 2001). This study uncovered findings in these areas worthy of discussion by institutional practitioners. Both the descriptive statistics and univariate ANCOVA's from the study provided information for practitioners, both coaches and administrators.

Many intercollegiate athletics practitioners would argue that an important part of the mission of intercollegiate athletics is to provide an educational experience for participants in athletic programs equivalent to, if not better than, the experience of non-athletes. The study developed one method for monitoring the educational experience of athletics program participants.

By examining student engagement and other institutional data, athletics practitioners at the cooperating institution could gain information that may help to guide policy and practice. Additionally, practitioners at other institutions may find the study valuable to utilize as a guide for program evaluation at their respective institutions. Furthermore, the study will allow practitioners at the cooperating institution to develop targets to continue support programs that assist student athletes in areas where engagement is consistent with non-athletes and set goals or expand support programs designed to address opportunities for improvement.

For example, while athletes and non-athletes appeared to be overall similarly engaged, the study uncovered areas that practitioners could monitor. First, since NCAA rules govern the hours per week that athletes participate in practice, why do revenue sport athletes perceive they spend more time participating in co-curricular activities than non-revenue sport athletes ($\Delta M=1.08$)? Next, while coaches often encourage and expect athletes to communicate practice and competition schedules openly with faculty, the perception of respondents indicated that athletes do so less frequently than non-athletes. Moreover, open communication lines between revenue sport athletes, coaches, and academic support units may impact how athletes perceive the institution's support to help athletes be successful academically. Furthermore, do revenue sport athletes perceive community service and volunteer activities as opportunities or requirements?

Athletes at the cooperating institution were largely as engaged as their non-athlete peers. Previous studies have noted similar engagement reports for athletes and non-athletes (Hayek & Kuh, 1999; Umbach, Palmer, Kuh, and Hannah, 2004) and – in some cases – athletes were more engaged than their non-athlete peers (Umbach & Kuh, 2004).

Other cases have revealed concern that athletes, particularly revenue sport athletics, are significantly different than their non-athlete contemporaries (Pascarella et al, 1999). Similarly, the literature revealed concerns regarding the time commitments of revenue sport athletes (Pascarella, Truckenmiller, Nora, Terenzini, Edison, & Hagedorn, 1999). Could time commitments have resulted in, or contributed to an athlete's perception of the level of academic support at the cooperating institution? At the institution, even though academic support services are available to all students, revenue sport athletes perceived less environmental support than non-revenue athletes. Could time commitments result in athletes choosing coursework or majors in which many smaller writing projects and evaluation skills are less-emphasized? These and other questions warrant further discussion and future study at the selected institution and other institutions as well.

Recommendations for Future Study

The purpose of this study was to explore the impact of intercollegiate athletics participation at the NCAA division II level on student engagement. The recommendations for future research that follow are based on the findings and conclusions of the study.

1. Developing and validating a concise instrument for measuring student engagement would allow more frequent measurement opportunities for practitioners to monitor programs.
2. Other variables, such as major and minor should be examined when investigating the impact of athletics participation on student engagement. A

study of this type would allow practitioners to determine if athletes gravitate toward certain courses and programs of study.

3. Future studies of the impact of athletics participation on student engagement should investigate longitudinal data. This would allow researchers to track students from the freshman to senior year (using a pre-test/post-test design) and investigate changes in scores. This would provide practitioners with information about the quality of support programs and address how particular programs may add value to the educational experiences of athletes.
4. Future studies should investigate student engagement measures on a sport by sport basis. This would allow practitioners to uncover sports and/or programs that could serve as benchmarks as well identify those sports and/or programs that might be at-risk.
5. Future study should explore the student engagement of athletics from a qualitative research perspective. Interviews, focus groups, and discussions would provide much needed insight into how and why athletes develop perceptions about their level of student engagement.

Recommendations for Practitioners

Student engagement is thought to be a strong predictor for learning and personal development (Carini, Kuh, & Klein, 2004). Based on views from the literature coupled with the findings and conclusions of the study are the following recommendations for practitioners.

1. Practitioners should consider monitoring the engagement of athletes on a regular basis to ensure that the experiences of athletes are similar to those of non-athletes.
2. Practitioners should consider collaboration with institutional academic support units to design and implement programs that assist athletes – both revenue and non-revenue sport participants – in those areas where differences in student engagement affect athletes adversely. Ultimately, this collaboration could lead to programs that better serve all students.
3. Practitioners should consider the study of student engagement as a tool for program review. While wins and losses, revenues and expenses, graduation rates, and many other measurements are important program review tools for athletics practitioners, student engagement allows practitioners to examine the entire educational experience of athletes.

In conclusion, this study sought to add to the research base regarding the impact of intercollegiate athletics participation on student engagement. Continued research is needed regarding athletics at all levels of participation from all associations (the NCAA and NAIA). Specifically, future researchers should design and execute studies that provide specific, practical information about individual programs to ensure that athletics participation continues to provide an educational experience at least equivalent to, if not better than, the experience of non-athletes.

Summary of the Study

Descriptive analysis revealed mean differences in student engagement measures. Thirteen of 29 mean differences favored athletes. Descriptive results also indicated that

revenue sport athletes reported favorable mean differences to non-revenue sport on nine of 29 measures. Univariate analysis of covariance also yielded statistically significant differences for each category of the independent variable. Non-athletes are significantly more engaged than athletes on two measures (*facgrade, evaluate*) while athletes reported an advantage on one measure (*cocurr01*). Simply stated, non-athletes reported more discussions with faculty members about grades and assignments and that coursework emphasized making judgments about course content. At the same time, athletes reported spending more time participating in co-curricular activities than non-athletes. Similarly, non-revenue sport athletes were significantly more engaged than revenue sport athletes on three measures (*envsuprt*, *volntr04*, and *writesml*). Non-revenue sport athletes reported that the institution studied provided more support needed to succeed academically, have done or plan to do more volunteering or community service work, and have written more papers or reports fewer than 5 pages than their revenue sport athletes. These analyses led to the conclusions that athletes are largely as engaged as non-athletes while revenue sport athletes are similarly as engaged as non-revenue sport athletes. Finally, discriminant analyses found that predicting membership into a group (athlete/non-athlete or revenue sport participant/non-revenue sport participant) would lead to classification inaccuracies.

In summary, intercollegiate athletics practitioners should consider regular monitoring of student engagement reports to ensure that athletes have experiences comparable to non-athletes. Likewise, study of student engagement measures would allow practitioners to monitor the education experiences of both revenue sport and non-revenue sport athletes. Furthermore, frequent analysis of student engagement data would

allow practitioners to ensure that the appropriate programs are in place to assist individuals, like athletes, with unique needs.

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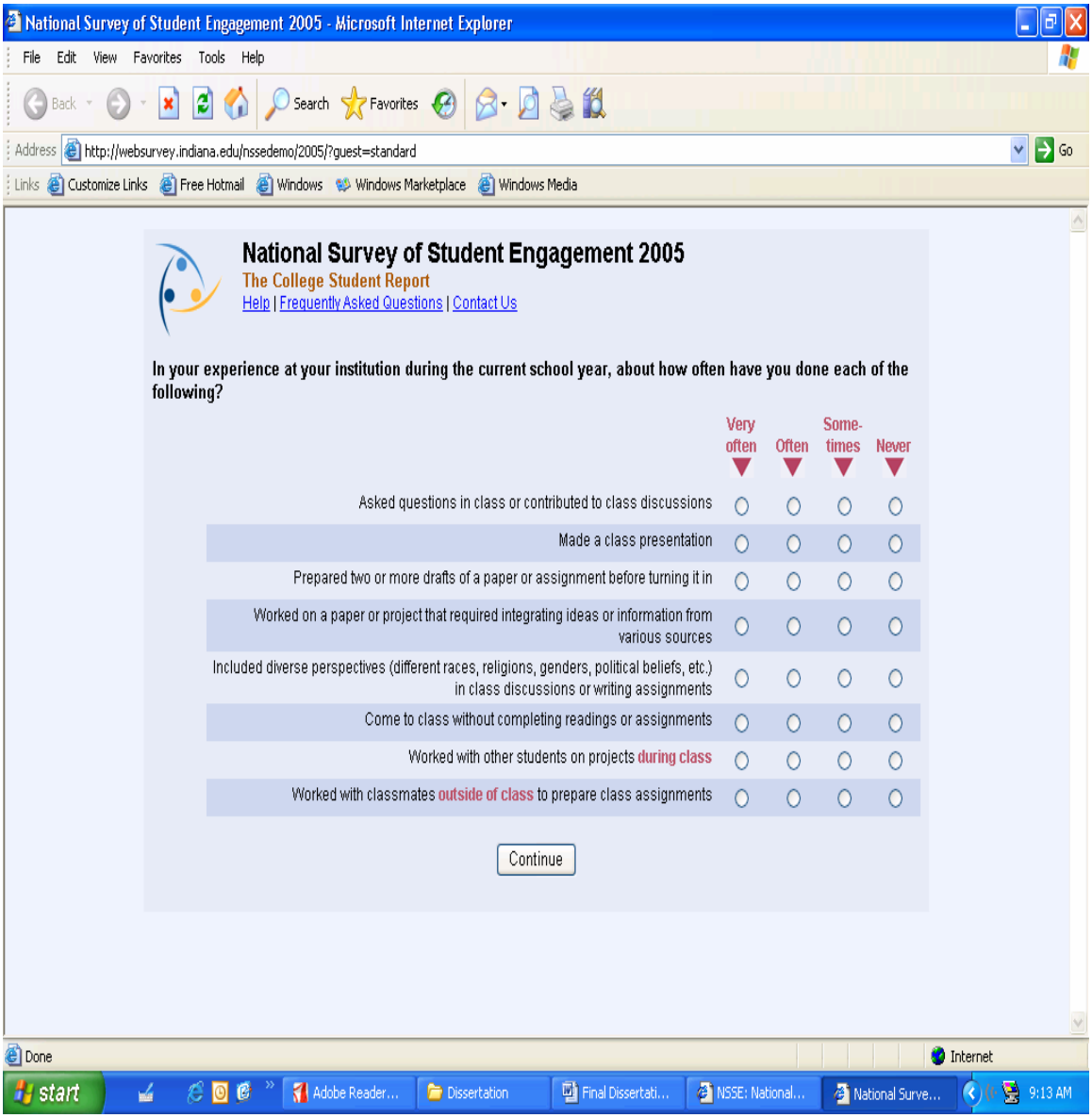
Appendix A

Screen Capture of the First Screen of the Web Version of the 2005 National Survey of Student Engagement's *College Student Report*


National Survey of Student Engagement 2005 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://websurvey.indiana.edu/nssedemo/2005/?guest=standard
Go
Links Customize Links Free Hotmail Windows Windows Marketplace Windows Media
National Survey of Student Engagement 2005
The College Student Report
Help | Frequently Asked Questions | Contact Us
In your experience at your institution during the current school year, about how often have you done each of the following?
Very often
Often
Some-times
Never
Asked questions in class or contributed to class discussions
Made a class presentation
Prepared two or more drafts of a paper or assignment before turning it in
Worked on a paper or project that required integrating ideas or information from various sources
Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments
Come to class without completing readings or assignments
Worked with other students on projects during class
Worked with classmates outside of class to prepare class assignments
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Appendix B

Selected Items from the 2005 National Survey of Student Engagement's *The College Student Report* Codebook

The College Student Report
2005 Codebook

Item #	Variable	Description	Response Values
Question 1. In your experience at your institution during the current school year, about how often have you done each of the following?			
1a.	clquest	Asked questions in class or contributed to class discussions	1=Never 2=Sometimes 3=Often 4=Very often
1b.	clpresen	Made a class presentation	1=Never 2=Sometimes 3=Often 4=Very often
1c.	rewropap	Prepared two or more drafts of a paper or assignment before turning it in	1=Never 2=Sometimes 3=Often 4=Very often
1d.	integrat	Worked on a paper or project that required integrating ideas or information from various sources	1=Never 2=Sometimes 3=Often 4=Very often
1e.	divclass	Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments	1=Never 2=Sometimes 3=Often 4=Very often

1f.	clunprep	Come to class without completing readings or assignments	1=Never 2=Sometimes 3=Often 4=Very often
1g.	classgrp	Worked with other students on projects **during class**	1=Never 2=Sometimes 3=Often 4=Very often
1h.	occgrp	Worked with classmates **outside of class** to prepare class assignments	1=Never 2=Sometimes 3=Often 4=Very often
1i.	intideas	Put together ideas or concepts from different courses when completing assignments or during class discussions	1=Never 2=Sometimes 3=Often 4=Very often
1j.	tutor	Tutored or taught other students (paid or voluntary)	1=Never 2=Sometimes 3=Often 4=Very often
1k.	commproj	Participated in a community-based project (e.g., service learning) as part of a regular course	1=Never 2=Sometimes 3=Often 4=Very often
1l.	itacadem	Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment	1=Never 2=Sometimes 3=Often 4=Very often

1m.	email	Used e-mail to communicate with an instructor	1=Never 2=Sometimes 3=Often 4=Very often
1n.	facgrade	Discussed grades or assignments with an instructor	1=Never 2=Sometimes 3=Often 4=Very often
1o.	facplans	Talked about career plans with a faculty member or advisor	1=Never 2=Sometimes 3=Often 4=Very often
1p.	facideas	Discussed ideas from your readings or classes with faculty members outside of class	1=Never 2=Sometimes 3=Often 4=Very often
1q.	facfeed	Received prompt feedback from faculty on your academic performance (written or oral)	1=Never 2=Sometimes 3=Often 4=Very often
1r.	workhard	Worked harder than you thought you could to meet an instructor's standards or expectations	1=Never 2=Sometimes 3=Often 4=Very often
1s.	facother	Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)	1=Never 2=Sometimes 3=Often 4=Very often

1t.	oocideas	Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)	1=Never 2=Sometimes 3=Often 4=Very often
1u.	divrstud	Had serious conversations with students of a different race or ethnicity than your own	1=Never 2=Sometimes 3=Often 4=Very often
1v.	diffstu2	Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	1=Never 2=Sometimes 3=Often 4=Very often

Question 2. During the current school year, how much has your coursework emphasized the following mental activities?

2a.	memorize	**Memorizing** facts, ideas, or methods from your courses and readings so you can repeat them in pretty much the same form	1=Very little 2=Some 3=Quite a bit 4=Very much
2b.	analyze	**Analyzing** the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components	1=Very little 2=Some 3=Quite a bit 4=Very much
2c.	synthesz	**Synthesizing** and organizing ideas, information, or experiences into new, more complex interpretations and relationships	1=Very little 2=Some 3=Quite a bit 4=Very much
2d.	evaluate	**Making judgments** about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions	1=Very little 2=Some 3=Quite a bit 4=Very much

2e.	applying	**Applying** theories or concepts to practical problems or in new situations	1=Very little 2=Some 3=Quite a bit 4=Very much

Question 3. During the current *school year,* about how much reading and writing have you done?

3a.	readasgn	Number of assigned textbooks, books, or book-length packs of course readings	1=None 2=Between 1 and 4 3=Between 5 and 10 4=Between 11 and 20 5=More than 20
3b.	readown	Number of books read on your own (not assigned) for personal enjoyment or academic enrichment	1=None 2=Between 1 and 4 3=Between 5 and 10 4=Between 11 and 20 5=More than 20
3c.	writemor	Number of written papers or reports of **20 pages or more**	1=None 2=Between 1 and 4 3=Between 5 and 10 4=Between 11 and 20 5=More than 20
3d.	writemid	Number of written papers or reports **between 5 and 19 pages**	1=None 2=Between 1 and 4 3=Between 5 and 10 4=Between 11 and 20 5=More than 20
3e.	writesml	Number of written papers or reports of **fewer than 5 pages**	1=None 2=Between 1 and 4 3=Between 5 and 10 4=Between 11 and 20 5=More than 20

Question 4. In a *typical week,* how many homework problem sets do you complete?

4a.	probseta	Number of problem sets that take you **more** than an hour to complete	1=None 2=1-2 3=3-4 4=5-6 5=More than 6
4b.	probsetb	Number of problem sets that take you **less** than an hour to complete	1=None 2=1-2 3=3-4 4=5-6 5=More than 6
5.	exams	**Mark the box that best represents the extent to which your examinations during the current school year challenged you to do your best work.**	1=Very little 2= 3= 4= 5= 6= 7=Very much

Question 6. During the current school year, about how often have you done each of the following?

6a.**	atdart05	Attended an art exhibit, gallery, play, dance, or other theater performance	1=Never 2=Sometimes 3=Often 4=Very often
6b.**	exrcse05	Exercised or participated in physical fitness activities	1=Never 2=Sometimes 3=Often 4=Very often
6c.**	worshp05	Participated in activities to enhance your spirituality (worship, meditation, prayer, etc.)	1=Never 2=Sometimes 3=Often 4=Very often

6d.***	ownview	Examined the strengths and weaknesses of your own views on a topic or issue	1=Never 2=Sometimes 3=Often 4=Very often
6e.***	othrview	Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	1=Never 2=Sometimes 3=Often 4=Very often
6f.***	chngview	Learned something that changed the way you understand an issue or concept	1=Never 2=Sometimes 3=Often 4=Very often

Question 7. Which of the following have you done or do you plan to do before you graduate from your institution? *Even though 2005 variable names for question 7 differ from 2004, items are identical in content and form between the two years. The response set for this question was changed on the 2004 survey. Subsequent analysis on 2004 data showed the items were not comparable between 2004 and prior years, and thus the variable names are changed for the 2005 administration dataset and codebook.*

7a.	intern04	Practicum, internship, field experience, co-op experience, or clinical assignment	1=Have not decided 2=Do not plan to do 3=Plan to do 4=Done
7b.	volntr04	Community service or volunteer work	1=Have not decided 2=Do not plan to do 3=Plan to do 4=Done
7c.	lrncom04	Participate in a learning community or some other formal program where groups of students take two or more classes together	1=Have not decided 2=Do not plan to do 3=Plan to do 4=Done
7d.	resrch04	Work on a research project with a faculty member outside of course or program requirements	1=Have not decided 2=Do not plan to do 3=Plan to do 4=Done

7e.	forlng04	Foreign language coursework	1=Have not decided 2=Do not plan to do 3=Plan to do 4=Done
7f.	stdabr04	Study abroad	1=Have not decided 2=Do not plan to do 3=Plan to do 4=Done
7g.	indstd04	Independent study or self-designed major	1=Have not decided 2=Do not plan to do 3=Plan to do 4=Done
7h.*	snrx04	Culminating senior experience (capstone course, thesis, project, comprehensive exam, etc.)	1=Have not decided 2=Do not plan to do 3=Plan to do 4=Done

Question 8. Mark the box that best represents the quality of your relationships with people at your institution.

8a.	envstu	**Relationships with**: Other Students	1=Unfriendly, Unsupportive, Sense of Alienation 2= 3= 4= 5= 6= 7=Friendly, Supportive, Sense of Belonging

8b.	envfac	**Relationships with**: Faculty Members	1=Unavailable, Unhelpful, Unsympathetic 2= 3= 4= 5= 6= 7=Available, Helpful, Sympathetic
8c.	envadm	**Relationships with**: Administrative Personnel and Offices	1=Unhelpful, Inconsiderate, Rigid 2= 3= 4= 5= 6= 7=Helpful, Considerate, Flexible

Question 9. About how many hours do you spend in a typical 7-day week doing each of the following? (# of hours per week)

9a.	acadpr01	Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)	1=0 hours 2=1-5 hours 3=6-10 hours 4=11-15 hours 5=16-20 hours 6=21-25 hours 7=26-30 hours 8=More than 30 hours

9b.	workon01	Working for pay **on campus**	1=0 hours 2=1-5 hours 3=6-10 hours 4=11-15 hours 5=16-20 hours 6=21-25 hours 7=26-30 hours 8=More than 30 hours
9c.	workof01	Working for pay **off campus**	1=0 hours 2=1-5 hours 3=6-10 hours 4=11-15 hours 5=16-20 hours 6=21-25 hours 7=26-30 hours 8=More than 30 hours
9d.	cocurr01	Participating in co-curricular activities (organizations, campus publications, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.)	1=0 hours 2=1-5 hours 3=6-10 hours 4=11-15 hours 5=16-20 hours 6=21-25 hours 7=26-30 hours 8=More than 30 hours

9e.**	social05	Relaxing and socializing (watching TV, partying, etc.)	1=0 hours 2=1-5 hours 3=6-10 hours 4=11-15 hours 5=16-20 hours 6=21-25 hours 7=26-30 hours 8=More than 30 hours
9f.	carede01	Providing care for dependents living with you (parents, children, spouse, etc.)	1=0 hours 2=1-5 hours 3=6-10 hours 4=11-15 hours 5=16-20 hours 6=21-25 hours 7=26-30 hours 8=More than 30 hours
9g.	commute	Commuting to class (driving, walking, etc.)	1=0 hours 2=1-5 hours 3=6-10 hours 4=11-15 hours 5=16-20 hours 6=21-25 hours 7=26-30 hours 8=More than 30 hours

Question 10. To what extent does your institution emphasize each of the following?

10a.	envschol	Spending significant amounts of time studying and on academic work	1=Very little 2=Some 3=Quite a bit 4=Very much

10b.	envsuprt	Providing the support you need to help you succeed academically	1=Very little 2=Some 3=Quite a bit 4=Very much
10c.	envdivrs	Encouraging contact among students from different economic, social, and racial or ethnic backgrounds	1=Very little 2=Some 3=Quite a bit 4=Very much
10d.	envnacad	Helping you cope with your non-academic responsibilities (work, family, etc.)	1=Very little 2=Some 3=Quite a bit 4=Very much
10e.	envsocal	Providing the support you need to thrive socially	1=Very little 2=Some 3=Quite a bit 4=Very much
10f.	envevent	Attending campus events and activities (special speakers, cultural performances, athletic events, etc.)	1=Very little 2=Some 3=Quite a bit 4=Very much
10g.	envcompt	Using computers in academic work	1=Very little 2=Some 3=Quite a bit 4=Very much

Question 11. To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?

11a.	gngenled	Acquiring a broad general education	1=Very little 2=Some 3=Quite a bit 4=Very much

11b.	gnwork	Acquiring job or work-related knowledge and skills	1=Very little 2=Some 3=Quite a bit 4=Very much
11c.	gnwrite	Writing clearly and effectively	1=Very little 2=Some 3=Quite a bit 4=Very much
11d.	gnspeak	Speaking clearly and effectively	1=Very little 2=Some 3=Quite a bit 4=Very much
11e.	gnanaly	Thinking critically and analytically	1=Very little 2=Some 3=Quite a bit 4=Very much
11f.	gnquant	Analyzing quantitative problems	1=Very little 2=Some 3=Quite a bit 4=Very much
11g.	gncmpts	Using computing and information technology	1=Very little 2=Some 3=Quite a bit 4=Very much
11h.	gnothers	Working effectively with others	1=Very little 2=Some 3=Quite a bit 4=Very much

11i.	gncitizn	Voting in local, state, or national elections	1=Very little 2=Some 3=Quite a bit 4=Very much
11j.	gninq	Learning effectively on your own	1=Very little 2=Some 3=Quite a bit 4=Very much
11k.	gnself	Understanding yourself	1=Very little 2=Some 3=Quite a bit 4=Very much
11l.	gndivers	Understanding people of other racial and ethnic backgrounds	1=Very little 2=Some 3=Quite a bit 4=Very much
11m.	gnprobsv	Solving complex real-world problems	1=Very little 2=Some 3=Quite a bit 4=Very much
11n.	gnethics	Developing a personal code of values and ethics	1=Very little 2=Some 3=Quite a bit 4=Very much
11o.	gncommun	Contributing to the welfare of your community	1=Very little 2=Some 3=Quite a bit 4=Very much

11p.	gnspirit	Developing a deepened sense of spirituality	1=Very little 2=Some 3=Quite a bit 4=Very much
12.	advise	Overall, how would you evaluate the quality of academic advising you have received at your institution?	1=Poor 2=Fair 3=Good 4=Excellent
13.	entirexp	How would you evaluate your entire educational experience at this institution?	1=Poor 2=Fair 3=Good 4=Excellent
14.	samecoll	If you could start over again, would you go to the *same institution* you are now attending?	1=Definitely no 2=Probably no 3=Probably yes 4=Definitely yes
15.	birthyr	Write in your year of birth: 19____	
	agebase***	Age	
	age	Age category	1=19 or younger 2=20-23 3=24-29 4 =30-39 5=40-55 6=Over 55
16.	sex	Your sex	1=Male 2=Female
17.	internat	Are you an international student or foreign national?	1=No 2=Yes

18.**	race05	What is your racial or ethnic identification? (Mark only one.)	1=American Indian or other Native American 2=Asian American or Pacific Islander 3=Black or African American 4=White (non-Hispanic) 5=Mexican or Mexican American 6=Puerto Rican 7=Other Hispanic or Latino 8=Multiracial 9=Other 10=I prefer not to respond
19.	class	What is your current classification in college?	1=Freshman/first-year 2=Sophomore 3=Junior 4=Senior 5=Unclassified
20.	enter	Did you begin college at your current institution or elsewhere?	1=Started here 2=Started elsewhere

Question 21. Since graduating from high school, which of the following types of schools have you attended other than the one you are attending now? (Mark all that apply.)

This question asks students to select all options that apply. To permit multiple responses, the question is represented in this codebook by five separate items that the student either checks or does not check.

21.**	votech05	Vocational or technical school	1=Checked
	comcol05	Community or junior college	1=Checked
	fouryr05	4-year college other than this one	1=Checked
	none05	None	1=Checked
	ocol1_05	Other	1=Checked
	ocol2_05	Other, specify:	
22.	enrlment	Thinking about this current academic term, how would you characterize your enrollment?	1=Less than full-time 2=Full-time
23.	fratsoro	Are you a member of a social fraternity or sorority?	1=No 2=Yes
24a.	athlete	Are you a student-athlete on a team sponsored by your institution's athletics department?	1=No 2=Yes
24b.	athteam	On what team(s) are you an athlete (e.g., football, swimming)?	
	teamcd05**	Created by recoding athteam into one of 23 sports or to reflect multiple team participation	1=Baseball 2=Basketball 3=Bowling 4=Cross Country 5=Fencing 6=Field Hockey 7=Football 8=Golf 9=Gymnastics 10=Ice Hockey 11=Track & Field 12=Lacrosse 13=Rifle 14=Rowing 15=Skiing 16=Soccer 17=Softball 18=Swimming & Diving 19=Tennis 20=Volleyball 21=Water Polo 22=Wrestling 23=Other 24=More than one sport

25.	grades04	What have most of your grades been up to now at this institution?	1=C- or lower 2=C 3=C+ 4=B- 5=B 6=B+ 7=A- 8=A
26.	livenow	Which of the following best describes where you are living now while attending college?	1=Dormitory or other campus housing (not fraternity/sorority house) 2=Residence (house, apartment, etc.) within **walking distance** of the institution 3=Residence (house, apartment, etc.) within **driving distance** 4=Fraternity or sorority house

What is the highest level of education that your parent(s) completed? (Mark one box per column.)

27a.	fathredu	Father's educational attainment	1=Did not finish high school 2=Graduated from high school 3=Attended college but did not complete degree 4=Completed an associate's degree (A.A., A.S., etc.) 5=Completed a bachelor's degree (B.A., B.S., etc.) 6=Completed a master's degree (M.A., M.S., etc.) 7=Completed a doctoral degree (Ph.D., J.D., M.D., etc.)

Mother's educational attainment	1=Did not finish high school 2=Graduated from high school 3=Attended college but did not complete degree 4=Completed an associate's degree (A.A., A.S., etc.) 5=Completed a bachelor's degree (B.A., B.S., etc.) 6=Completed a master's degree (M.A., M.S., etc.) 7=Completed a doctoral degree (Ph.D., J.D., M.D., etc.)
Please print your primary major or your expected primary major.	
If applicable, please print your second major or your expected second major (not minor, concentration, etc.).	

VITA

Matthew L. Symonds was born in Greenfield, Iowa on March 4, 1968. Following graduation from Greenfield High School in 1986, he completed the following degrees at Northwest Missouri State University in Maryville, Missouri: Bachelor of Science (1990) and Master of Science in Education (1994). In 2006, he received his Ed. D. in Educational Leadership and Policy Analysis from the University of Missouri – Columbia.

His professional experience includes over ten years at Northwest Missouri State University, both as a professional staff and faculty member. He served as the Business Manager/Events Coordinator in the Department of Athletics for nearly seven years. Currently, he is in his fifth year as an Assistant Professor of Health and Physical Education in the Department of Health, Physical Education, Recreation and Dance at the same institution. He resides in Maryville, Missouri.