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THE EFFECT OF INCREASING INTERCOLLEGIATE ATHLETIC PROGRAM SPENDING ON ENROLLMENT AT SMALL COLLEGES AND UNIVERSITIES

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BY

_____
Dr. Juanita G. Vargas, Chair

_____
Dr. Howard M. Crowson

_____
Dr. Gregg A. Garn

_____
Dr. Derek A Houston

_____
Dr. Myron Pope

Dedication

To Mom, whose constant love and strength know no boundaries.

To Dad, who set high expectations, I know you would be proud.

To Mike, you made this possible. I will love and miss you always and forever.

To Zoey, dream big, *Mugs*, because you can do anything!

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No educational journey is a solitary one. So many special people arrived at the right time and place, intervened when I needed them most and consistently encouraged me along the way. Without them, I know I would not have reached my destination and completed this journey.

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amazing intellect and generosity of time and talent, this journey might have been abandoned. Thank you are two words too small to adequately express my appreciation to you.

This journey would not have started without my family and their unwavering determination to help me succeed. I learned at an early age that women could lead and do because my mom led and did. She was successfully self-employed, a wife and a mother. She has strength of character and a Midwestern go-getter sensibility that imprinted itself on me as a young girl and continues to influence me as an adult. The last year of this journey would have been impossible without her strength, her love and her generosity of spirit, time and inspiration. I am forever grateful that she is my mother and my greatest friend.

As my mom imprinted strength, my dad imprinted high standards. He set the bar high and expected me to give my best effort in whatever endeavors I pursued. He was the first in his family to attend college which changed the trajectory of his life and that of our family. Although he passed away more than a decade ago, I think of him daily and wish that he could be here to celebrate this success with me. He would be proud of this job well done.

This journey started at the encouragement of my husband, Mike. My biggest fan, he watched the toddler and managed the household so I could work and go to school. He was giddy to think he would someday be married to a doctor. Unfortunately, he would unexpectedly pass away before he could enjoy that moniker. There is deep sadness in finishing this journey without him by my side.

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Abstract

This quantitative study focuses on ten small, private colleges and universities affiliated with the Kansas Collegiate Athletic Association of the National Association of Intercollegiate Athletics (NAIA). The research question examines the relationship between increased per-student athletic spending and application volume, admissions and overall enrollment gains at member institutions.

The literature review examines the positive impact that athletics has on admissions at large NCAA colleges and universities. Research concerning strategic enrollment management, the economics of athletics, the return on investment (ROI) of athletic expenditures and college choice theory are surveyed. Limited literature references small colleges.

The quantitative study analyzed historical data using a logistical regression design. The findings reveal that increases in per-student athletic spending had no statistically significant effect over the 14-year study period. Findings did show that an increase in institutional per-student spending did have a modest effect on both admissions admission applications and enrollment; however, the results were non-significant.

Recommendations suggest that small colleges and universities may struggle over time to sustain exponential athletic expenditures if enrollment gains are not realized in tandem with spending.

Chapter 1

Introduction

Since 2010, the high school student population in the U.S. has been stagnant at 16 million, a number not predicted to increase for a decade or longer (NCES, 2012). Approximately 85 percent of those 16 million students graduate from high school and approximately 65 percent declare themselves college-bound (NCES, 2012). These college-bound high school graduates enter an increasingly competitive higher education marketplace (Bruininks, Keeney, & Thorpe, 2010; Falk & Blaylock, 2010; Martin, Samuels, & Associates, 2009).

Increasing restrictions on financial aid, the proliferation of proprietary (for-profit) institutions, declines in alternative sources of funding, and other changes have increased the competitive nature of the higher education industry; an industry whose institutions desire to increase enrollments in spite of the downward trending college-bound student population (Biemiller, 2016; Bruininks, Keeney, & Thorpe, 2010; Deming, Golden, & Katz, 2012; Fathi & Wilson, 2009). Significantly impacted by the trends facing the industry, the small, private, non-profit sector of higher education enrolls about 17 percent of all college students, a 34 percent decline in the last 50 years (Burrell, 2008). Small, private colleges and universities that wish to grow their traditional student body enrollment, or who find themselves in situations that require enrollment growth in order to survive, have two choices; recruit prospective students away from other colleges, or offer programs and services that differentiate them from competitors (Deming, Golden, & Katz, 2012; Stinson, Marquardt & Chandley, 2012).

One way small colleges have found to accomplish both objectives is through the development and expansion of intercollegiate athletic programs (Feezell, 2009).

The complexities of selecting a college are unparalleled for today's prospective student. Under increasing pressure to address issues related to affordability, access, time to degree and post-graduation employability, higher education finds itself in a time of immense change and industry disruption (Christensen, 2011). Institutions are increasingly driven to offer new and innovative academic programming, enhance co-curricular activities, improve career development and job placement services, and add adult degree completion and graduate programs in order to remain competitive and financially viable (Couturier, 2012; Ostrom, Bitner, & Burkhard, 2011; Shier, 2005; Trombley & Sallo, 2012). Increasingly, many small, private colleges are leveraging their collegiate athletic programs as enrollment drivers (Fried, 2007).

This study explores the effect that increasing fiscal investment in intercollegiate athletic programming has on enrollment at small colleges and universities. The study will examine historical data from the ten institutions that comprised the Kansas Collegiate Athletic Conference of the NAIA at the time of the study.

This study will examine the following three research questions:

Research Question 1: Does increasing per-student athletic spending positively impact the overall number of admissions admission applications received by a small college/university?

Research Question 2: Does increasing per-student athletic spending positively impact the number of students who are admitted at a small college/university?

Research Question 3: Does increasing the per-student athletic spending positively impact the number of students who enroll* at a small college/university?

*Enroll defined as registered students included in official institutional IPEDS report.

Investments in athletic programs often improve athletic team performance, add coveted new athletic facilities to the campus infrastructure and attract additional students as new sports are added to the overall athletic suite of offerings (Schneider & Messenger, 2012). While a positive correlation exists between successful athletic programs and increased admission applications (Allen & Peters, 1982; Chressanthis & Grimes, 1993; Goff, 2004; McCormick & Tinsley, 1987; Murphy & Trandel, 1994; Petit, 1997; Toma & Cross, 1998; Zimbalist, 2001), such research has been limited to large colleges and universities with significant athletic programs. Insufficient outcome data exists addressing the wide range of institutional types to rely solely upon current study results as justification for expanding intercollegiate athletic programming or expending additional institutional resources in support of athletic program expansion. The lack of research data, however, does not deter college administrators from linking intercollegiate athletic program growth to enrollment gains as evidenced by these statements:

> A well-rounded, vibrant student life environment is one that includes intercollegiate athletics," stated LMC [Lake Michigan College] Vice President of Student Services, Dr. Clint Gabbard. "By adding men's and women's soccer we will not only increase the number of student athletes on campus but will give all of our students more opportunities to be a part of a college atmosphere that encourages school spirit and participation in activities outside the classroom. (Lake Michigan College, 2012)

> Athletics play an important role in a creating a vibrant campus life, [Eastern's athletic director and dean of students, Greg] Warren said. The addition of men's and women's soccer teams will increase the number of students on campus and provide opportunities for the community to enjoy more diverse sports. (Eastern Oklahoma State University, 2013).

To date, few studies, empirical or otherwise, have examined how increasing the volume of intercollegiate athletic programming at small, private colleges affects enrollment, improves admission application rates, or elevates the academic profile of the incoming class as measured by higher SAT scores. Additionally, few studies explore the financial burden associated with increasing intercollegiate athletic programs at both large and small institutions. The majority of research has focused upon large colleges and universities, specific NCAA divisions and/or specific NCAA football conference designations (Bremmer & Kesselring, 1993; McCormick & Tinsley, 1987; Mixon, 1995; Pope & Pope, 2009; Tucker, 2005; Tucker & Amato, 1993). Few studies have been conducted in relation to colleges and universities that belong to the National Association of Intercollegiate Athletics (NAIA), an association serving small, private, non-profit, and predominately faith-based institutions (NAIA, 2017). Despite a lack of relevant outcomes, many small, private colleges look to athletic program growth as a solution for lagging or stagnant enrollment. Therefore, it is more critical than ever to examine the relationship between an increased investment in athletic programming and enrollment growth in an effort to assess whether this strategic enrollment strategy has efficacy for small colleges and universities (Callahan, 2014; Miller and Fennell, 2015; Zalaznick, 2015).

Few researchers have examined the effect that intercollegiate athletic programs have on enrollment at small colleges and universities. A brief review of relevant literature informs the study, attempts to synthesize related research and identifies contextual considerations related to the study.

Brief Literature Review

Although much has been written about intercollegiate athletics, college enrollment, and higher education, few studies have examined this relationship at small, private colleges and universities. For the purposes of this study, the literature review examines the emergence of the concept of strategic enrollment management and the proliferation of athletic programs as an enrollment driver. The concept of ever increasing expenditures or perceived 'arms races' among institutions is considered along with the economic impact of athletics upon institutional enrollment (Weaver, 2011). Further, the concept of college choice is examined in relation to athletics opportunity. Finally, the complete literature review addresses the breadth of historical research focused upon admissions and athletics and provides an overview of the NAIA.

Strategic Enrollment Management & Athletics

In 1982, Kemmerer, Baldridge and Green advanced both "a concept and a procedure" of enrollment management that included assertively recruiting students and interacting successfully with matriculated students to ensure institutional vitality (Hossler, 1984, p. 5). In the decades since, strategic enrollment management (SEM) practices including planning and executing on a variety of interrelated student touchpoints including recruitment, marketing, admissions, career development and job placement have become core functions ensuring institutional efficacy (Sigler, 2017). Facing an increasingly competitive marketplace, a decline in the number of high school students, and pressure to grow institutions coming from a variety of stakeholders, enrollment managers at small colleges and universities have increasingly targeted the

expansion of intercollegiate athletic opportunities as a key growth strategy over the last decade (Hossler, 1984; Miller & Fennell, 2015; NCES, 2012; Sander, 2008).

This strategy is complex in its application and often includes; building, expanding or updating physical facilities, adding competitive teams in new sports, recruiting top talent (both coaches and players) to improve performance, coordinating institutional marketing with athletic success, and creating a campus athletic activity environment that enhances student retention (Cohen, 2012; DesJardens, 2002; Miller & Fennell, 2015; Morgan, 2012; Sander, 2008; Weatherall, 2006). The strategy often requires significant initial investments and continued expenditures to maintain expanded programs (Leeds, Van Allmen, Hoffer, Humphreys, Lacombe & Ruseski, 2015).

Isolated success has been reported by institutions that have deployed such a strategy in recent years including one upper Midwest institution that increased enrollment 50 percent through expanded athletic opportunities. Further, smaller institutions adding football in the last several years have positively influenced enrollment in the short term, but the gains are not significant in real numbers nor have they been sustainable in the long term (Feezell, 2009). In most cases, increasing the supply of athletic opportunities is not being met with the anticipated demand of students.

Sports Economics

Research into the economics of collegiate athletics and the relationship to enrollment is growing (Fizel and Fort, 2004). Studies include a body of work examining athletic program profit and loss by Fleisher, Goff, and Tollison (1992), Noll

(1999), Shulman and Bowen (2001), and Zimbalist (2001). Kotlyarenko and Ehrenberg (2000) present an argument that profitable programs indirectly improve admissions and loss programs indirectly diminish admission efficacy. More recent studies examine the ROI, or return on investment, of athletic programs and assert that high profile programs produce returns that include admissions gains, revenue enhancements and donation growth (Biemiller, 2016; Stinson & Howard, 2008; Tucker, 2004). Increasingly, economics provide a context in which small colleges see investment in athletic programming as a vehicle to improve enrollment and add fiscal resources to the overall enterprise.

College Choice

As the basis of the study of economics is predicated on a value proposition, so is college choice. A decision informed by human feelings, needs, wants, social interactions, family influence and economic reality, Jackson's (1982) pioneering work establishes the college choice model consisting of three phases; preference, exclusion and evaluation. A student moving through this model measures their own academic ability, seeks input from social or family influences, identifies institutions and begins to differentiate their choices based upon institutional characteristics (Hossler, 1984). In evaluating these characteristics, prospective student athletes begin to make their college choices based upon opportunities for scholarships, playing time and competitive success.

Hossler and Gallagher's (1987) work, using Jackson's model as a foundation, depicts an integrated approach of enrollment management relative to college choice. Their work synthesized and simplified various choice models, providing a three stage

process flow, focused specifically on the student perspective. The first stage; predisposition, suggests that the student makes a decision to go to college versus exercising other options. The student investigates selected colleges and their characteristics in the search stage, and finally, in the third stage of choice, the student makes a college selection (Hossler, Schmit & Vesper, 1999). The Hossler and Gallagher (1987) model grounds this study's theoretical perspective.

In addition, this study is informed in a contemporary context by Perna's (2006) integrated choice model as well as DesJardins, Ahlburg and McCall's (2006) work on institutional admissions decision process and the ability to predict enrollment behavior. Collegiate athletic programs with enhanced facilities and resources, demonstrated competitive success, increased scholarship availability or perceived gateways to professional athletic opportunities may wield additional influence in the college choice framework.

Prominent in each of the three college choice models, the concepts of social and cultural capital strongly influence prospective student decision making. Collegiate athletic programs can increase awareness of the institution, highlight opportunities available at the institution and signal institutional values and beliefs, all drivers influencing the social and cultural contexts through which an institution is viewed (Hossler, 1984). Each college choice model includes an assessment made by the prospective student of the financial resources available to the student to pursue the college experience. It is during this assessment that collegiate athletic programs can influence choice through the availability of athletic-related aid or support. In the final choice phases of each model, individual connection and fit considerations drive decision

making (Perna, 2006). For some students, the opportunity to continue participating in a sport in college can be the deciding factor to enroll.

As continued participation in athletics is one of a variety of college choice factors that drive enrollment growth, the body of research over the last three decades focused upon athletics and admissions illuminates the significant relationship of sports to college admission behavior.

Collegiate Athletics & Admissions

Research related to understanding the relationship between college athletics and admissions has exploded in the last 30 years, driven in part by a young man named Doug Flutie, whose quarterback heroics in the last seconds of a nationally televised college football game led his Boston College team to victory and a winning season (McClusky, 2011). That event, coupled with the ensuing rise in Boston College admission applications in subsequent years, has been dubbed the 'Flutie Factor' and researchers have been interested in the correlation between college athletic programs and admissions ever since (McClusky, 2011).

Research related to the relationship between collegiate athletics and admissions falls into five broad categories of inquiry; 1) how successful athletic programs influence college choice; 2) how increased admissions volume impacts SAT scores of the incoming freshmen class; 3) perpetuating and debunking the "Flutie Factor"; 4) athletic program notoriety and its influence on academic rankings; and, 5) athletic opportunities specifically targeted at student demographic sub-populations (Brunet, 2010; Callahan, 2014). Within these five categories, study results are mixed and it is difficult to extrapolate study results across the whole of higher education as much of research has

been conducted at large institutions with big-time athletic programs (Brunet, 2010; & Callahan, 2014).

Athletics, Admissions and Test Scores

Early studies examining the connection between athletics, college choice and admissions include Allen and Peters's (1982) work regarding the success of DePaul University's men's basketball team (McEvoy, 2006). They determined, through the use of an open-ended survey tool, that perspective student awareness was increased by the excessive media exposure of the institution's winning basketball team.

McCormick and Tinsley's (1987) work investigating the effects of athletic success on admissions found that the more consistent the athletic performance of an institution, the stronger the correlation to increased admissions (McEvoy, 2006). Additionally, McCormick and Tinsley's (1987) work introduced the SAT factor and their study results showed that increased admission applications resulted in a decidedly higher average SAT score across the overall population of applicants. This was not because athletics attracted more intelligent students, but a result of the increased exposure of the institution to a broader prospective student pool of applicants.

Further linking admissions, SAT scores and athletic success, Tucker and Amato's (1993) study examining the relationship between football and basketball success and the applicant pool produced results that quantified the relationship between athletic success and SAT scores. Mixon, in 1995, and with colleagues in 2004, returned to McCormick and Tinsley's (1987) work, first with a comparison of collegiate basketball success and incoming freshmen SAT scores and, after, with an expanded comparative study correlating football winning percentage with increased admissions

and improved freshmen SAT scores. In both studies, the findings indicated that intercollegiate athletics, particularly football, does improve admission volume and can improve the academic acumen of the student body.

In 2006, Tucker and Amato would revisit their original 1993 study and, informed by Mixon's (1995) work, attempt to establish if the same athletic success and admissions relationship existed for basketball as it did for football. In a study spanning a 10-year period, there existed a short-term, positive effect between the number of national tournament games played and SAT scores across some of the years.

In a recent study by Jones (2014), the question of the elimination of athletic teams and effect upon admissions is reviewed. Jones (2014) asks if the "presence of intercollegiate football plays a statistically significant role in the student admissions process" (p. 95). Overall, the evidence suggested that not one of the three distinct institutions studied experienced a statistically significant drop in freshmen admission applications as a result of dropping their football program. Surprisingly, one institution experienced a significant increase in admission applications following the elimination of their football program (Jones, 2014).

Athletics, Public Exposure, and Admission Gains

Early studies examining the connection between athletics, public exposure, college choice and admissions include work conducted by Chressanthis and Grimes (1993) specifically studying Mississippi State University football and basketball success. In studying the effects of winning, media appearances and postseason play on enrollment demand over a 21-year time span, Chressanthis and Grimes (1993) conclude

that athletic success, particularly winning, does increase enrollment demand (measured by application volume) "beyond traditional factors" (p. 297).

While the results from the Chressanthis and Grimes (1993) study are useful, its application is limited by its sole institution focus, large institution identity, and affiliation with a major athletic conference. As a result of these limitations, the catalog of additional studies specifically focused on football or basketball, major conferences and national game or tournament appearances, including those by Goff (2004), Murphy and Trandel (1994), Petit (1997), Toma and Cross (1998), and Zimbalist (2001), provide results that do not vary from the theme of a positive correlation between athletic success, media attention, admission success and average SAT score increases.

Bremmer and Kesselring (1993) rejected the existence of the exposure or advertising effect that McCormick and Tinsley (1987) proposed in their landmark study (McEvoy, 2006). In an analysis of 119 institutions whose football and basketball teams were invited to national tournaments, Bremmer and Kesselring (1993) demonstrate that while exposure on a national athletic stage does increase the applicant pool in both number and academic caliber, the reverse is true in relation to academic caliber – SAT scores can be worse.

In addition to other studies, Tucker (2005) would conduct independent research focusing on the effect of high quality football program success on SAT scores. Interested in measuring the effect of increased media attention granted to successful football teams, Tucker (2005) asked if this advertising effect influenced the college choice of more academically qualified students. The findings showed that a 10% increase in winning percentage improved average SAT scores almost 14 points. In the

arena of exposure, finishing one additional season as a top-20 ranked team or playing in one additional bowl game in that same time period improved average SAT scores 12 points or more.

Examining the Admissions 'Flutie Factor'

McEvoy's (2005, 2006) work begins a set of research that amplifies, both directly and indirectly, the phenomenon identified as the "Flutie Factor". In the 2005 study, McEvoy examines the correlation between season-to-season athletic team success and subsequent year changes in application numbers. Football teams that improved their conference performance by .250 improved the overall institutional application yield by 6%. This study confirms that performance matters, which set the stage for McEvoy's (2006) look at the effect of star player performances versus simple team success on admissions.

Looking specifically at college football, McEvoy (2006) compared successful teams with a Heisman trophy candidate (a national award given annually to the best player in college football) to successful teams without such stars. Not surprisingly, admissions offices benefited from having star athletes on their football team with overall gains close to 6.59% in the subsequent year. Teams without a star saw a modest gain of 3.33%.

Pope and Pope (2009) in their comprehensive study of the relationship between successful athletic programs and admissions examined admissions at all 332 NCAA Division 1 (D1) institutions from 1983-2002. Those schools with Top 20 designated football teams saw an increase in admissions of 2.5%, those in the Top 10 increased 3%. Winning a football championship hiked the percentage to between 7 and 8 percent.

Private institutions were the real winners, particularly with basketball success, which increased admission applications between 2 and 4 times better than that of public institutions. Private colleges that appeared in the later rounds of the national basketball tournament (specifically through the final round of 16 teams) saw admission application gains of 8 to 14 percent in the 3 years subsequent to their tournament appearance. That compares to only a 4% jump for public colleges and universities that made it equally as far within the tournament.

Researchers have been key to debunk the 'Flutie Factor', most notably Litan, Orszag, and Orszag (2003) whose study, commissioned by the NCAA, focused on the empirical effects of college athletics. Concentrated specifically on football spending and success, and relevant to this study, the eighth of ten hypotheses asked if increased spending on or success in collegiate athletics affected academic quality as measured by the SAT scores of the incoming class. The results showed that there was no significant correlation between both football spending and success and the SAT scores of incoming freshmen.

Most, if not all, of the prior research related to collegiate athletics, college choice and admissions in all five of the previously identified broad research categories, and the three specifically detailed in this brief review, has predominately focused on large institutions with significant, or big-time, football and basketball programs. Recently, more research has emerged concerning small and private institutions.

In his dissertation, Lee (2012) examined small, private NCAA Division 1 institutions in relation to the question of athletic success and admissions. As the ability of these types of institutions to achieve national athletic recognition is limited, Lee

focused on a group of specific institutions from a particular conference competitive in basketball. The results from this study provided no evidence linking the athletic success to either increased numbers of admission applications or improved SAT scores within the perspective applicant pool.

Similarly, Brunet (2010) looked at the impact of athletics at a small, private, faith-based institution. Little research has been completed related to athletics and institutions belonging to the NAIA, the National Association of Intercollegiate Athletics. Brunet (2010) focused his work on one such institution and explored the impact on admissions of the presence of a successful athletic program, as well as, the existence of intramural athletics. The results indicated that the majority of incoming freshmen, 61.1%, were not influenced by the presence of a successful intercollegiate athletics program.

The National Association of Intercollegiate Athletics (NAIA)

The National Association of Intercollegiate Athletics, or NAIA, is an association of member institutions, predominately small colleges and universities, with athletic programs (NAIA, 2017). Akin to the National Collegiate Athletic Association, or NCAA, the NAIA enforces recruitment, compliance, eligibility, sport, and other policies approved by member institutions.

Established in 1952, the NAIA has been the champion of small athletic programs, encouraging character and values development as a key component in the balance between athletics and academics (NAIA, 2017). With over 250 member institutions and over 65,000 student athletes participating in 25 national championship sports, the NAIA offers a viable alternative to prospective students not ready to give up

on a collegiate athletic career (NAIA, 2017). The NAIA reports over $600 million dollars in annual scholarship awards and touts their continued innovative approach to providing athletics in a values-driven context. That context included being the first athletic conference to welcome historically black institution members and host men's and women's national championship contests (NAIA, 2017).

In 2010, the NAIA opened their Eligibility Center, instituting centralized evaluations of academic and athletic eligibility. Similar to the NCAA Eligibility Center, evaluations provided by the NAIA Center attempt to level the playing field and ensure fair play across the association (NAIA, 2017). The conversion to the use of the Eligibility Center occurred during the time period of this study.

The average enrollment at a NAIA member institution is approximately 1700, 254 of which are student athletes. Those same member institutions invest an average of 2.93 million dollars a year on athletic related activities, including scholarships and operational expenditures. Institutions field an average of 14 sport teams, providing significant opportunities for both women and men (NAIA, 2017). Comprising approximately 15% of the overall student body, continued recruitment and retention of student athletes appears to be a necessary enrollment strategy for member institutions.

Study Methodology

The Kansas Collegiate Athletic Conference (KCAC) is one of 21 conferences that make up the National Association of Intercollegiate Activities today (NAIA, 2017). At the time of this study, the KCAC was comprised of ten (10) small, private institutions. The colleges within the conference share a faith-based institutional mission, have similar academic program offerings, and sponsor athletic team sports for

both men and women, including football. The Council of Presidents of the KCAC initiated a strategic enrollment strategy in 2005 that leveraged intercollegiate athletics and proposed increased spending over the period of the study, 2005 – 2010.

The design of this study is quantitative in nature, seeking to examine enrollment and budget data reported by these institutions to demonstrate the effect of changes in athletic program expenditures upon admission application volume, admissions decisions and overall enrollment over a specific period of time. Data used for statistical analysis was acquired from the U.S. Department of Education, the Office of Postsecondary Education, and the National Center for Educational Statistics (NCES), and the National Association of Intercollegiate Athletics (NAIA), as well as individual institutions when necessary.

The quantitative study will evaluate increases in fiscal support of athletic programming upon admission applications, admissions, and overall enrollment (Blaikie, 2003). The study will use the 4-year period of academic year 2002-03 to academic year 2005-06 as its baseline and examine increased athletic program expenditures over two subsequent 5-year periods on application volume, admissions and overall enrollment at member institutions and across the athletic conference as a entity. This study will examine the extent to which the decision by the Council of Presidents to invest additional resources in athletic programming, influenced admission applications, admissions and overall enrollment at each institution and at the conference level.

This research is approached with the expectation that it presents an opportunity to influence the way that small college enrollment management strategies are developed, how chief administrators approach decision-making, and how prospective

student behavior can be better understood in relationship to the provision of college athletic experiences.

Findings

The findings of the study are presented in three sections. The first section explores research question one, presenting a data analysis of the effect of increased athletic expenses on admission application volume by individual school and for the conference as a whole. The second section presents data examining research question two, the effect upon admission decisions in relation to increased athletic expenditure. The third section addresses research question three, providing an analysis of overall enrollment relative to increased athletic expenditures.

Discussion

This section provides commentary and discussion regarding the study findings. The study results may or may not support the hypothesis that expansion of intercollegiate athletic programming does increase admission application volume, student admissions and overall enrollment in the short term. Furthermore, the results of the ten year analysis may illuminate concerns relative to the sustainability of ever expanding athletic programming over time.

In an assessment of the limitations of the study, alternative explanations for institutional success and/or failure will be identified, explained and analyzed as data allows. These factors could include new academic programming, change in institutional leadership, change in coaching staff and a change in scholarship and financial aid strategies.

Implications for future research and practice will be addressed and could include expanding the sample size to include the entire NAIA athletic association of small colleges and universities; the introduction of case study methodology to examine individual institutions and isolating specific sport teams across a group of institutions for in-depth analysis.

The changing higher education industry presents significant challenges to small, private colleges and universities. In understanding how intercollegiate athletics impact admission applications, admissions and overall enrollment, this study will help college administrators allocate resources effectively to attract and enroll students, sustaining institutional viability.

Chapter 2

Review of the Literature

Introduction

Although much has been written about intercollegiate athletics, college enrollment, and higher education, few studies have examined this relationship at small, private colleges and universities. For the purposes of this study, the literature review examines the emergence of the concept of strategic enrollment management and the proliferation of athletic programs as an enrollment driver. Next, the economic impact of athletics upon institutional enrollment is explored as is the concept of ever increasing expenditures or perceived 'arms races' among institutions (Weaver, 2011). Informed by the lens of economics and consumer behavior, the theory of college choice is examined. Finally, this chapter reviews the depth of historical research focused upon admissions and athletics and provides an overview of the National Association of Intercollegiate Athletics (NAIA).

Strategic Enrollment Management & Athletic Programs

In 1982, Kemmerer, Baldridge and Green advanced "(the) concept and (the) procedure" of enrollment management to include assertively recruiting students and interacting with students to retain them, thus ensuring institutional longevity (Hossler, 1984, pp. 5). Two years later, Hossler (1984) would pen the seminal book on the subject and define enrollment management "as a process, or an activity, that influences the size, the shape, and the characteristics of a student body by directing institutional efforts in marketing, recruitment, and admissions as well as pricing and financial aid" (pp. 5-6). In 1993, Dolence would put the 'strategic' into enrollment management,

describing “a comprehensive process designed to help an institution achieve and maintain the optimum recruitment, retention, and graduation rates of students, where ‘optimum’ is defined within the academic context of the institution. As such, SEM [Strategic Enrollment Management] is an institution-wide process that embraces virtually every aspect of an institution’s function and culture” (Dolence, 1993, p. 8).

For more than two decades, the concept of strategic enrollment management (SEM) has influenced institutional structure, student service provision and academic program management (Bontrager, 2004; Fathi &Wilson, 2009; Sigler, 2017). In recent years, SEM plans have increasingly included the expansion of athletic programs to increase enrollment, improve the diversity of the student body, enhance the campus climate and culture, cultivate community relations, as well as improve retention and graduation rates; all key enrollment management benchmarks and institutional efficacy measures (Brontrager, 2006; Brunet, 2010; Dolence, Miyahara, Grajeda, & Rapp, 1988; Hossler & Bean, 1990; Huddleston, 2000; Stiger, 2017).

Enrollment managers and senior campus leaders at small, private colleges and universities have experienced increasingly competitive marketplaces, declining numbers of high school aged students and geographic populations shifts, amid continued pressure to grow from a variety of stakeholders. As a result of these challenges, these campus leaders have targeted the expansion of intercollegiate athletic opportunities as a key growth strategy especially over the last decade (Hossler, 1984; Miller & Fennell, 2015; NCES, 2012; Sander, 2008).

This enrollment strategy is varied in its application and often includes; building, expanding or updating physical facilities, adding competitive teams in new sports,

recruiting top talent (both coaches and players) to improve performance, coordinating institutional marketing with athletic success, and creating a campus athletic activity environment that improves student retention (Cohen, 2012; DesJardens, 2002; Miller & Fennell, 2015; Morgan, 2012; Sander, 2008; Weatherall, 2006). This strategy often requires significant up-front financial and human resource investments and continued, long-term expenditures to maintain the expanded programs (Leeds, et al, 2015).

Isolated successes have been reported by institutions deploying such strategies in recent years. Most notably, Adrian College in Michigan, after investing $30 million dollars to add six athletics teams and facilities, realized "a 50 percent increase in enrollment, three thousand additional applicants, 21 percent greater selectivity, and a $20 million increase in its budget" (Feezell, 2009, p. 65). Furthermore, smaller institutions adding football in the last several years have positively influenced enrollment in the short term, however, the gains are not significant in real numbers nor have they been sustainable in the long term (Feezell, 2009). In most cases, increasing the supply of athletic opportunities does not increase the anticipated demand of students.

In their commissioned 2003 "baseline study", the National Collegiate Athletic Association (NCAA), was unable to quantify that more athletic spending helps or hurts an institution (Litan, Orszag & Orszag, 2003). Further, the report noted that athletics spending across the eight (8) year timeframe (1993-2001) remained a small percentage (3.5%) of overall institutional spending. Athletic administrators and coaches critical of the study note the short time period as unrealistic for true gains to manifest themselves

and point to the absence of data relative to capital spending (facilities and infrastructure), as a significant concern ("Study looks", 2003).

The 2003 NCAA study was updated in 2005 to include both a full decade in the analysis (1993-2003) and an examination of the impact of capital expenses. The revised 10-year study showed a 0.5% increase in the operational spending average, and noted, relative to capital expenditures, that "annual capital costs represent a significant share of total athletic expenditures" (Orszag & Orszag, 2005, p. 3). The study found no relationships, positive or negative, to exist between increased expenditures and higher incoming SAT scores (a measure of the quality of the student applicant pool) or the percentage of applicants accepted at an institution (enrollment gains). As the study was focused on large, Division 1 colleges with football and basketball programs, the results cast doubt on the efficacy of such an enrollment management strategy at any type of institution (Orszag & Orszag, 2005).

Enrollment drives the institutional budget. Tuition and fee revenues are the principle source of revenue for small colleges (Brewer, Gates, & Goldman, 2002; Chabotar, 2010; Kretovics, 2011; Peterson, 2008; Schuman, 2005; and Weisbrod, Ballou, & Asch, 2008). Institutional stability and economic survival are predicated upon positive revenue generation at small institutions (Day, 1997; Humphrey, 2006; Volkwein, 1999; Zemsky, Shaman & Shapiro, 2001). For small, private colleges and universities, to increase expenditures without realizing an increase in the number of enrolled students is risky.

According to the Knight Commission, athletic spending has increased, twice and three times that of other areas of university spending (Weaver, 2011). For small

colleges, such spending increases are being funded by increased tuition and fees costs, monetary reserves, and accelerated fundraising efforts (Weatherall, 2006). While traditionally viewed as self-sustaining at larger institutions, athletics programs at small colleges would die without subsidies (Weaver, 2011). According to the Center for College Affordability, these subsidies are increasing at alarming rates, often in the form of increased student fees. From 2004 to 2009, student fees in support of athletics rose 28% (Weaver, 2011). For example, at a small college in Virginia, each student subsidized the athletic department over $2200 a year in addition to the other fees paid for activities and/or services (Weaver, 2011).

Clearly, continued institutional and student financial support can provide the supplemental funding needed for athletics to thrive in the short term. However, in the long term, the risks are great as these funding sources are fraught with instability. For example, the University of New Orleans. "When Hurricane Katrina hit the city [New Orleans] in 2005, the campus was partially destroyed, and enrollment declined by 7,000 students over the next few years…the loss of thousands of students who each paid $100 to subsidize the athletics department was disastrous to the athletic budget" (Weaver, 2011, p. 18).

Using the development of athletics programs as an institutional strategic enrollment strategy and a funding source speaks to the economic power of sports and the increasing focus of college enrollment managers on consumer behavior and college choice indicators.

Economics and Consumer Behavior

The economics of private higher education are changing in the 21st century. Most concerning are the new realities facing small, private institutions, who enjoyed growth years from the late 80's to the late 90's driven by increasing access to external funding sources for students including government programs, student loan and grant availability, and family income gains (Day, 1997). Those growth trends faltered at the turn of the 21st century, replaced by stagnating wages, ballooning consumer debt, declining family savings, reduced federal government student loan and grant support, and a widening price gap between private institutions and their public counterparts (Day, 1997; Easter, 2012; Hu & Hossler, 2000). To remain solvent and survive, colleges looked to a variety of enrollment management strategies to stabilize revenues and reverse the downward trends. Leveraging collegiate athletic programming emerged as a leading strategy and potentially, an economic boon.

Research into the economics of collegiate athletics and its relationship to enrollment has increased over the last twenty years (Fizel & Fort, 2004). Study topics include the examination of athletic program profit and loss ratios, return on investment analysis, and changing consumer behavior relative to college choice amid economic considerations.

In 1992, Fleischer, Goff, and Tollison wrote a book about the National Collegiate Athletics Association (NCAA) in which they labeled the organization a monopsonistic cartel. The evidence used to support their assertion included the organization's rules on limiting payment to athletes due to amateurism and restricting economic competition among member institutions (Daly, 1993). This economic

analysis laid the groundwork for the perception that college athletic programs, working in collaboration with the NCAA, created and controlled the marketplace, controlled the actors within the marketplace and controlled the distribution of all profits made in the marketplace. With the ability to make more money within the cartel than acting alone, Fleischer, Goff, and Tollison's (1992) work reinforced the knowledge that college athletic programs were a revenue generating proposition.

Less than a decade later, however, Shulman and Bowen (2001) would dedicate a chapter of their book, *The Game of Life: College Sports and Educational Values,* to the examination of athletic program finances, providing a detailed aggregate analysis of overall program profit and loss across various NCAA divisions. Their results; less than half of Division 1A colleges report earning a profit and most deficits were $1 million dollars or greater. Colleges in lower divisions reported little to no measureable profit. Their conclusion; college athletics are not "a good business" and not the "effective money-making machine" that many believe it to be (Shulman & Bowen, 2001, p. 256). Zimbalist (2001), further illuminated athletic program profit and loss research by examining the concept of student-athlete compensation and its relationship to the bottom line. He argued that if big time athletics are profitable, it is only because student-athletes are not compensated at the market value they bring to the program, the university or the sport.

Kotlyarenko and Ehrenberg (2000) present an argument that profitable programs indirectly improve admissions and non-profitable programs indirectly diminish admission efficacy. More recent studies examine the return on investment (ROI), of athletic programs and assert that high profile programs produce returns that include

admissions gains, revenue enhancements and drive donation growth (Biemiller, 2016; Stinson & Howard, 2008; Tucker, 2004). Increasingly, economics provides a context in which small colleges see investment in athletic programming as a vehicle to improve enrollment and add fiscal resources to the overall enterprise.

With fewer financial resources to invest into a postsecondary experience and growing concern about cost versus benefit and utility of options, today's students exhibit consumer behavior that is increasingly price sensitive and financial aid conscience. That aid, in the form of institutional scholarships, at private colleges can make the college choice difference (Hu & Hossler, 2000). Athletics scholarships can do more, according to the *NCAA Division II Values Study*, a recent white paper on the topic, to improve an institution's financial position. "Specifically, Division II athletics may 1) boost enrollment in the middle of the student academic profile, 2) build overall enrollment among men, 3) increase the overall academic profile for women, 4) increase ethnic and geographic diversity, 5) enhance community service and volunteer activities, and 6) generate 'optimal' tuition revenue through the use of smaller athletics scholarships given to more students" (Feezell, 2009, p. 68). No studies provide similar linkages to small, private institutions and their athletic financial aid and scholarship leveraging strategies.

For decades, private colleges have deployed financial aid leveraging strategies that have influenced college choice behavior and increased enrollment. However, retaining such aid strategies and continuing to meet revenue needs will be difficult to do amid economic and marketplace duress. In his study, Dehne (1999) described a future for only five types of small colleges, paraphrased below:

1) *The set of highly prestigious and well-endowed colleges*. Students choose these colleges for their outstanding academic reputation and premier locations; many are situated in recognized recreational or cultural centers within large population centers. Regional competitors do not pose a threat to these established institutions.

2) *The set of distinctive small colleges.* These are unique places with unique instructional or living-learning concepts. The appeal of these colleges has no true geographic boundary and competition in the marketplace is limited or non-existent.

3) *The set of adaptable small colleges.* These are institutions that realize they must appeal to a much broader population of different types of students with different college education delivery expectations. Located in suburban or similar areas, these colleges will welcome traditional and non-traditional students, they will have undergraduate and graduate programs, they will be open for business, 24 hours-a-day, 7 days-a-week and they will have a significant population of students of color.

4) *The set of hybrid small colleges that embrace adaptable and distinctive features.* These are institutions that have found a strong program niche and are academically known for that strength. They also have one or more unique programs or activities. They have a diversified student body but it is not as pronounced as that of the adaptable college.

5) *The set of significantly small, or closed, small colleges*. Many of these institutions are located in rural areas where population growth has stagnated or is declining. Those under-endowed institutions that cannot meet financial aid requirements or operational expenses will close. Those that have a strong regional base, few competitors and a distinctive mission will survive (Dehne, 1999, Future Demographics section, para. 2).

The small, private universities and colleges that are a part of this study find themselves in several of Dehne's (1999) identified groups. The colleges are all tuition-driven institutions, managing large and small enrollments to maximize revenues, increase enrollment, preserve their missions and thrive. If their strategy to leverage athletic programming does not succeed, the risk of closure is great.

Increasing funding for athletic programming creates the capacity to increase enrollment. Understanding how and why students make college selections is necessary to successfully grow enrollment.

College Choice

The college enrollment paradigm is complex, informed by organizational, sociological, psychological and economic theoretical models (Manski & Wise, 1983). As college choice is predicated on a value proposition informed by human feelings, needs, wants, social interactions, family influence and economic reality, Jackson's (1982) pioneering work on the college choice model serves to identify the three foundational phases of the college choice context. In the first phase, students are influenced by a number of individual variables including academic ability, their social support structure and family background. The second phase finds students weighing their individual preferences against the types of institutions that may match those preferences. The final, or third phase, finds students narrowing the list of viable institutions, focusing on key characteristics including cost, programs and campus climate (see Figure 1.2.1).

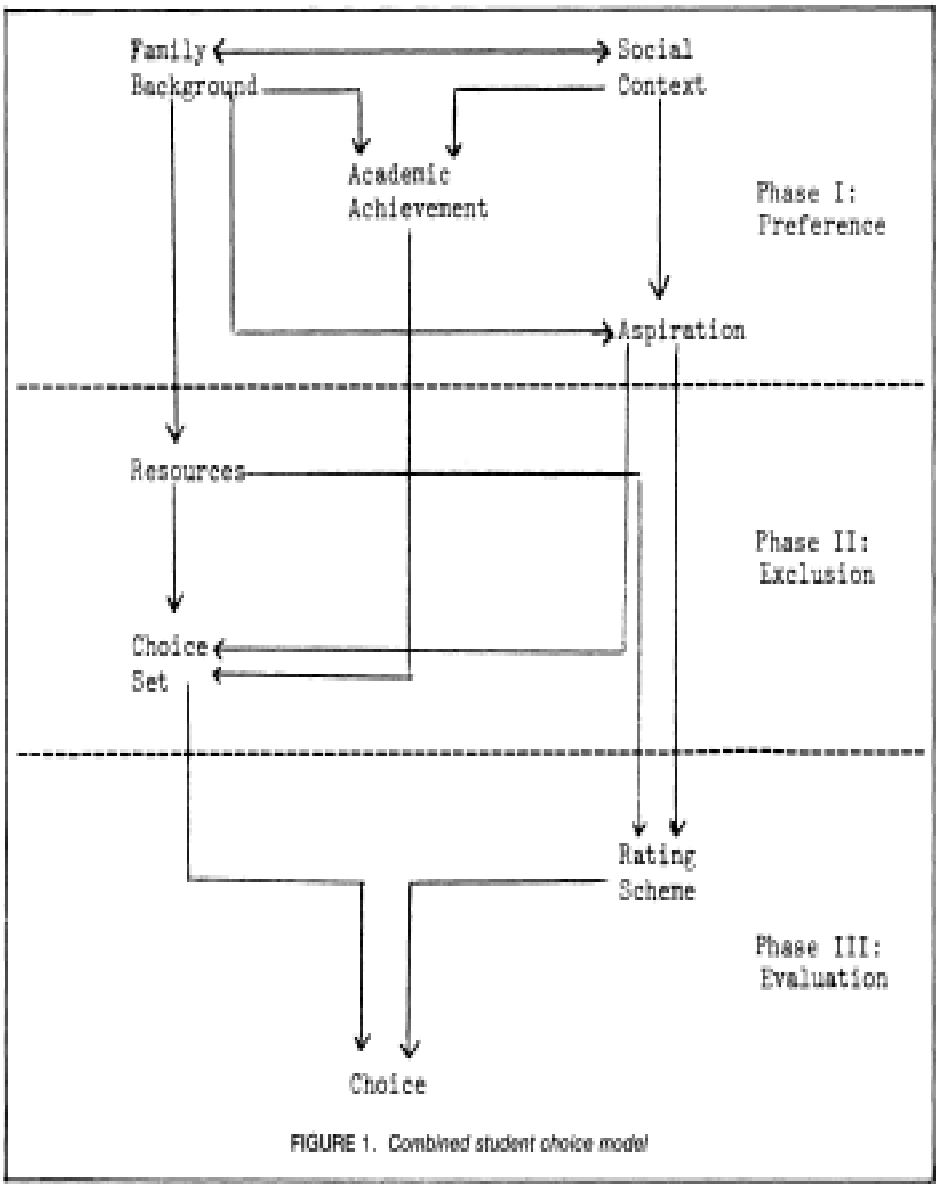


Figure 1.2.1- College Choice Model as developed by Gregory Jackson (1982). Adapted from Enrollment Management; An Integrated Approach by Don Hossler, 1984, p. 34. Copyright 1984 by College Entrance Examination Board.

Hossler and Gallagher's (1987) work, using Jackson's model as a foundation, provides an integrated approach to the construct of enrollment management and this study's theoretical framework. Their work synthesized and simplified various choice models, providing a three stage process flow, focused specifically on the student perspective. The first stage; Predisposition, suggests that the student makes a decision to go to college versus exercising other options. The student investigates selected colleges and their characteristics in the Search stage, and finally, in the third stage of Choice, the student makes a college selection (Hossler, Schmit & Vesper, 1999). The Hossler and Gallagher (1987) model grounds this study's theoretical perspective (see Figure 2.2.2).

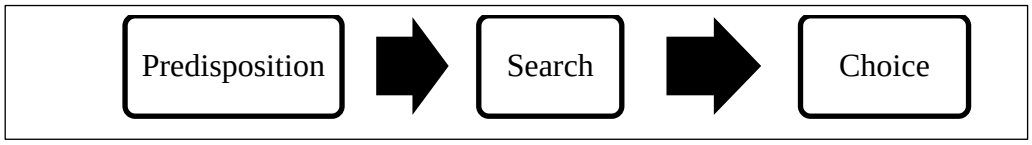


Figure 2.2.2 The Hossler - Gallagher Model, a simplified choice model focused upon the student perspective rather than the institution perspective. Adapted from "Going to College; How Social, Economic, and Educational Factors Influence the Decisions Students Make", by D. Hossler, J. Schmit, and N. Vesper, 1999, p. 149. Copyright 1999 by The Johns Hopkins University Press.

This study is informed in a contemporary context by Perna's (2006) integrated choice model as well as DesJardins, Ahlburg and McCall's (2006) work on institutional admissions decision process and the ability to predict enrollment behavior. As illustrated in Figure 3.2.3, Perna's (2006) integrated model moves from the traditional sequential, stage-by-stage progressive movement model to a holistic, layered consideration of the factors influencing college choice decisions. This important development in choice theory allows for various factors to exercise differing amounts of

influence upon the student choice decisions. It is possible that collegiate athletic programs with enhanced facilities and resources, demonstrated competitive success, increased scholarship availability or perceived gateways to professional athletic opportunities may wield additional influence in the college choice framework.

Prominent in each of the three college choice models, the concepts of social and cultural capital strongly influence prospective student decision making. Collegiate athletic programs can increase awareness of the institution, highlight opportunities available at the institution and signal institutional values and beliefs, all drivers influencing the social and cultural contexts through which an institution is viewed (Hossler, 1984). Each college choice model includes an assessment made by the prospective student of the financial resources available to the student to pursue the college experience. It is during this assessment that collegiate athletic programs can influence choice through the availability of athletic-related aid or support. In the final choice phases of each model, individual connection and fit considerations drive decision making (Perna, 2006). For some students, the opportunity to continue participating in a sport in college can be the deciding factor to enroll. This study is an opportunity to investigate institutional decisions to increase investments in athletic programs and how such actions may positively influence admissions employing the college choice process models as theoretical foundations.

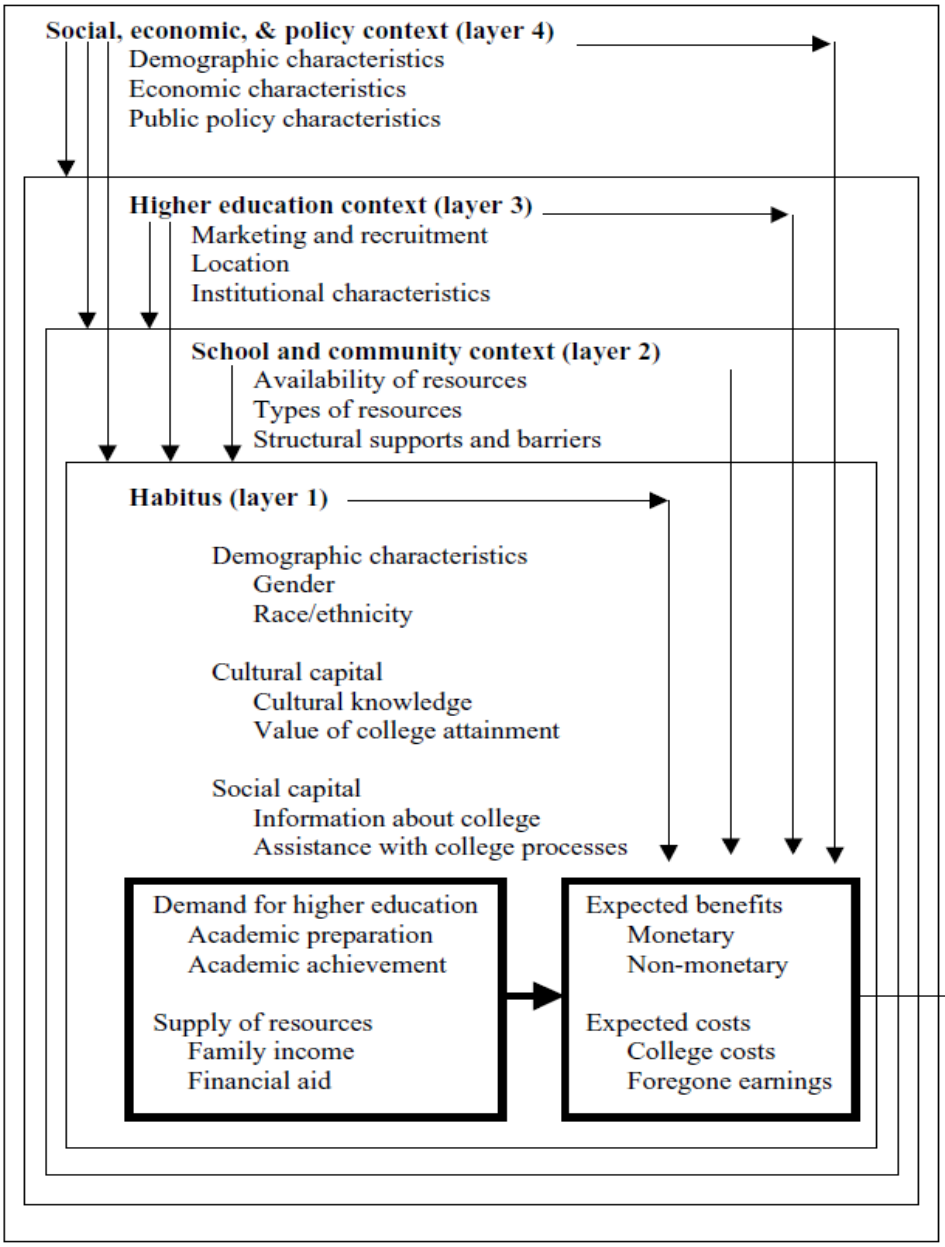


Figure 3.2.3: Designed in layers that build upon each other and allow for varying degrees of influence in any given layer, Perna's Integrated Choice Model supports the increasing influence of college athletic programs in college choice decisions. Adapted from "Studying college access and choice: A proposed conceptual model", in J. Smart(Ed.), Higher education: Handbook of theory and research, 2006, (pp.99-157). Copyright 2006 by Norwell, MA. Springer.

As continued participation in athletics is one of a variety of college choice factors that drive enrollment growth, the body of research over the last three decades focused upon athletics and admissions illuminates the significance of sports to college admissions behavior.

College Athletics and Admissions

Our understanding of the relationship between college athletics and admissions is informed by several decades of study, driven, in part, by a young man named Doug Flutie, quarterback for the Boston College football team (McClusky, 2011). Mr. Flutie's quarterback heroics in the last seconds of a nationally televised college football game in 1984 led his team to a game victory and a winning season (McClusky, 2011). That event, coupled with the ensuing rise in Boston College admission applications in subsequent years, has been dubbed the 'Flutie Factor' and researchers have been interested in the correlation between college athletic programs and admissions ever since (McClusky, 2011).

Research related to the relationship between collegiate athletics and admissions falls into five broad categories of inquiry; 1) how successful athletic programs influence college choice; 2) how increased admissions volume impacts SAT scores of the incoming freshmen class; 3) perpetuating and debunking the "Flutie Factor"; 4) athletic program notoriety and its influence on academic rankings; and, 5) athletic opportunities specifically targeted at student demographic sub-populations (Brunet, 2010; Callahan, 2014).

Within these five categories, study results are mixed and it is difficult to extrapolate conclusions across the whole of higher education as much of research has

been conducted at large institutions with big-time athletic programs (Brunet, 2010; Callahan, 2014). Relevant to this study's research questions, the following subsections examine relevant categories of research starting with the influence of athletic activity on admission applications and test scores of student applicants.

Athletics, Admissions and Test Scores

Early studies examining the connection between athletics, college choice and admissions include Allen and Peters's (1982) work regarding the success of DePaul University's men's basketball team. They determined, through the use of an open-ended survey tool, that perspective student awareness was increased by the excessive media exposure of the institution's winning basketball team. While this study did confirm that athletics have an influence on college choice, with a sample size of one university, the results are difficult to generalize with legitimacy.

McCormick and Tinsley's (1987) work investigating the effects of athletic success on admissions found that the more consistent the athletic performance of an institution, the stronger the correlation to increased admissions. Their conclusion intimated that if winning athletic seasons increased admission applications, institutions had two enrollment management strategy choices; 1) improve the academic standing of their student body or 2) simply grow (McCormick & Tinsley, 1987).

McCormick and Tinsley (1987) introduced the SAT score factor and its relationship to college admissions. Their study results showed that the increased admission applications driven by athletic notoriety resulted in a decidedly higher average SAT score across the overall population of applicants. Higher test scores were not based on athletic prowess attracting additional intelligent students, but rather a

result of the increased exposure of the institution to a broader pool of prospective student applicants. Additionally, McCormick and Tinsley (1987) noted that major athletic conference colleges had undergraduate student bodies with higher SAT scores than those that did not belong to major conferences.

In a report further linking admissions, SAT scores and athletic success, Tucker and Amato (1993) examined the relationship between football and basketball success and the applicant pool and produced results that quantified the relationship between athletic success and SAT scores. The study found SAT scores improved 3% overall for institutions whose football programs finished in the Top 20 rankings across a specified time frame. In addition, the study asserts that the distribution of high quality students shifts to institutions with big-time football programs that consistently perform well (Tucker & Amato, 1993).

Mixon (1995) expanded upon McCormick and Tinsley's (1987) work with a comparison of collegiate basketball success and incoming freshmen SAT scores. Mixon, Trevino and Minto (2004) in a comparative study correlated football winning percentage with increased admissions and improved freshmen SAT scores. In both studies, the researchers concluded that intercollegiate athletics, particularly football, increases admission application volume and improves the academic acumen of the student body (Mixon, 1995; Mixon, Trevino & Minto, 2004).

In 2006, Tucker and Amato revisited their original study (1993) and, informed by Mixon's (1995) work, attempted to establish if a similar athletic success and admissions relationship existed for basketball as it did for football. In their 10-year study, Tucker and Amato (2006) demonstrated a short-term, positive effect between the

number of national tournament basketball games played and the SAT scores of admission applicants across several years (Tucker & Amato, 2006). This finding validated both their prior research (2006) and Mixon's (1995) previous findings related to football and test scores.

In a recent study by Jones (2014), the question of the elimination of athletic teams and effect upon admissions was examined. Jones (2014) wanted to demonstrate that the "presence of intercollegiate football plays a statistically significant role in the student admissions process" (p. 95). His analysis covered a nine year span of institutional admissions applicant history at three distinct institutions and included the examination of admissions data for three years prior to the football program's elimination and for six years after (Jones, 2014). Jones (2014) deployed a quasi-experimental methodology utilizing a difference-in-differences (DiD) estimation design comparing the three distinct institutions with a control group of peer institutions. The admissions data from each institution that eliminated their football program were compared to admission data derived from the peer institutions, all of whom retained their football programs. Overall, the evidence suggested that not one of the three distinct institutions studied experienced a statistically significant drop in freshmen admission applications as a result of dropping their football program. Surprisingly enough, one institution experienced a *significant increase* in admission applications following the elimination of their football program (Jones, 2014).

As evidenced by Jones's (2014) study, the intersection between athletic activities and college admissions is complex and influenced by a variety of factors. The

next subsection examines the public exposure given to athletic programs and the impact of such exposure on college admissions.

Athletics, Public Exposure, and Admission Gains

One early study examining the connection between athletics, public exposure, college choice and admissions includes research by Chressanthis and Grimes (1993) specifically studying Mississippi State University football and basketball success. In studying the effects of winning, media appearances and postseason play on enrollment demand over a 21-year time span, Chressanthis and Grimes (1993) concluded that athletic success, particularly winning, did increase enrollment demand (measured by application volume) "beyond traditional factors" (p. 297). The study highlighted the power of television appearances, noting that losing a televised game had a negative effect on admissions.

While the results from the Chressanthis and Grimes (1993) study were useful, its application is limited by its sole institution focus, large institution identity, and affiliation with a major athletic conference. Because of these limitations, the catalog of additional studies specifically focused on football or basketball, major conferences and national game or tournament appearances, including those by Goff (2004), Murphy and Trandel (1994), Petit (1997), Toma and Cross (1998), and Zimbalist (2001), provide results that do not vary from the theme of a positive correlation between athletic success, media attention, admission success and average SAT score increases.

Bremmer and Kesselring (1993) rejected the existence of the exposure or advertising effect that McCormick and Tinsley (1987) proposed in their landmark study (Bremmer & Kesselring, 1993). In an analysis of 119 institutions whose football and

basketball teams were invited to national tournaments, Bremmer and Kesselring (1993) demonstrated that while exposure on a national athletic stage did increase the applicant pool in both number and academic caliber, the reverse was true in relation to academic caliber – SAT scores could be worse.

Similar to previous studies, Tucker (2005) would conduct independent research focusing on the effect of high quality football program success on SAT scores (Tucker, 2005). Interested in measuring the effect of increased media attention given to successful football teams, Tucker (2005) asked if this advertising effect influenced the college choice of more academically qualified students. Breaking the study into two parts, Tucker (2005) examined time periods before and after one significant conference realignment within the NCAA related to football and overall national bowl and championship games. Tucker (2005) wanted to show 1) that the realignment created more exposure for successful football institutions and 2) that the significantly increased exposure supported prior test score research with a positive and significant effect. During the time period prior to the realignment, the findings were insignificant. However, in the period following the realignment, the findings showed that a 10% increase in winning percentage improved average SAT scores almost 14 points. In the arena of exposure, finishing one additional season as a Top-20 ranked team or playing in one additional bowl game in that same time period improved average SAT scores 12 points or more.

Successful teams, winning seasons and the observable effect both have upon admissions have come to be labeled the 'Flutie Factor' (McClusky, 2011) In 1984, Doug Flutie, then quarterback for Boston College, threw a game-winning, last-second

pass in a nationally televised game to beat the reigning national championship team. Flutie would win the Heisman trophy (an award given to the nation's best college football player) that year and Boston College would experience a 30 percent increase in admissions applications the following fall (McClusky, 2011).

Examining the Admissions 'Flutie Factor'

McEvoy's (2005, 2006) work informs a collection of research that amplified, both directly and indirectly, the public exposure phenomenon identified as the "Flutie Factor" (McEvoy, 2005, 2006). In the 2005 study, McEvoy examines the correlation between season-to-season athletic success and subsequent year changes in application numbers. The study encompassed a 6-year time period and included the review of the athletic performance of men's and women's basketball, women's volleyball and men's football. In analyzing the change in admission applications received as compared to the change in team success from the prior year, the only significant, positive relationship occurred with football success. Teams that improved their conference performance by .250 improved the overall institutional application yield by 6 percent. McEvoy's (2005) study confirms that athletic team performance matters, which set the stage for McEvoy's (2006) look at the effect of star player performances versus simple team success on admissions.

Looking specifically at college football, McEvoy (2006) compared successful teams with a Heisman trophy candidate (a national award given annually to the best player in college football) to successful teams without such stars. Not surprisingly, admissions offices benefited from having star athletes on their football team with overall gains close to 6.59% in the subsequent year. Teams without a star athlete saw a

modest gain of 3.33%. These results give additional proof to the existence of the "Flutie Factor" at large colleges with significant football programs and their impact beyond the athletic field.

Pope and Pope (2009) in their comprehensive study of the relationship between successful athletic programs and admissions examined admissions at all 332 NCAA Division 1 (D1) institutions from 1983-2002 (Pope & Pope, 2009). Athletic success was based upon a Top-20 ranking for football and making an appearance in the NCAA national tournament for basketball. Admissions data were tied to the college choices of high school seniors based upon where they had their SAT scores sent. Students who sent their scores to one of the 332 institutions competing in D1 basketball or football between 1994 and 2001 were examined. The results continue to make the case that athletics influenced admission at Division 1 colleges. Those colleges with Top 20 ranked football teams saw an increase in admissions of 2.5 percent, while those in the Top 10 increased 3 percent. Winning a football championship hiked the percentage of admissions up between 7 and 8 percent.

Private institutions were the real winners, particularly with basketball success, which increased admission applications between 2 and 4 times better than that of public institutions. Private colleges that appeared in the later rounds of the national basketball tournament (specifically through the final round of 16 teams) saw admission application gains of 8 to 14 percent in the 3 years subsequent to their tournament appearance. That increase compares to only a 4 percent jump for public colleges and universities (Pope & Pope, 2009).

Researchers have been keen to debunk the 'Flutie Factor', most notably Litan, Orszag, and Orszag (2003) whose study, commissioned by the NCAA, focused on the empirical effects of college athletics. Concentrated specifically on football spending and success, and utilizing data gathered from previous association studies, the U.S. Department of Education, and interviews with higher education chief financial officers, the study attempted to investigate ten different hypotheses. Germaine to this literature review, the eighth hypothesis asked if increased spending on or success in collegiate athletics affected academic quality as measured by the SAT scores of the incoming class. The results showed that there was no significant correlation between both football spending and success and the SAT scores of incoming freshmen (Litan, Orszag & Orszag, 2003).

Other research in the area of college choice factors has taken aim at the 'Flutie Factor', asserting that factors other than star athletics carry more weight during the college selection cycle. A 2001 study by the Arts and Science Group of Baltimore showed that prospective college students ranked jobs, internships, clubs, and community service as more important than athletics and other co-curricular activities when narrowing their college selections (Arts & Science Group, 2001). Differences in choice patterns, however, were noted by gender, SAT score, and socio-economic class. Fifty-two percent of male student respondents considered athletics or sports in their decision making process compared with 38% of female respondents. Of note, "students who said intercollegiate athletics were an important factor in college choice reported significantly lower SAT/ACT scores and household incomes than those who did not" (pg.3).

Peterson-Horner and Eckstein (2015) informed the research on this issue with their study utilizing data from Educational Longitudinal Study (ELS) completed by the National Center for Education Statistics (NCES) and original survey data from first year students at three different types of colleges. All three of the studied institutions, identified by the following type monikers: Big State U, Comprehensive U and Liberal Arts U, had achieved some level of national athletic success. Survey respondents ranked eight college selection factors in order of influence on their college decision and, when those results were compared with the ELS data, the researchers determined that students considered college athletics less important overall than other choice related factors. Differences were detected based upon a student's gender and their institution preference (Peterson-Horner & Eckstein, 2015). Men were about one-third more likely to rank athletics as very important at the Big State U and at the Comprehensive U than women. Most telling in the research was the rank of athletics overall as a factor to attend by both men and women – in all three cases, athletics ranked behind academics, location and financial aid as an influencing choice factor. Relative to this study, at the Liberal Arts College, the athletic factor lagged behind the importance of academics by a *whopping 82 percentage points* (Peterson-Horner & Eckstein, 2015, pg. 75).

Most of the prior research related to collegiate athletics, college choice and admissions has focused on large institutions, affiliated with the NCAA and with significant, or big-time, football and basketball programs. Recently, more research has emerged concerning athletics, college choice, and admissions gains at small colleges.

In his dissertation, Lee (2012) examined small, private NCAA Division 1 institutions in relation to the question of athletic success and admissions. As the ability

of these types of institutions to achieve national athletic recognition is limited, Lee (2012) focused on a group of specific institutions from a particular conference competitive in basketball. The results from this study provided no evidence linking the athletic success to either increased numbers of admission applications or improved SAT scores within the perspective applicant pool. Further, institutions with championship-caliber athletic programs did exhibit improved admission yield, but larger yields were achieved by institutions with non-championship programs, calling into question whether small colleges experience a direct relationship between athletics and admissions.

Similarly, Brunet (2010) looked at the impact of athletics at a small, private, faith-based institution. This study is significant because little research has been achieved related to athletics and institutions belonging to the National Association of Intercollegiate Athletics (NAIA). Brunet (2010) focused his work on one such institution and explored the impact on admissions of the presence of a successful athletic program, as well as, the existence of intramural athletics. The results indicated that the majority of incoming freshmen, 61.1 percent, were not influenced by the presence of a successful intercollegiate athletics program. Additionally, only 25.9 percent of students were influenced by the achievement of four national women's basketball championships, negating the possible influence of the 'Flutie Factor' at this type of institution. Regarding the question of choice, Brunet (2010) found that 86.6 percent of the survey participants would have chosen the institution if collegiate athletics were not available. A surprising 56.8 percent of all athletes and 38.9 percent of the scholarship athletes responded similarly, indicating that other institutional factors are influencing the decision to attend (Brunet, 2010).

The National Association of Intercollegiate Athletics (NAIA)

The National Association of Intercollegiate Athletics, or NAIA, is an association of member institutions, predominately small colleges and universities, with athletic programs (NAIA, 2017). Akin to the National Collegiate Athletic Association, or NCAA, the NAIA enforces recruitment, compliance, eligibility, sport, and other policies approved by member institutions.

Established in 1937, the NAIA has been the champion of athletic programs, encouraging character and values development as a key component in the balance between athletics and academics (NAIA, 2017). With over 250 member institutions and over 65,000 student athletes participating in 25 national championship sports, the NAIA offers a viable alternative to prospective students not ready to give up on a collegiate athletic career (NAIA, 2017). The NAIA reports over $600 million dollars in annual scholarship awards and touts their continued innovative approach to providing student athletics in a values-driven context. That context included being the first athletic conference to welcome historically black institution members and host men's and women's national championship contests (NAIA, 2017).

In 2010, the NAIA opened their Eligibility Center, instituting centralized evaluations of academic and athletic eligibility. Similar to the NCAA Eligibility Center, evaluations provided by the NAIA Center attempt to level the playing field and ensure fair play across the association (NAIA, 2017). The conversion to the use of the Eligibility Center occurred during the time period of this study.

Conclusion

The review of the literature on small college athletics and enrollment management found few studies and scant literature relative to the study of increasing collegiate athletic opportunities and the impact of such fiscal, economic or philosophical decision making, in the short or long term at small, private colleges and universities. Therefore, the following research questions that guide the study are important ones:

> *Research Question 1:* Does increasing the per-student athletic spending positively impact the overall number of admissions admission applications received by a small college/university?
>
> *Research Question 2:* Does increasing per-student athletic spending positively impact the number of students who are admitted at a small college/university?
>
> *Research Question 3:* Does increasing the per-student athletic spending positively impact the number of students who enroll* at a small college/university?
>
> *Enroll defined as registered students included in official institutional IPEDS report.

This quantitative research study contributes to a better understanding of this enrollment management strategy and its efficacy for small colleges. The methodology provides a framework to examine the relationship between resource allocation and enrollment change in both the short and long term. The study adds valuable knowledge to the study of small, private colleges and universities and the challenges they face in today's higher education marketplace.

The next chapter will describe the study methodology, outline the research hypothesis and examine the research model being used to conduct the research.

Chapter 3

Design of Study

Introduction

The higher education industry is competitive, placing increasing pressure on small colleges and universities to maintain or increase enrollments to sustain or improve their financial position. In the early 2000's, many smaller higher education institutions elected to increase expenditures to athletics programs as a strategy to grow enrollments (Vanover & DeBowen, 2013; Moltz, 2009; Weatherall, 2006). An extensive search of the literature reveals a lack of research specifically examining the impact of this strategy at these smaller institutions. A few studies have approached the athletics and enrollment question at small colleges from a qualitative perspective (Huffman, 2013; Weatherall, 2006), however, studies exploring quantitative outcomes such as overall enrollment, admissions, and application number increases have focused on big colleges with large budgets and external resources (McCormick & Tinsley, 1987; Tucker & Amato, 1993; Mixon, 1995; Tucker, 2005).

The purpose of this quantitative study was to address the impact that increasing athletic expenditures have on outcomes of enrollment, admissions, and application numbers at small colleges and universities. The researcher conducted a 14-year (2002-2016) longitudinal study of 10 institutional members of the Kansas Collegiate Athletic Conference (KCAC) within the state of Kansas. In 2005, the presidents of these institutions proposed a conference-wide commitment to increasing athletic expenditures in an effort to influence enrollment growth. This study includes a quantitative analysis of data relative to overall enrollment, admissions, and application volume at the ten

institutions and a discussion of what happened within the conference as a result of the policy decision.

Research Methodology

The researcher analyzed the impact of increased per-student athletic expenditures at the ten colleges upon the volume of admission applications, admissions and overall enrollment between the years of AY2002 and AY2016. Quantitative regression analysis was performed on a year-to-year basis, and trend data from each five-year period was examined. The pre-commitment period of AY2002-2005 was compared to trend data from the initial five-year period of focused commitment AY2006-2011, and the following five-year period, AY2011-2016.

In 2005, the presidents of the member institutions in the study discussed making an athletic conference-wide commitment to increase the per-student percentage of funding specifically directed toward athletics in an effort to positively influence overall enrollment outcomes. This decision provides the observation from which the case study is derived. Stake (1978) notes that a "case need not be a person or enterprise. It can be whatever "bounded system" (to use Louis Smith's term) is of interest" (pg. 7). In this study, the athletic conference is identified as the case and the researcher uses this lens to craft the analysis of outcomes and to increase the generalizability of those findings to the understanding of factors that affect enrollment at small institutions.

Institutional spending at each institution was analyzed relative to overall institutional spending and athletic-relate spending. Enrollment gains, or losses, were analyzed on an annual basis in juxtaposition to spending actions. Admission and application data was similarly analyzed. The quantitative methodology includes

statistical regressions performed to further inform the findings and to assess the strength of the data relationships. The qualitative methodology is grounded in the new methodology of social inquiry (Mahoney, 2010). The methodology is informed by Mahoney's (2010) work in social science research, influenced by the seminal work of King, Keohane, and Verba (1994) which introduced a working framework by which to deploy the best qualities of both qualitative and quantitative inquiry. This new methodology embraces a broad set of techniques that incorporate concepts and comparisons to expose valid causal and descriptive interpretations (Mahoney, 2010).

This case study deploys the use of data-set observations or DSO's, and causal-process observations or CPO's. DSO's are the scores normally granted in a statistical data set. These measured variables are described later in the chapter. CPO's are data elements or understandings that explain the environment, context or process that is influencing the variable and/or its behavior (Mahoney, 2010). The study's conceptual framework is further described in the design section of this chapter.

This study examines the impact of increased per-student athletic spending across the conference and at individual institutions, focusing on the dependent variables of total enrollment numbers, total admission application numbers, and total admissions before and after the policy change. Additionally, the researcher examined the long-term relationship between the commitment to increased athletic expenditures and overall enrollment, a key performance indicator relative to raising tuition revenue at small institutions (Kretovics, 2011). Identifying the conference as a case allowed the researcher to both explore the outcomes relative to their impact on the group as well as upon individual institutions.

In the case study discussion, CPO's may include differing institutional characteristics including student body characteristics, varying institutional recruitment activities, and student financial aid practices. In addition, the institutions are located in various demographic areas (two urban, one suburban, seven rural), differ in overall size, have similar but differing missions and diverse fiscal positions. Any of these factors may influence the DSO's of enrollment, admission applications, and admissions received by all institutions unequally over the time period of the research observation.

This study focused upon the examination of a spending and application relationship that developed over time. Using a quantitative methodology allowed the researcher to examine the relationship between spending and application volume, admissions and overall enrollment across time intervals for a group of institutions, defined as a case, influenced by a policy decision made by the leaders of those institutions. The study examined and analyzed data in both pre and post decision environment.

Study Design

The design of this study is a multiphase quantitative research study seeking to explore the effect of increases in per-student athletic program expenditures upon overall student enrollments, number of admission applications received, and number of students accepted comparing data from the academic years (AY) of 2002-03 to 2015-16. The study employed the use of admissions application counts, overall enrollment counts, overall admissions decisions and total budget expenditure data acquired from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS). Athletic expenditure data was obtained from the Equity in Athletics Data Analysis

system (EADA) and included team and individual participant data, coaches' salary, student aid and operational costs. Data from the National Association of Intercollegiate Athletics (NAIA) and individual institutions was obtained when necessary and noted when used. Per-student analysis of the total budget expenditure and athletic expenditure data was accomplished by dividing the total numbers by the total counts of enrolled students at each institution in the years AY2001 and AY2016.

The population of institutions was observed during the baseline years of AY2001-2005 and expenditures, budget, enrollment, admission and application data were captured independently and within the three 5-year periods, AY2001 to 2005, AY2006 to 2011, and AY2012 to 2016. The outcome was defined as an appreciable increase in per-student athletic spending in the years AY2006 to 2011 and continuing effects were measured from AY2012-2016.

The examination of a shared commitment made by a singular group in hopes of providing a solution to a shared challenge forms the basis of the selection of the Kansas Collegiate Athletic Conference as the case. This unique group of institutions provided what Gerring (2007) calls pathway cases, a group of institutions that embody the treatment and exhibit outcomes of hypothetical interest while forming an insulated group. An insulated group reduces the influence that radical institutions may inflict upon causal assessment. In this study, the pathway case institutions are: 1) long-term members of the athletic conference and active members for the duration of the study, 2) participants in the 2005 commitment discussion to increase athletic spending; 3) small colleges with enrollment growth challenges; and 4) not associated with other or known

outside activities that might account for institutional growth (Gerring, Kingstone, Lange, Sinha, 2011).

Incorporating a framework proposed by Mahoney (2010), this study seeks to make observations about the behavior of these ten institutions prior to and after the adoption of a policy decision intended to spur overall enrollment growth. This framework, illustrated in Figure 4.3.1, allows the researcher to use quantitative methods to make data-set observations, and a case study methodology to make causal-process observations. Both observations allow for discussion of the three research study questions as well as test the hypothesis (theory) statements developed by the researcher.

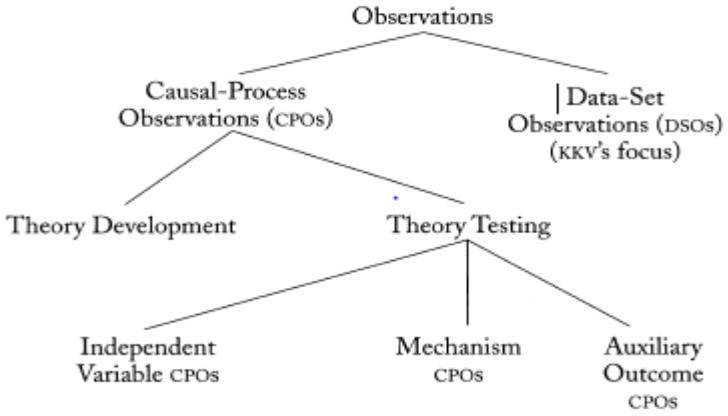


Figure 4.3.1 - Types of Observations that contribute to accomplishing the fundamental research tasks of theory or hypothesis development and theory or hypothesis testing. Adapted from "After KKV: The New Methodology of Qualitative Research," by J. Mahoney, 2010, *World Politics, 62(1)*, p. 120-147. Copyright 2010 by Trustees of Princeton University.

Evaluation Design

In this study, phase one was used to establish the overall trend in each of the three indicators of enrollment strength; admission application volume, admissions decisions, overall enrollment. The second phase examined both trend and isolated year outcomes resulting from the infusion of fiscal resources targeted at athletic growth.

Phase three investigates lingering effects of increased investment in athletic spending, addressing concerns relative to the maturation of investments to evidence of outcomes (Study looks, 2003).

Figure 5.3.2 provides a visual representation of the time series design of the study. As shown, there are three sequential phases, phase 1 representing years AY2001 – 2005, phase 2 representing AY2006-2011 and phase 3 representing AY2012-2016. Each phase utilizes quantitative data for analysis and informs the findings of the preceding phase. Phase 1 established a benchmark of the enrollment trends, identifying the challenge facing the Council of Presidents in 2005. Phase 2 and Phase 3 examine trend analysis and specific year data to assess the change in strategy and the impact of the increased funding commitment upon the variables.

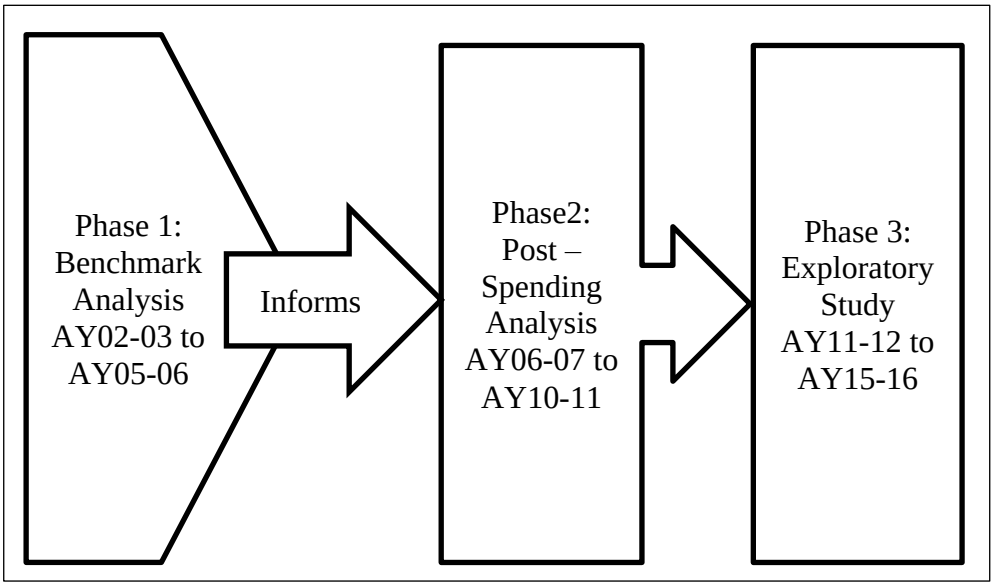


Figure 5.3.2: Representation of the Multiphase Design of this study. Adapted from "Exploring the value of integrated findings in a multiphase mixed methods evaluation of the continuous assessment program in the republic of Trinidad and Tobago," by J. De Lisle, 2013, *International Journal of Multiple Research Approaches, 7(1),* p 27-49. Copyright 2013 eContent Management Pty Ltd.

Research Questions

This multiphase quantitative study was designed to measure the effectiveness of increasing the amount of per-student athletic program spending (budget) on overall enrollment, the number of admission applications, and the number of admissions at small colleges and universities. A review of the literature showed that a relationship exists between athletic programming and admissions across a variety of parameters (see literature review: Allen & Peter, 1982; McCormick & Tinsley, 1987; Tucker & Amato, 2006; Mixon, 1995; Mixon, Trevino, & Minto, 2004; Mixon & Trevino, 2005; McEvoy, 2005, 2006; Chressanthis & Grimes, 1993; Murphy & Trandel, 1994; Petit, 1997; Toma & Cross, 1998; Zimbalist, 1999; Goff, 2004; Bremmer & Kesselring, 1993; Pope & Pope, 2006; Litan, Orszag, & Orszag, 2003; Peterson-Horner & Eckstein, 2015; Lee, 2012; Brunet, 2010). This study seeks to determine if increased per-student athletic spending has a positive impact on enrollment, admission application numbers and admissions at small, private colleges and universities.

The following research questions guided this study:

Research Question 1: Does increasing the per-student athletic spending positively impact the overall number of admissions admission applications received by a small college/university?

Research Question 2: Does increasing per-student athletic spending positively impact the number of students who are admitted at a small college/university?

Research Question 3: Does increasing the per-student athletic spending positively impact the number of students who enroll* at a small college/university?

*Enroll defined as registered students included in official institutional IPEDS report.

Research Hypotheses

The current study hypothesized a statistically significant relationship between increased per-student athletic related expenditures and enrollment, admissions and application volume as follows:

- *Hypothesis 1:* There is a significant difference, thus increased per-student athletic spending had the intended effect of increasing admissions admission applications.
- *Hypothesis 2:* There is a significant difference, thus increased per-student athletic spending had the intended effect of increasing admissions.
- *Hypothesis 3:* There is a significant difference, thus increased per-student athletic spending had the intended effect of increasing enrollment.

Population

The Kansas Collegiate Athletic Conference (KCAC) is one of 21 conferences that make up the National Association of Intercollegiate Activities today (NAIA, 2017). At the time of this study, the KCAC was comprised of ten (10) private institutions. The colleges within the conference share a faith-based institutional mission, have similar academic program offerings, and sponsor athletic team sports for men and women, including football. The Council of Presidents of the KCAC initiated a strategic enrollment strategy in 2005 that leveraged intercollegiate athletics and proposed increased spending over the period of the study, AY2006 – 2011. The group of NAIA KCAC colleges and universities are listed in Table 3.2.

Conclusion

This study was designed to measure the effectiveness of increasing per-student expenditures on athletic programming on admission application submission, admissions decisions and overall institutional enrollment at small colleges and universities. The research questions include hypotheses that such fiscal action will lead to positive results across all three variables. A multiphase quantitative analysis was deployed to examine increased expenditures by institutions comprising the KCAC athletic conference of the NAIA. The following chapter details the results of the study including the presentation of the data and explanatory analysis.

Table 1.3.1: Kansas Collegiate Athletic Conference Member Institutions – Averages Data - AY2002-03 to AY2015-16

Institution	2002-2003 to 2005-2006				2006-2007 to 2010-2011				2011-2012 to 2015-2016			
	Apps	Admits	Total Enrollment	Per Student Athletic Spending	Apps	Admits	Total Enrollment	Per-Student Athletic Spending	Apps	Admits	Total Enrollment	Per-Student Athletic Spending
Bethany College	769	519	603	$2698	875	540	576	$4524	985	762	664	$11,688
Bethel College	467	340	498	$2044	386	290	499	$3510	712	420	497	$5459
Friends University	512	387	2431	$875	636	450	2124	$1370	745	448	1617	$2469
Kansas Wesleyan University	786	460	772	$1832	593	339	805	$2310	697	395	715	$4505
McPherson College	477	364	432	$2447	488	415	596	$3443	681	499	631	$6088
Ottawa University	713	558	482	$2830	1231	851	501	$4886	513	346	573	$3976
Southwestern College	430	284	1209	$1012	417	320	1518	$1386	391	347	1315	$2339
Sterling College	506	287	485	$3480	902	506	664	$5547	1065	479	688	$5014
Tabor College	311	246	567	$2490	323	305	608	$4499	473	361	726	$5777
University of St Mary	504	288	534	$1034	543	355	667	$1720	788	386	866	$2030
Conference Average	547	373	801	$2074	639	437	856	$3320	705	444	829	$5474

Notes: Application and Admissions data for undergraduates only.
Data source: Equity in Athletics Data Analysis system (EADA) and IPEDS, US Department of Education.

Chapter 4

Results

The purpose of this study was to determine if increases in athletic spending resulted in increases in overall enrollment, in the number of admission applications received, and in the number of admissions offered at small higher education institutions. The institutions included in this study were from the Kansas Collegiate Athletic Conference, (KCAC) consisting of ten institutions with similar academic offerings and similar faith-based institutional missions. The institutions sponsored male and female intercollegiate athletics and all were part of the KCAC Council of Presidents' strategic enrollment strategy to increase spending in intercollegiate athletics over the period of the study, AY2006-2011.

Regression analysis was used to quantify the impact of increasing athletic expenditures on application numbers, admissions decisions and overall enrollment over a ten-year period (AY2006-2016) by comparing changes in these data after a 2005 decision was made by the presidents of the ten (10) conference colleges to leverage athletic program growth as a strategic enrollment strategy.

For data analysis, overall enrollment and athletic spending data, including salary, student aid and operational costs, were retrieved from the U.S. Department of Education's Equity in Athletics Data Analysis system (EADA). In addition, the number of admission applications, admissions, and overall enrollment data was retrieved from the Integrated Postsecondary Education Data System (IPEDS). The data was analyzed using SPSS version 24 for Windows.

The researcher performed a time series quantitative regression analysis using data from the ten institutions to examine the relationship between increased athletic spending on number of admission applications, number of admissions granted and overall enrollment over a ten year period. Due to the similarities of the institutions, and their common membership in the KCAC, the researcher assumed that the common trend for institutional enrollment was similar and established that similarity by establishing a benchmark trend across the four year period, academic year (AY) 2002-03 to 2005-06. The effect of the change to increase per-student athletic spending was examined in the five-year phase AY 2006-07 to 2010-11. To discern longer term effects of the initiative, a subsequent five-year period was examined to include AY 2011-12 to 2015-16.

The results of the study analysis are presented in three sections that align with the three research questions. The first section examines the effect of increased athletic spending on admission application volume. The second section explores the effect that increased spending had on admissions decisions made by the institution and the third section examines the effect upon overall enrollment. The chapter concludes with an examination of the effect on the policy upon the athletic conference.

Effect on Admission Applications

Table 2.4.1: Net Difference of Admission Applications Received and Per-Student Athletic Spending; KCAC Conference

Institutions	Net Difference (AY05-06) - (AY02-03)		Net Difference (AY10-11) - (AY06-07)		Net Difference (AY15-16) - (AY11-12)		Net Difference (AY15-16) - (AY02-03)	
	Apps	Spend	Apps	Spend	Apps	Spend	Apps	Spend
Bethany College	+165	+$656	-474	+$1865	+819	+$5788	+947	+$10,267
Bethel College	+121	+$1258	+60	+$1295	+393	+$1287	+402	+$3868
Friends University	+139	+ $343	+292	+$430	-62	+$1283	+250	+$2343
Kansas Wesleyan University	-303	+$1586	+48	+$288	+150	+$4403	-160	+$6141
McPherson College	+153	+$1529	+96	+$682	-80	-$487	+314	+$3593
Ottawa University	+311	+$2040	+473	-$197	+630	+$3516	+524	+$9317
Southwestern College	+226	+$690	-161	+$424	-16	+$956	+94	+$2329
Sterling College	+182	+$4654	-141	-$612	+68	+$1829	+759	+$4111
Tabor College	-89	+$1161	+201	+$2701	+185	+$2237	+257	+$5358
University of St. Mary	+32	+$1288	+304	+$64	+189	+$1325	+402	+$2370

Establishing the Benchmark Trend - AY 2002-03 to 2005-06

Spending and Admission Application Correlation - Same Year

Using IBM SPSS Statistics 24, the researcher explored the correlation between per-student athletic spending and number of admission applications received in the same academic year for AY 2002-2003 through AY 2005-2006. The benchmark years include only a four year trend as data for per-student athletic spending was not available for AY 2001-2002 in the NAIA dataset. The mean (SD) number of admission applications received in the four year time for each of the ten institutions was 557.88 (188.10) and the mean (SD) per-student spending in the same period was $2,074.10 (1272.27). Results indicated a non-significant negative correlation between per-student athletic spending and number of admission applications received in the same year, ($r(39) = -.011$, $p = .473$).

A simple linear regression was calculated to predict the number of admissions admission applications received based on the amount of per-student athletic spending *in the same year*. Results were non-significant ($F(1,38)=0.005$, $p = .945$).

Spending and Admission Application Correlation - Offset Years

The lack of significance relative to per-student athletic spending and admission applications led the researcher to consider the possibility that the impact of a change in per-student athletic spending would only be realized in the number of admission applications *for the following year*.

The data set was aggregated to incorporate the prior year's amount of athletic spending allocated per-student and the following year's application count. As the AY 2001-2002 athletic spending data was not available; this led to the examination of per-

student athletic spending in AY 2002-2003 as it is related to application numbers for AY 2003-2004, through per-student athletic spending in AY 2005-2006 as related to application numbers for AY 2006-2007. The mean (SD) of admission applications received in this, offset, four-year time frame for the conference of ten institutions was 579.10 (217.01), while the mean (SD) per-student spending in the benchmarking period stayed the same at $2,074.10 (1272.27). Results indicated a non-significant correlation between per-student athletic spending and number of admissions admission applications received in the offset year, ($r(39) = .247$, $p = 0.62$).

A simple linear regression was calculated to predict the number of admissions admission applications received one year after a reported amount of per-student athletic spending. As with the data from the same reported year, the results were non-significant ($F(1,38)=2.476$, $p = .124$).

These results were as expected for the benchmark period, suggesting that per-student athletic spending was neither influencing nor detracting from the numbers of admission applications received at any of the conference institutions.

This observation made from the examination of the benchmark trend may explain why the Council of Presidents was keen to discuss strategy that would increase application volume and thus increase admissions and overall enrollment. The benchmark data in Table 2.4.1 illustrate that in most cases, individual institutions that increased per-student expenditures were seeing an increase in the number of admission applications.

Establishing the Post Spending/Application Analysis - Ay 2006-07 to AY 2010-11

Spending and Admission Applications Correlation - Same Year

The next set of data, from AY 2006-2007 to AY 2010-2011 was collected after the KCAC policy decision to increase per-student athletic spending as a strategic enrollment strategy. The researcher looked at the impact of per-student athletic spending in the same year as number of admission applications and found that the mean (SD) of admission applications across this five-year period of the study for each of the ten institutions was 639.24 (337.03) with the mean (SD) per-student spending at $3,319.62 (1594.45). Results indicated a significant correlation between per-student athletic spending and number of admission applications received in this period of time, ($r(49) = .333$, $p = .009$).

A simple linear regression was calculated to predict the number of admission applications received *in the same year* that per-student athletic spending was reported. A significant regression equation was found ($F(1,48)=5.975$, $p < .018$, with an R^2 of .111. This results in a prediction of number of admission applications equal to 405.79 + .070 (per-student athletic spending) admission applications when per-student athletic spending is measured in dollars per student. The number of admission applications increased 0.070 for each additional dollar of per-student athletic spending.

Spending and Admission Applications Correlation - Offset Years

Considering the possibility that the impact of a change in per-student athletic spending would be realized in the number of admission applications *for the following year*, the researcher analyzed the data by offsetting the admission applications numbers one year ahead. Per-student athletic spending for AY 2006-2007 was related to AY

2007-2008 admission applications numbers, and so forth through AY 2011-2012. The mean (SD) of number of admission applications received in this adjusted five-year period for each of the ten institutions was 652.52 (322.13) with the per-student athletic spending mean (SD) staying the same at $3,319.62 (1594.45). Results indicated a significant correlation between per-student athletic spending and number of admission applications received in this period of time, ($r(49) = .334$, $p = .009$).

A simple linear regression was calculated to predict the number of admission applications received in the year following the year that per-student athletic spending was reported. A significant regression equation was found ($F(1,48)=6.007$, $p = .018$, with an R^2 of .111. This results in a prediction of number of admission applications equal to 428.849 + .067 (per-student athletic spending) admission applications when per-student athletic spending is measured in dollars per student. The number of admission applications increased 0.067 for additional each dollar of per-student athletic spending.

These results were indicative that the strategy did work moderately well in the relatively short term, five-year period following the discussion among the presidents, although the increase in per-student athletic spending can only account for approximately 11% of the change in admission applications during this time period. In Table 2.4.1, eight of the ten conference institutions did increase spending as discussed. Six of the ten did experience a positive gain in admission applications as a result.

Establishment of the Exploratory Analysis - AY 2011-12 to 2015-16

Spending and Admission Applications Correlation - Same Year

This set of data includes the five-year period that rounds out the decade following the 2005 KCAC Council of Presidents strategic enrollment discussion and implementation of an enhanced per-student athletic spending initiative. The researcher wanted to see what residual effect the implementation of the policy had on the member institutions and the conference as an entity. The researcher was interested to ascertain if institutions continued to increase per-student athletic spending and how application volume was affected in the subsequent five-year period.

The researcher looked at the impact of per-student athletic spending *in the same year* as number of admission applications and found the mean (SD) of admission applications across the five years of this phase of the study for each of the ten institutions was 705.04 (265.164) with the mean (SD) per-student spending at $5,474.40 (3236.58). As seen in the size of the standard deviations, there is considerable difference in the amount of per-student athletic spending each institution employed in this policy endeavor. Results indicated a significant correlation between per-student athletic spending and number of admissions admission applications received in the same year, ($r(49) = .247$, $p = .027$).

A simple linear regression was calculated to predict the number of admissions admission applications received based on the amount of per-student athletic spending. Results approached significance ($F(1,48) = 3.899$, $p = .054$).

Spending and Admission applications Correlation - Offset Years

As in the previous time periods examined, the post-policy time period was also analyzed considering the possibility that the impact of a change in per-student athletic spending would only be realized in the number of admission applications *for the following year.* Thus, the researcher analyzed the data with off-set admission applications numbers, with per-student athletic spending for AY 2011-2012 related to AY 2012-2013 admission applications numbers, through per-student athletic spending for AY 2015-2016 and application numbers for AY 2016-2017. The mean (SD) of number of admission applications received in this adjusted five-year period for each of the ten institutions was 763.16 (298.246) with the per-student athletic spending mean (SD) staying the same at $5,474.40 (3236.58). Results indicated a significant correlation between per-student athletic spending and number of admissions admission applications received in the offset year, ($r(49)= .385$, $p = .003$).

A simple linear regression was calculated to predict the number of admission applications received in the year following the year that per-student athletic spending was reported. A significant regression equation was found ($F(1,48)=8.351$, $p <.006$, with an R^2 of .148. This results in a prediction of number of admission applications equal to 568.96 + .035 (per-student athletic spending) admission applications when per-student athletic spending is measured in dollars per student. The number of admission applications increased 0.035 for each additional dollar of per-student athletic spending.

As noted, the tail end of the decade following this policy implementation illuminated the significant divergence of spending decisions being made by individual institutions. Several institutions welcomed new presidents during this 5-year period.

One institution significantly changed its adult education model. One institution added additional academic programs. These competing interests offer some explanation for the significant deviation of the data set. The results, if viewed through a ten-year lens from implementation, suggest that sustained investment individually is difficult, but as a group, may be nearly impossible.

Effect on Admissions

Establishing the Benchmark Trend - AY 2002-03 to 2005-06

Spending and Admission Correlation - Same Year

Using IBM SPSS Statistics 24, the researcher explored the correlation between per-student athletic spending and number of admissions granted in the same academic year for AY 2002-2003 through AY 2005-2006. The benchmark years include only a four year trend as data for per-student athletic spending was not available for AY 2001-2002 in the NAIA dataset. The mean (SD) number of admissions granted in the four year time for each of the ten institutions was 368.70 (116.87) and the mean (SD) per-student spending in the same period was $2,074.10 (1272.27). There was a non-significant, negative correlation between per-student athletic spending and number of students admitted in the same year for this time period, ($r(39) = -.019$, $p = .454$). A simple linear regression was calculated to predict the number of admissions granted based on the amount of per-student athletic spending *in the same year*. Results were non-significant ($F(1,38)=0.014$, $p = .907$).

Spending and Admissions Correlation - Offset Years

The lack of significance relative to per-student athletic spending and admissions led the researcher to consider the possibility that the impact of a change in per-student athletic spending would only be realized in admissions *for the following year.*

The data set was aggregated to incorporate the prior year's amount of athletic spending allocated per-student and the following year's admissions count. As the AY 2001-2002 athletic spending data was not available; this led to the examination of per-student athletic spending in AY 2002-2003 as it is related to admissions granted for AY 2003-2004, through per-student athletic spending in AY 2005-2006 as related to admissions granted for AY 2006-2007. The mean (SD) of admissions granted in this, offset, four-year time frame for the conference of ten institutions was 380.60 (131.15), while the mean (SD) per-student spending in the benchmarking period stayed the same at $2,074.10 (1272.27). A significant correlation was found between per-student athletic spending and number of students admitted in the offset years, ($r(49) = .333$, $p = .018$).

Table 3.4.2: Net Difference Admissions Granted and Per-Student Athletic Spending; KCAC Conference

Institutions	Net Difference (AY05-06) - (AY02-03)		Net Difference (AY10-11)- (AY06-07)		Net Difference (AY15-16)- (AY11-12)		Net Difference (AY15-16)- (AY02-03)	
	Admits	Spend	Admits	Spend	Admits	Spend	Admits	Spend
Bethany College	88	$656	-257	$1865	1142	$5788	1178	$10,267
Bethel College	101	$1258	49	$1295	132	$1287	142	$3868
Friends University	-87	$343	108	$430	-80	$1283	14	$2343
Kansas Wesleyan University	-220	$1586	-20	$288	112	$4403	-107	$6141
McPherson College	187	$1529	66	$682	56	-$487	243	$3593
Ottawa University	216	$2040	218	-$197	58	$3516	66	$9317
Southwestern College	-124	$690	-8	$424	0	$956	70	$2329
Sterling College	100	$4654	-194	-$612	-51	$1829	258	$4111
Tabor College	-38	$1161	177	$2701	-43	$2237	45	$5358
University of St. Mary	-50	$1288	262	$64	46	$1325	156	$2370

A simple linear regression was calculated to predict the number of admissions granted one year after a reported amount of per-student athletic spending. This time the results were significant ($F(1,38)=4.742$, $p = .036$), with a R^2 of .111. This results in a

prediction of number of admission applications equal to 309.383 + .034 (per-student athletic spending) admission applications when per-student athletic spending is measured in dollars per student. The number of admission applications increased 0.034 for each additional dollar of per-student athletic spending.

These results were as hypothesized for the benchmark period, suggesting that increased per-student athletic spending was related to higher numbers of student admissions granted at the conference institutions in this time period.

This observation made from the examination of the benchmark trend may explain why the Council of Presidents was interested in discussing a shared strategy that would increase admissions decisions and thus increase overall enrollments. Over half of the institutions who increased spending were seeing upticks in the numbers of admitted students as shown in Table 3.4.2.

Establishing the Post Treatment Analysis - Ay 2006-07 to AY 2010-11

Spending and Admissions Correlation - Same Year

The next set of data, from AY 2006-2007 to AY 2010-2011 was collected after the KCAC policy decision to increase per-student athletic spending as a strategic enrollment strategy. The researcher looked at the impact of per-student athletic spending *in the same year* as admissions granted and found that the mean (SD) of admission applications across this five-year period of the study for each of the ten institutions was 437.10 (215.18) with the mean (SD) per-student spending at $3,319.62 (1594.45). A significant correlation was found between per-student athletic spending and number of students admitted in the same year for this time period, ($r(49) = .300$, $p = .017$).

A simple linear regression was calculated to predict the number of admissions granted *in the same year* that per-student athletic spending was reported. A significant regression equation was found ($F(1,48)=4.735$, p =.035, with an R^2 of .090. This results in a prediction of number of admissions granted equal to 302.86 + .040 (per-student athletic spending) when per-student athletic spending is measured in dollars per student. The number of admissions granted increased 0.040 for each additional dollar of per-student athletic spending.

Spending and Admission applications Correlation - Offset Years

Considering the possibility that the impact of a change in per-student athletic spending would be realized in the number of admissions granted *for the following year*, the researcher analyzed the data by offsetting the admission numbers one year ahead. Per-student athletic spending for AY 2006-2007 was related to AY 2007-2008 admissions granted, and so forth through AY 2011-2012. The mean (SD) of number of admissions granted in this adjusted five-year period for each of the ten institutions was 441.44 (202.99) with the per-student athletic spending mean (SD) staying the same at $3,319.62 (1594.45). The correlation for the offset years was significant and similar in this offset year data as it was in the same year data, ($r(49) = .288$, $p = .021$).

A simple linear regression was calculated to predict the number of admissions granted in the year following the year that per-student athletic spending was reported. A significant regression equation was found ($F(1,48)=4.357$, p =.042, with an R^2 of .083. This results in a prediction of number of admissions granted equal to 319.52 + .037 (per-student athletic spending) admissions when per-student athletic spending is

measured in dollars per student. The number of admissions increased 0.037 for additional each dollar of per-student athletic spending.

These results were indicative that the strategy did work in the relatively short-term, five-year period following the discussion among the presidents. In Table 3.4.2, six of the ten conference institutions did increase spending as discussed and did experience a positive gain in admissions granted as a result.

Establishment of the Exploratory Analysis - AY 2011-12 to 2015-16

Spending and Admissions Correlation - Same Year

This set of data includes the five-year period that rounds out the decade following the 2005 KCAC Council of Presidents strategic enrollment discussion and implementation of an enhanced per-student athletic spending initiative. The researcher wanted to see what residual effect the implementation of the policy had on the member institutions and the conference as an entity. The researcher was interested to ascertain if institutions continued to increase per-student athletic spending and how admissions were affected in the subsequent five-year period.

The researcher looked at the impact of per-student athletic spending *in the same year* as number of admissions granted and found the mean (SD) of admission applications across the five years of this phase of the study for each of the ten institutions was 444.26 (192.01) with the mean (SD) per-student spending at $5,474.40 (3236.58). As seen in the size of the standard deviations, there is considerable difference in the amount of per-student athletic spending each institution employed long term in this policy endeavor. A significant correlation was found between per-student

athletic spending and total admissions in the same year for this time period, ($r(49) = .425$, $p = .001$).

A simple linear regression was calculated to predict the number of admissions granted based on the amount of per-student athletic spending. Results were significant ($F(1,48)=10.60$, $p = .002$), with an R^2 of .181. This resulted in a prediction of number of admissions granted equal to 306.092 + .025 (per-student athletic spending) when per-student athletic spending is measured in dollars per student. The number of admissions increased 0.025 for each additional dollar of per-student athletic spending.

Spending and Admissions Correlation - Offset Years

As in the previous time periods examined, the post-policy time period was also analyzed considering the possibility that the impact of a change in per-student athletic spending would only be realized in the number of admission applications *for the following year.* Thus, the researcher analyzed the data with offset admissions numbers, with per-student athletic spending for AY 2011-2012 related to AY 2012-2013 admission numbers, through per-student athletic spending for AY 2015-2016 and admission numbers for AY 2016-2017. The mean (SD) of number of admissions granted in this adjusted five-year period for each of the ten institutions was 464.88 (207.41) with the per-student athletic spending mean (SD) staying the same at $5,474.40 (3236.58). Correlation was also significant for per-student athletic spending and number of admissions for the offset year data in this time period, ($r(49) = .517$, $p < .000$).

A simple linear regression was calculated to predict the number of admissions granted in the year after the per-student athletic spending was reported. A significant

regression equation was found ($F(1,48)=17.48$, $p < .000$, with an R^2 of .267. This resulted in a prediction of number of admissions granted equal to 283.63 + .033 (per-student athletic spending) when per-student athletic spending is measured in dollars per student. The number of admissions increased 0.033 for each additional dollar of per-student athletic spending.

As noted, the tail end of the decade following this policy implementation illuminated significant divergence of spending decisions being made by individual institutions. Several institutions welcomed new presidents during this 5-year period which may have influenced or changed the commitment of the institution to this long-term strategy.

Overall Enrollment

Table 4.4.3: Net Difference Overall Enrollment and Per-Student Athletic Expenditure; KCAC Conference

Institutions	Net Difference (AY05-06) - (AY02-03)		Net Difference (AY10-11)- (AY06-07)		Net Difference (AY15-16)- (AY11-12)		Net Difference (AY15-16)- (AY02-03)	
	Tot Enrl	Spend	Tot Enrl	Spend	Tot Enrl	Spend	Tot Enrl	Spend
Bethany College	-16	$656	56	$1865	73	$5788	95	$10,267
Bethel College	43	$1258	-63	$1295	2	$1287	54	$3868
Friends University	-362	$343	-272	$430	-581	$1283	-1212	$2343
Kansas Wesleyan University	60	$1586	-54	$288	-135	$4403	-84	$6141
McPherson College	105	$1529	204	$682	26	-$487	268	$3593

Ottawa University	-38	$2040	176	-$197	63	$3516	146	$9317
Southwestern College	126	$690	151	$424	-211	$956	53	$2329
Sterling College	50	$4654	129	-$612	30	$1829	238	$4111
Tabor College	41	$1161	47	$2701	-34	$2237	130	$5358
University of St. Mary	-15	$1288	218	$64	79	$1325	332	$2370

Establishing the Benchmark Trend - AY 2002-03 to 2005-06

Spending and Overall Enrollment Correlation - Same Year

Using IBM SPSS Statistics 24, the researcher explored the correlation between per-student athletic spending and overall enrollment in the same academic year for AY 2002-2003 through AY 2005-2006. The benchmark years include only a four-year trend as data for per-student athletic spending was not available for AY 2001-2002 in the NAIA dataset. The mean (SD) number of overall enrollment in the four year time for each of the ten institutions was 799.82 (580.71) and the mean (SD) per-student spending in the same period was $2,074.10 (1272.27). A significant, negative correlation was found between per-student athletic spending and overall enrollment in the same year for the benchmark years, ($r(39) = -.428$, $p = .003$). This suggests that an increase in spending was related to a decrease in enrollment for this time period.

A simple linear regression was calculated to predict overall enrollment based on the amount of per-student athletic spending *in the same year*. Results were significant ($F(1,38)=8.537$, $p = .006$), with an $R^2 = .183$. The negative correlation resulted in a prediction of number of students enrolled equal to 1205.291 - .195 (per-student athletic

spending) when per-student athletic spending is measured in dollars per student. The number of students enrolled decreased 0.195 for each additional dollar of per-student athletic spending.

Largely, this decrease was driven by the inconsistent application of per-student athletic spending that was observed across the ten institutions during the benchmark years and changes in enrollment that differed widely between institutions.

Spending and Overall Enrollment Correlation - Offset Years

The lack of significance relative to per-student athletic spending and overall enrollment led the researcher to consider the possibility that the impact of a change in per-student athletic spending would only be realized in overall enrollment *for the following year.*

The data set was aggregated to incorporate the prior year's amount of athletic spending allocated per-student and the following year's overall enrollment. As the AY 2001-2002 athletic spending data was not available; this led to the examination of per-student athletic spending in AY 2002-2003 as it is related to overall enrollment for AY 2003-2004, through per-student athletic spending in AY 2005-2006 as related to overall enrollment for AY 2006-2007. The mean (SD) of overall enrollment in this, offset, four-year time frame for the conference of ten institutions was 1367.02 (1350.27), while the mean (SD) per-student spending in the benchmarking period stayed the same at $2,074.10 (1272.27). Correlation between the per-student athletic spending and overall enrollment numbers in the offset year were significant and in a positive direction for this benchmarking time period, ($r(39) = .428$, $p = .003$).

A simple linear regression was calculated to predict overall enrollment one year after a reported amount of per-student athletic spending. This time the results were significant ($F(1,38)=8.512$, $p = .006$), with an $R^2 = .183$. This resulted in a prediction of number of 425.343 +.454 (per-student athletic spending) when per-student athletic spending is measured in dollars per student. The number of students enrolled increased 0.454 for each additional dollar of per-student athletic spending.

This observation made from the examination of the benchmark trend may explain why the Council of Presidents determined that a shared strategy would increase overall enrollments. Six of the ten institutions that increased athletic spending saw increases in overall enrollment during this time period, as shown in Table 4.4.3.

Establishing the Post Treatment Analysis - Ay 2006-07 to AY 2010-11

Spending and Overall Enrollment Correlation - Same Year

The next set of data, from AY 2006-2007 to AY 2010-2011 was collected after the KCAC policy decision to increase per-student athletic spending as a strategic enrollment strategy. The researcher looked at the impact of per-student athletic spending *in the same year* on overall enrollment and found that the mean (SD) of overall enrollment across this five-year period of the study for each of the ten institutions was 855.78 (517.37) with the mean (SD) per-student spending at $3,319.62 (1594.45). A significant, negative correlation was found between per-student athletic spending and overall enrollment in the same year during this treatment period, ($r(49) = -.637$, $p < .000$)

A simple linear regression was calculated to predict overall enrollment *in the same year* that per-student athletic spending was reported. A significant regression

equation was found ($F(1,48)=32.84$, p =.000, with an R^2 of .406. The negative correlation between per-student athletic spending and overall enrollment resulted in a prediction of overall enrollment equal to 1542.335 - .207 (per-student athletic spending) when per-student athletic spending is measured in dollars per student. Overall enrollment decreased 0.207 for each additional dollar of per-student athletic spending.

This same year data follows the findings of the benchmark years and supports the argument that policy changes, such as changes to athletic spending, need at least one academic year to achieve observable effects on the desired outcomes.

Spending and Admission applications Correlation - Offset Years

Considering the possibility that the impact of a change in per-student athletic spending would be realized in overall enrollment *for the following year*, the researcher analyzed the data by offsetting total enrollment one year ahead. Per-student athletic spending for AY 2006-2007 was related to AY 2007-2008 overall enrollment, and so forth through AY 2011-2012. The mean (SD) of overall enrollment in this adjusted five-year period for each of the ten institutions was 867.32 (497.47) with the per-student athletic spending mean (SD) staying the same at $3,319.62 (1594.45). As with the same-year information above, a significant, negative correlation was found between per-student athletic spending and overall enrollment in the following year, during this treatment time period, ($r(49) = -.634$, $p < .000$).

A simple linear regression was calculated to predict overall enrollment in the year following the year that per-student athletic spending was reported. A significant regression equation was found ($F(1,48)=32.31$, p <.000, with an R^2 of .406. The correlation between per-student athletic spending and overall enrollment was negative,

resulting in a prediction of overall enrollment equal to 1524.261 - .198 (per-student athletic spending) when per-student athletic spending is measured in dollars per student. Overall enrollment decreased 0.198 for each additional dollar of per-student athletic spending.

These results indicate that the strategy had mixed results on overall enrollment numbers in the relatively short-term, five-year period following the discussion among the presidents for those institutions who implemented it. In Table 4.4.3, five of the ten conference institutions did increase spending as discussed and did experience a positive gain in overall enrollment as a result. However, larger per-student athletic spending did not seem to have a strong correlation with increased enrollment numbers.

Establishment of the Exploratory Analysis - AY 2011-12 to 2015-16

Spending and Overall Enrollment Correlation - Same Year

This set of data includes the five-year period that rounds out the decade following the 2005 KCAC Council of Presidents strategic enrollment discussion and implementation of an enhanced per-student athletic spending initiative. The researcher wanted to see what residual effect the implementation of the policy had on the member institutions and the conference as an entity. The researcher was interested to ascertain if institutions continued to increase per-student athletic spending and how overall enrollment was affected in the subsequent five-year period.

The researcher looked at the impact of per-student athletic spending *in the same year* as overall enrollment and found the mean (SD) of overall enrollment across the five years of this phase of the study for each of the ten institutions was 829.24 (351.83) with the mean (SD) per-student spending at $5,474.40 (3236.58). As seen in the size of

the standard deviations, there is considerable difference in the amount of per-student athletic spending each institution deployed long term in this policy endeavor. As found in the previous two time periods of this study, a significant but negative correlation was found between per-student athletic spending and overall enrollment numbers in the same year for this post-policy time frame, ($f(49) = -.552$, $p < .000$).

A simple linear regression was calculated to predict overall enrollment based on the amount of per-student athletic spending. Results were significant ($F(1,48)=21.02$, $p < .000$) with an R^2 of .305. The negative correlation between per-student athletic spending and overall enrollment resulted in a prediction of overall enrollment equal to 1157.651 - .060 (per-student athletic spending) when per-student athletic spending is measured in dollars per student. Overall enrollment decreased 0.060 for each additional dollar of per-student athletic spending.

Spending and Overall Enrollment Correlation - Offset Years

As in the previous time periods examined, the post-policy time period was also analyzed considering the possibility that the impact of a change in per-student athletic spending would only be realized in overall enrollment for *the following year*. Thus, the researcher analyzed the data with offset overall enrollment figures, with per-student athletic spending for AY 2011-2012 related to AY 2012-2013 overall enrollment, through per-student athletic spending for AY 2015-2016 and overall enrollment for AY 2016-2017. The mean (SD) of overall enrollment in this adjusted five-year period for each of the ten institutions was 811.20 (309.35) with the per-student athletic spending mean (SD) staying the same at $5,474.40 (3236.58). A significant negative correlation

was found between per-student athletic spending and overall enrollment in the next year for this time period, ($r(49) = -.535$, $p < .000$).

A simple linear regression was calculated to predict overall enrollment in the year after the per-student athletic spending was reported. A significant regression equation was found ($F(1,48)=19.29$, $p=.000$, with an R^2 of .287. The correlation between per-student athletic spending and overall enrollment was negative, resulting in a prediction of overall enrollment equal to 1091.335 - .051 (per-student athletic spending) when per-student athletic spending is measured in dollars per student. Overall enrollment decreased 0.051 for each additional dollar of per-student athletic spending.

As noted, the tail end of the decade following this policy implementation illuminated significant divergence of spending decisions being made by individual institutions. Several institutions welcomed new presidents during this 5-year period which may have influenced or changed the commitment of the institution to this long-term strategy. Several institutions continued to struggle to overcome economic challenges brought about by the 2008 great recession including declines in endowment investment income and private giving.

Overall Conference Analysis

Table 4.4.4: Correlations with Per Student Athletic Spending Annually

Outcomes	AY2002-2003 to AY2005-2006		AY2006-2007 to AY2010-2011		AY2011-2012 to AY2015-2016	
	Same Year	Offset Year	Same Year	Offset Year	Same Year	Offset Year
Admission Applications	-.011	.247	.333**	.334**	.247*	.385**
Admissions	-.019	.333*	.300*	.288*	.425**	.517**
Enrollment	-.428**	.428**	-.637**	-.634**	-.552**	-.535**

Note: *$p \leq .05$, **$p \leq .01$

The outcome of increased per-student athletic spending on overall enrollment numbers results in negative correlations in all but one of the time periods studied in the current research as shown in Table 4.4.4. While a mixed outcome between policy implementation (i.e., increasing per-student athletic spending in a given year) and enrollment numbers seems appropriate in the benchmarking years, the findings of negative correlations between these variables in the ensuing ten years of the study suggests much more is involved in managing and improving overall enrollment than is readily apparent. The increase in athletic spending may be a visible and tangible draw for potential students and student-athletes, demonstrated in the moderate increases in admission applications received after implementation of the increased spending. However, athletic spending does not seem to have the same effect on retention of the existing students, a necessary outcome for overall enrollment gains.

This could be due to several factors, most notably the method by which additional spending was disseminated between attracting new students versus retaining existing students. If new students were beneficiaries of higher financial aid awards in

the athletics area than similar continuing students, the increase in spending could have inadvertently created a retention loss. As the present study does not differentiate spending by type, there is no way to determine if existing students had increases in their aid packages as a result of the policy implementation. In any case, from the results of the current study, it seems that the conference as a collective had some moderate success in attracting new student admission applications with increased athletic spending, but that increase it does not seem to have positively impacted student retention rates which are necessary to achieve gains in overall enrollment numbers.

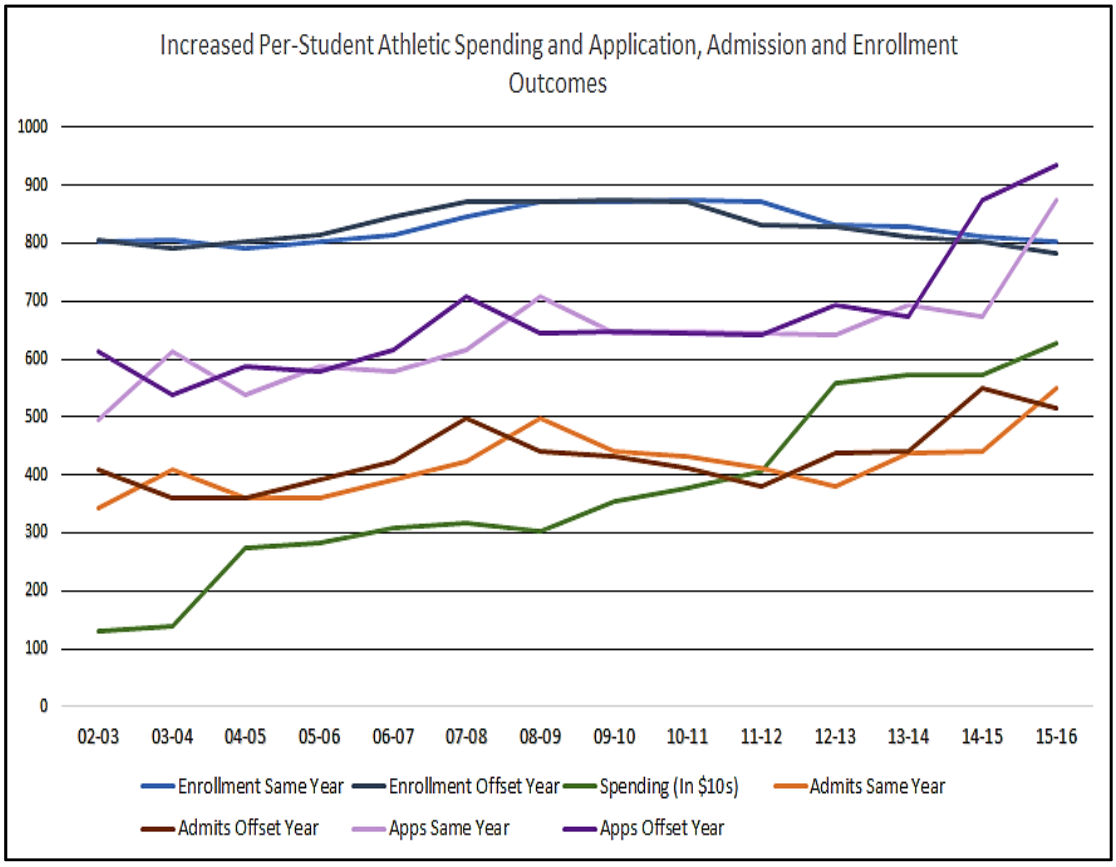
Summary

The purpose of this study was to determine if increasing budget allocations to athletic programming increase application activity, admissions and overall enrollment at small colleges and universities. This chapter presented the findings of the data analysis. a quantitative method, multiphase model with a regression analysis was deployed to address the three research questions. The data shows that admission applications received did increase as a result of additional spending. However, while admissions and overall enrollment numbers did improve for some individual institutions, these outcomes did not improve for the overall conference.

In the case of research question #1 regarding application volume, the results of the offset trend analysis were statistically significant; therefore, the hypothesis was supported. In the case of the research question #2 regarding admissions, the results of the offset trend analyses were statistically significant, therefore, the hypothesis was supported. In the case of research question #3, regarding overall enrollment, the results of the offset trend analyses was non-significant; therefore, the hypothesis was not

supported. The following chapter will contextualize the statistically findings with prior research and make recommendations for future study.

Table 5.4.5: Increased Per-Student Athletic Spending and Application, Admission and Overall Enrollment Outcomes



Chapter 5

Implications, Recommendations and Conclusion

The purpose of this study was to determine if increased athletic spending resulted in an increase in admission applications, admission decisions, and overall enrollment at small colleges and universities. The study focused on 10 small, private institutions that made up the Kansas Collegiate Athletic Association (KCAC). In 2005, the member presidents collectively agreed to increase athletic spending as a strategic enrollment strategy. The study attempted to determine if this strategy was successful by examining the 10-year period immediately following the president's collective decision. The following three research questions guided the study:

> *Research Question 1:* Does increasing per-student athletic spending positively impact the overall number of admissions admission applications received by a small college/university?
>
> *Research Question 2:* Does increasing per-student athletic spending positively impact the number of students who are admitted at a small college/university?
>
> *Research Question 3:* Does increasing the per-student athletic spending positively impact the number of students who enroll* at a small college/university?
>
> *Enroll defined as registered students included in official institutional IPEDS report.

The study employed the use of admissions application, admissions, and overall enrollment data acquired from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS). Athletic expenditure data was obtained from the Equity in Athletics Data Analysis system (EADA) and included salary, student aid and operational costs.

The data analysis was completed using a quantitative methods model, incorporating a multiphase approach alongside a regression analysis. This exploratory

study attempted to examine the effectiveness of the Council of Presidents athletically-focused strategic enrollment management strategy. The SPSS version 24.0 for Windows was used to perform the regression analysis.

Research across the athletic and enrollment continuum indicated that intercollegiate athletics, admissions and institutional enrollment had a complex, and symbiotic relationship. Research showed that successful athletic programs had increased admissions applications (McEvoy, 2006), increased prospective student awareness via amplified media exposure (Allen & Peters, 1982), and improved the overall academic quality of the student body as measured by SAT scores (McCormick & Tinsley, 1987). The mere presence of an athletic program seemed to attract students as "the number of colleges where at least 33 percent of the students played a sport increased from 96 to 124 between 2006 and 2011, according to an Associated Press report" (Miller & Fennell, 2015). While isolated success stories received social media attention, the vast majority of small colleges continue to face increasingly competitive marketplaces and rising costs while revenue generating activities, including enrollment, are on the decline. The results of this study expanded the body of literature in support of the relationship between athletic programming, admissions application generation, admissions, and overall enrollment. In addition, the study exposed the challenges inherent for small colleges and universities armed with fewer resources to sustain increased spending over the long term.

The current study results indicated that increased funding of athletic programming is not, in and of itself, a viable strategic enrollment strategy for small higher education institutions. Previous literature suggested that strategic enrollment

management models adopt a holistic approach, not a singular tactic (Brontrager, 2004; Dolence 1993; Fathi & Watson, 2009; Sigler, 2017). This theory was further validated by Bruder's (2017) study of 14 small, private Midwestern colleges where she noted "although there is evidence and acceptance of using athletics as facilitators of enrollment at small, private NCAA Division III institutions in the Midwest, formalized enrollment management strategies using athletics as facilitators is not a guiding philosophy and practice for most academic institutions" (p. 105-106). The study results suggested while application and admissions gains were realized, increasing per-student athletic spending did not produce overall enrollment gains for the conference as a whole.

The results of the study did not provide valid evidence that the theoretical framework of college choice was positively influenced by the perceived or actual athletic opportunities presented by additional investments made by the institution. The increased athletic expenditures did not appear to elevate the profile of these institutions which research has shown has a positive correlation to admissions (McEvoy, 2005).

The results of the study strongly suggested that increased athletic expenditures did not appear to encourage student retention, thus the notable negative correlations across all three phases of the study results on the outcome of overall enrollment. The increased athletic expenditures may not have improved the caliber of coaching or facilities, noted in the research as additional drivers of college choice (Kelderman, 2008). It was evident that these college's investments did not have the desired influence upon the choice rubric being exercised by both prospective and current students.

Implications of the Study

To answer Research Question 1, the study examined the relationship between increased per-student athletic spending and admission applications as the dependent variable. The correlation variables for each phase of study in the offset years were positive as follows; .247, .334 and .385. There was a positive correlation between the number of admission applications received and increased per-student athletic spending during each of the two five- year periods (as measured by the offset calculation) following the implementation of the conference initiative. The linear regression results were significant and the null hypothesis was rejected. However, the analysis invited caution as per-student athletic spending only accounted for approximately 11% of the change in admission applications, thus other factors were equally or more influential in increasing student application behavior.

This finding was significant since it suggested a financial investment focused upon a specific segment of the college-going student population may inadvertently restrict the growth of the overall prospect pool over time, thus decreasing application volume. Creating such a limitation in a highly competitive marketplace appeared to have consequences. Research showed that big time college athletics, via media and other means, could attract the attention of college decision-making students and influence application behavior (Pope & Pope, 2012). However, small colleges do not have access to the same attention attracting venues and activities that expose them to a wide and more diversified audience of prospective students.

Therefore, increasing expenditures in pursuit of a specific student demographic may not be a solid strategic enrollment management plan (Bontrager, Ingersoll &

Ingersoll, 2012). While the results of this study did support a positive correlation between increased athletic spending and increased application numbers, not all of the conference institutions realized increased admission application traffic. The literature suggested that rare are the examples of small institutions that found exceptional success making a complete commitment to expanding athletics as their only enrollment strategy. In these rare cases, creating such a niche of distinctiveness worked for them, both short and long term (Dehne, 1999).

To answer Research Question 2, the study explored the relationship between increased per-student athletic spending and admissions as the dependent variable. The correlation variables for each phase of study in the offset years were positive as follows; .333, .288, .317. There was a positive correlation between the number of admissions granted and increased per-student athletic spending during each of the two five- year periods (as measured by the offset calculation) following the implementation of the conference initiative. The linear regression results were significant and the null hypothesis was rejected. The number of admissions increased 0.037 for each additional dollar of per-student athletic spending in the first five-year period following the conference initiative. This result, however, should be viewed in context as only six of the ten institutions increased spending as agreed and experienced admissions gains as a result.

During the subsequent five-year period, the regression equation remained significant but decreased overall to 0.033 (as measured by the offset calculation) for each additional dollar of per-student athletic spending. This phase of the study illuminated the difficulty that a small institution has in sustaining significant

investments in any one initiative over the long term. In this study's data set, it became clear that institutions were unable to continue their commitment to the conference initiative in the 2nd half of the decade as the aggregate budget amounts started to deviate wildly. Bethel College, at the study's end was spending $10,267 per student as compared to Southwestern College's $2,329 per student. Clearly, small institutions unable to continue increasing per-student athletic spending incrementally over time could impede their own growth strategy rather than fuel it. The NCAA was non-committal on this idea, its researchers unable to quantify either positive or negative institutional outcomes relative to increased athletic spending (Litan, Orszag & Orszag, 2003). No such research was publically available from the NAIA.

Furthermore, this study focused upon escalating athletic expenses by choice versus by necessity. From 2004 to 2016, expenses for NCAA DIII institutions with football increased, on average, 131.1 percent. Negative net revenue, what the NCAA calls the "true" cost of running an athletics program, ballooned 139.7 percent during that same time period; an average loss to colleges of almost $2M (NCAA, 2018). Between the years of this study, 2005 – 2010, more than 700 teams were dropped across all three divisions of the NCAA and the rate of adding teams has dropped off by 55% over the last 5 years (NCAA, 2017).

While the NAIA has not publish similar research, it did note potential savings annually of over $1M in institutional athletic operating expenses versus NCAA Division III institutions as well as per-student-athlete cost savings of almost $2000 (NAIA, 2017). Both associations, however, seemed immune to rising costs and escalating expectations from student-athletes for scholarship funding and state-of-the-

art facilities which fuel increased expenditures. As all of the institutions in this study field a football team, of note are two studies (Goff, 2004; Jones, 2014) that examined decisions to de-escalate athletic expenditures by eliminating football. The Goff (2004) study was limited by its insular focus on one institution and Jones (2014) stated a small college may improve enrollment by making such a significant cost-saving decision.

To answer Research Question 3, the study explored the relationship between increased per-student athletic spending and overall enrollment as the dependent variable. The correlation variables for each phase of study in the offset years were as follows; .428, .-.634,-535. There was a negative correlation between overall enrollment and increased per-student athletic spending during each of the two five- year periods (as measured by the offset calculation) following the implementation of the conference initiative. The linear regression results were significant and the null hypothesis was not rejected. Overall enrollment decreased 0.198 for each additional dollar of per-student athletic spending in the first five-year period following the conference initiative. In phase 3 of the study, (the five years following) overall enrollment decreased only 0.051 for each additional dollar of per student spending.

This finding was indicative of the challenges faced by small colleges to retain students in the long term. With positive correlations for application volume and admission decisions during the same time periods, it stood to reason that overall enrollment would also improve as per-student athletic expenditures increased. This study illuminated that complexity of enrollment management and the need to balance resource allocation not only upon recruitment of students but also on retaining existing

students. This study illuminated the need for further study of factors significant to student retention and persistence relative to athletic spending at small colleges,

Limitations and Threats

There were a number of advantages to conducting a multiphase, exploratory study, including the ability to examine a change in practice and its effect over distinct periods of time on a distinct group. However, the study methodology did have some limitations. This study focused on an athletic conference comprised of ten institutions and labeled it a pathway case, allowing observations to be made about behavior before and after the implementation of a policy or decision (Gerring, 2007). Labeled as such and including a fairly homogeneous group of institutions with a prescribed set of circumstances who are asked to implement a strategy to some similar extent, it would be difficult to generalize the findings of this study employing a positivist view (Blaikie, 2003). However, institutions, like people, are multi-layered mechanisms, and as such, the results of this study could have some generalizability, using a constructionist view, to other groups of institutions whose exhibited contexts were similar to those in this study (Blaikie, 2003).

An additional limitation of the study included the linear regression model. As linear regression expresses a relationship between a dependent and independent variable, it may have missed the relationships among variables. These variables could include internal validity threats such as time or maturation; or external threats, for instance, an unanticipated external change or other unforeseen factor which statistical controls cannot completely neutralize (Creswell, 2012). In this study, not all institutional, state, federal or other policies or environmental factors correlated with

college choice, application completion, admissions decisions, overall enrollment or retention could be accounted for. Therefore, caution should be exercised when making causal claims based upon these findings. Additionally, linear regression was susceptible to outlier, or surprising data points. In this case, some institutions made significant budgetary adjustments that may have influenced the result. Finally, linear regression makes an assumption that data are independent. In this study, that was likely the case, however, since institutional behavior was measured multiple times, the data points may not be independent because budget decisions made in one year may be relevant to decisions made in subsequent years (Lomax & Hahs-Vaughn, 2012).

This study relied upon self-reported data from colleges and universities as required by the federal government. This self-reported data may be an additional limitation of the study as the pressure to improve institutional rankings in national publications or other influential reports burdened some institutions to report exaggerated or erroneous data (Diamond & Schneider, 2012; Hoover, 2012; Houry, 2013). The validity of the findings of this study was predicated on the accuracy of the institutional data provided by the ten institutions to the U.S. Department of Education as a part of the EADA reporting requirements.

Additional threats to the validity of this study may be found in the population and geographical setting of the group being studied. The ten colleges and universities that made up the Kansas Collegiate Athletic Conference were diverse in urban, suburban and rural settings. Two of the ten colleges were located in metropolitan population centers. The rest were located in suburban or rural settings, far from amenities that aid in attracting prospective college students. Additionally, nine of the

10 institutions reported annual institutional enrollments of less than 1000 students. This dichotomy of size may have inherently influenced institutional behavior and remain undetected, yet impacted the research results. Population size, geography and fiscal strength may have been a limitation of the study. These ten institutions started with different levels of fiscal strength, a few with larger endowment funds than others which may have made them better equipped to do two things; 1) reduce their reliance on net tuition revenue (a function of enrollment times tuition less the discount rate); and 2) utilize non-operational dollars to fund spending increases in targeted areas. The advantage of budget flexibility for fiscally strong institutions may have influenced the study data.

Finally, limitations to the study may be within the demographics of the student bodies being observed and analyzed. As noted previously, the simple presence of an athletics program attracts students. A limitation of this study may be found in assessing the percentage of student-athletes that make up the student body. There may be a saturation point at small colleges where the percentage of student-athletes leads to enrollment *decline* rather than an increase for a variety of reasons. This consequence may be a limiting factor in this study. Finally, student body demographics contributed to the last limitation to be noted, that of gender bias. The study did not examine how fiscal resources were distributed year-to-year based on sport teams or the gender composition of the applicant pool. This limitation and others provide several opportunities for further study.

Recommendations for Future Study and Practice

The goal of this study was to quantitatively examine whether a strategic enrollment management decision to increase fiscal resources in support of athletic programming resulted in increased admissions application activity, positive admissions decisions and overall increased enrollment at small, private colleges and universities. Collegiate athletics were an expensive proposition for any institution. According to the NAIA, member institutions spent on average $2.93 million a year on athletic programming. Add a football team and add an additional $2.5 million a year in costs (NAIA, 2017). For the ten small, private colleges in this study, athletic spending made up between 10 to 57% of the institution's percentage of total budget in 2016 as illustrated in Table 9.5.1 Costs associated with athletics continued to rise as did student expectations that colleges would hire top coaching talent and provide state-of-the-art facilities in which to train and compete (Kelderman, 2008; Schneider & Messenger, 2012; Tsitsos & Nixon, 2012).

Increasingly, small, private colleges (and others) look to students and outside donors to fund the spending gap and help institutions keep up in the athletics arms race (Leeds, et al, 2015; Wolverton & Kambhampati, 2016). As costs rise, however, thought must be given to whether expenses outweigh the benefits of increasing the institution's athletic footprint. For a few institutions in the study, a 1% increase in athletic expenses equated $250,000, enough to support increased student financial aid, hire additional faculty or staff, fund academic program materials, or complete needed building maintenance (Suggs, 2003; Vanover & DeBowes, 2013).

The results from this study indicated that additional dollars did not increase student enrollment over time, therefore, spending those dollars differently might have engendered different results. Additional cost/benefit studies related to athletic versus other academic or institutional programming initiatives are strongly recommended. For practitioners, this finding indicates that student retention was a significant issue. Using institutional data to assess student behavior patterns and to understand the culture of a 'student-athlete' student body may provide insights and programmatic opportunities that improve retention and persistence of all students, increasing overall enrollment over time.

Collegiate athletics provide an "integral source of name exposure for almost every university and [are] often the only frequent source of exposure for schools possessing little in the way of academic reputation" (Goff, 2004, p. 71). The institutions in this study, while academically sound, do not possess known reputations outside of their local geographical areas. Arguably, the expansion of athletic programming may increase the breadth of exposure, encouraging prospective students and parents to investigate and visit an institution that they might not have otherwise. Added exposure may also encourage alumni and community members to make contributions to the institution in support of both athletic and nonathletic pursuits.

The controversial link between athletics and giving has proven difficult to study as these particular cause-effect relationships define the term ambiguity. The donor who attends every home football game may be interested in supporting both athletics and library collection expansion. Increased exposure of the institution via athletics may spur giving across the institution as donors identify various non-athletically related

affinities. Goff (2004) provides a brief summary of three regression studies in Table 9.5.1 that offer some explanation of the relationship between athletics, donors and institutions, but also illuminate the complexity inherent in studying this relationship.

Of the three studies, Baade and Sundberg's (1996) look at 167 different institutions provides a correlation to this study. Their findings indicate that liberal arts colleges saw very little increases in giving with increasing athletic team winning (Goff, 2004). As the ten Kansas institutions in this study categorize themselves as liberal arts colleges, if increased athletic expenditures did not equate to increased winning on the field or court, the receipt of additional external resources could be in jeopardy.

Table 6.5.1: Goff's Summary of Regression Studies of Athletics-Contributions Relationship

Study	Data	Main Results
Baade & Sundberg (1996)	Gifts per alumni for 167 institutions over 1973-90; controls for 2 student attributes, 4 institution attributes, fund raising intensity	40% to 54% increase for bowl game appearances; 35% for basketball appearances; very small increases for increased winning at liberal arts colleges.
Grimes & Chressanthis (1994)	Alumni contribution over 1962-91 for Mississippi State; controls for alumni base, enrollment, government appropriations, income	$200,000 increase for each 10% increase in winning percentage; $200,000 to $300,000 increase for TV appearances.
McCormick & Tinsley (1990)	Cross-sectional data on gifts per alumni over 1979-93 for Clemson U.; controls for tuition, regional characteristics of alumni/students, income, enrollment, agricultural employment, school expenditures, distance to Clemson.	10% increase in athletic booster donations associated with 5% increase in general contributions – no "crowding out".

Note: Adapted from "Effects of University Athletics on the University: A Review and Extension of Empirical Assessment" by Brian Goff. In Fizel, J., & Fort, R. (Eds.) 2004. *Economics of college sports* (pp.65-85). Connecticut: Praeger Publishers. p. 74.

External funding sources are critical to the survival of the small Kansas colleges and universities in this study. Further study and a deeper understanding of the relationships between athletics, public exposure and contribution behavior at small colleges and universities in lower division college athletic conferences like the NAIA is an important recommendation for research and practice.

This study illuminated a narrow view of a larger picture of the impact and use of collegiate athletics at small colleges and universities. This study focused on increased spending as an intervention to improve admissions application volume, positive admissions decisions and overall enrollment. The findings did support the hypotheses for both admission applications and admissions decisions and both improved. The findings did not support the hypothesis for overall enrollment growth; it did not improve across the post-spending ten-year study. In reviewing the results and the data, it was evident that additional spending had a positive influence upon both the application and admissions trend in the offset data sets in the post-spending ten-year study. Those institutions who exhibited consistent spending behavior saw the most improvement in each of the three variables across time. Given that, it seemed likely that the Conference would have realized a significant total gain if all members had implemented spending at the same level for the same duration of time.

A recommendation for further study includes investigating how the increased athletic funding was used; i.e. did the college fund scholarships, for whom and how much; did the college fund additional junior varsity/practice squads; were the dollars focused on specific sport teams; were the dollars focused upon gender equity; were dollars used to add assistant coaches or allow for the hire of higher caliber head

coaches; were the dollars used to improve team performance, or to be more competitive at the conference, regional or national level? As aggregate spending and enrollment data was used for this study, specific spending decisions and their outcomes were not addressed. Studying these potential research questions may allow for a better understanding of how to leverage limited funding for improved outcomes in the future.

For practitioners, additional institutional research in these areas would create opportunities to compare related actions and assess resulting outcomes. For example, increases in scholarship funding could be assessed between student-athletes and non-student-athletes relative to retention and persistence. Increases in student activity opportunities could be assessed against increases in junior varsity/practice squad athletic activities for participation rates, return on investment and campus climate analyses. Such studies may provide insight and direction for strategic enrollment planning and budget discussions.

Additionally, this study focused on the athletic conference as an entity, admission applications, admissions and overall enrollment as dependent variables and athletic spending as the independent variable. An in-depth examination of the demographics of these variables is an additional recommendation for future study. For example, in-depth analysis of gender differences, race and ethnic background differences, geography of the applicant pool, ACT/SAT scores of incoming students, and retention rates of student-athletes would provide a comprehensive view of how increased investments in athletics affect various stakeholder groups of prospective students and provide additional data for decision-making.

For practitioners, this line of investigation offers some critical insight into strategic enrollment, recruitment and admissions strategy. There are no shortage of companies in the higher education marketplace providing predictive analytics and other enrollment enhancement programs and services. By engaging a service or utilizing campus resources, the utilization and analysis of institutional data to create student enrollment and behavior profiles that can be studied and extrapolated into predictive models that inform recruitment and retention strategies is a necessary tool in today's competitive marketplace.

Only a handful of studies focused on small college athletics and few focused on institutions that made up the membership of the NAIA. Recommendations for further study include a deeper review of the fiscal and academic outcomes of these small colleges with significant investments in college athletic programs. Aside from encouraging the NAIA to make its outcome data fully accessible, additional research in the areas of enrollment, admissions, and fiscal investment could and should be conducted on the associations 200+ member institutions with other available data sets including the EADA data used in this study.

With greater access to longitudinal data sets, a final recommendation calls for additional research on increased athletic expenditures and their long-term effect on small college viability. Criticism of Orzag and Orzag's (2005a) study on NCAA athletics noted that the study period was too short to allow the full effect of the athletic investment to manifest itself. Currently, the EADA federal data set covers 15 years of data from all institutions receiving federal Title IV funds and sponsoring a collegiate athletic program. Given the explosion of significant investments in facilities and

programs (Beene, 2010; Feezell, 2009; Kelderman, 2008; Miller & Fennell, 2015; Sander, 2008; Schachner, 2012;) over the last decade by small colleges, research addressing the return on investment of these initiatives as well as their overall impact on student enrollment, retention and institutional stability will provide critical information for senior administrators facing increasing complex organizational strategy and survival decisions in today's higher education marketplace.

Table 7.5.2: Athletic Spending as a Percentage of Total Institutional Budget

	Benchmark				Policy Application					Post Policy Application				
Institution	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Bethany College	15%	8%	21%	18%	18%	19%	19%	20%	29%	37%	61%	70%	48%	57%
Bethel College	7%	7%	11%	12%	13%	13%	12%	15%	17%	17%	22%	21%	20%	20%
Friends University	6%	7%	8%	7%	8%	8%	9%	9%	9%	9%	10%	13%	12%	14%
Kansas Wesleyan Univ.	10%	9%	21%	22%	18%	15%	13%	15%	15%	16%	17%	19%	22%	31%
McPherson College	4%	9%	15%	11%	12%	17%	13%	18%	17%	22%	39%	21%	21%	19%
Ottawa University	6%	3%	8^	6%	7%	7%	7%	6%	8%	10%	11%	13%	16%	19%
Southwestern College	5%	5%	8%	9%	9%	9%	8%	9%	11%	12%	11%	12%	10%	14%
Sterling College	6%	8%	19%	33%	32%	30%	32%	33%	31%	20%	26%	25%	30%	27%
Tabor College	12%	16%	19%	18%	17%	19%	20%	35%	28%	26%	27%	29%	30%	33%
Univ. of Saint Mary	3%	2%	7%	8%	8%	9%	8%	7%	9%	7%	9%	8%	9%	10%

NOTE: Data retrieved from IPEDS, U.S. Department of Education

Conclusion

In 2005, presidents at ten small, private institutions and members of the Kansas Collegiate Athletic Conference (KCAC) of the National Association of Intercollegiate Athletics (NAIA) embarked on an enrollment strategy that included the collective additional investment in athletic programming at their institutions. This study, deploying a quantitative, multiphase methodology, examined the effects of this strategy upon admission applications, admissions decisions and overall enrollment at these institutions over a ten-year span of time. The results showed there was an increase in number of admission applications received across the conference as a result of increased athletic spending over time (measured by the offset calculation). The results showed there was an increase in admissions decisions across the conference as a result of increased athletic spending over time (measured by the offset calculation). Both results were statistically significant. However, the results showed there was no significant increase in overall enrollment across the conference as a result of increased spending over time (measured by the offset calculation). This result was statistically significant.

The NAIA, in its institutional membership recruitment material, noted the Association's 5-year growth pattern for student-athlete participation is 21 percent (NAIA, 2017). Their statistical analysis included data from more than 200 member institutions. In this study, the KCAC, a group of ten institutions saw more applicants and more admissions but no improved overall enrollment trends over a 10-year period during which increased fiscal resources were focused upon athletics.

Continuing to divert fiscal resources to increased athletic programming is a complicated decision with a plethora of consequences for today's small colleges and

universities. As with any complex institutional decision, evidence should be gathered, analysis completed and options considered. This study offered evidence for small college and university leaders weighing funding decisions related to collegiate athletics and the intersection of admissions and enrollment.

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Appendix A: Regression Results for Application Analysis

Results of Regression Analysis for Number of Applications per Dollar of Athletic Spending per Student

	M	SD	df	r	F	R^2
Benchmark Trend						
Per Student Athletic Spending	$2,074.10	$1,272.27				
Applications in Same Years	557.88	188.10	39	.011[NS]	0.005[NS]	
Application in Offset Years	579.10	217.01	39	.247[NS]	2.476[NS]	
Post Spending/Application Trend						
Per Student Athletic Spending	$3,319.62	$1,594.45				
Applications in Same Years	639.24	337.03	49	.333*	5.975*	.111
Applications in Offset Years	652.52	322.13	49	.334*	6.007*	.111
Exploratory Trend						
Per Student Athletic Spending	$5,474.40	$3,236.58				
Applications in Same Years	705.04	265.16	49	.247	3.899[NS]	
Applications in Offset Years	763.16	298.25	49	.385**	8.351*	.148

Note: [NS] is Non Significant, * is $p<.05$, ** is $p<.01$

Appendix B: Regression Results for Admissions Analysis

Results of Regression Analysis for Number of Admissions per Dollar of Athletic Spending per Student

	M	SD	df	r	F	R^2
Benchmark Trend						
Per Student Athletic Spending	$2,074.10	$1,272.27				
Admissions in Same Years	368.70	116.87	39	-.019[NS]	0.014[NS]	
Admissions in Offset Years	380.60	131.15	39	.333*	4.742*	.111
Post Spending/Application Trend						
Per Student Athletic Spending	$3,319.62	$1,594.45				
Admissions in Same Years	437.10	215.18	49	.300*	4.735*	.090
Admissions in Offset Years	441.44	202.99	49	.288*	4.357*	.083
Exploratory Trend						
Per Student Athletic Spending	$5,474.40	$3,236.58				
Admissions in Same Years	444.26	192.01	49	.425**	10.600**	.181
Admissions in Offset Years	464.88	207.41	49	.517***	17.480***	.267

Note: [NS] is Non Significant, * is $p<.05$, ** is $p<.01$, *** is $p<.001$

Appendix C: Regression Results for Overall Enrollment Analysis

Results of Regression Analysis for Overall Undergraduate Enrollment per Dollar of Athletic Spending per Student

	M	SD	df	r	F	R^2
Benchmark Trend						
Per Student Athletic Spending	$2,074.10	$1,272.27				
UG Enrollment in Same Years	799.82	580.71	39	-.428**	8.537*	.182
UG Enrollment in Offset Years	1,367.02	1,350.27	39	.428**	8.512*	.183
Post Spending/Application Trend						
Per Student Athletic Spending	$3,319.62	$1,594.45				
UG Enrollment in Same Years	855.78	517.37	49	-.637***	32.840***	.406
UG Enrollment in Offset Years	867.32	497.47	49	-.634***	32.310***	.406
Exploratory Trend						
Per Student Athletic Spending	$5,474.40	$3,236.58				
UG Enrollment in Same Years	829.24	351.83	49	-.552***	21.020***	.305
UG Enrollment in Offset Years	811.20	309.35	49	-.535***	19.290***	.287

Note: [NS] is Non Significant, * is $p<.05$, ** is $p<.01$, *** is $p<.001$