

Running head: PARTICIPATION INTENSITY AND BREADTH

A QUANTITATIVE ANALYSIS OF HIGH SCHOOL SPORTS PARTICIPATION  
INTENSITY AND BREADTH: RELATIONSHIPS WITH ACADEMIC  
ACHIEVEMENT IN A RURAL MISSOURI HIGH SCHOOL

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A Dissertation

Presented to

the Faculty of the Graduate School  
at the University of Missouri-Columbia

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In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

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by

CHAD M. LANG

Dr. Timothy J. Wall, Dissertation Supervisor

MAY, 2018

# PARTICIPATION INTENSITY AND BREADTH

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PARTICIPATION INTENSITY AND BREADTH

The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

A QUANTITATIVE ANALYSIS OF ATHLETIC PARTICIPATION INTENSITY  
AND BREADTH: RELATIONSHIPS WITH ACADEMIC ACHIEVEMENT IN A  
RURAL MISSOURI HIGH SCHOOL

Presented by Chad M. Lang a candidate for the degree of doctor  
of education and hereby certify that, in their opinion, is worthy  
of acceptance.

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## PARTICIPATION INTENSITY AND BREADTH

### DEDICATIONS

I would like to begin my dedications, by first recognizing my wife, Ericka. You have been both my greatest supporter and toughest critic through the doctoral student process. Your organization, grit, and compassion are a few of your numerous traits I admire. Your ability to balance being a consummate professional while also being a great mother, friend, and spouse is a characteristic I hold in the highest regard. Thank you Ericka.

To my children, Landon and Lauren. God's blessings come in pairs, and on January 6th, 2012, your introduction to my life proved that credo true. In my actions and words I hope to be an example and inspiration for you. I am so proud of who you are, and I cannot wait to see the people you become. I love you.

To both sets of parents, my biological parents David and Kathy, and my parents-in-law, Tim and Cindy. You have contributed to my life more than you will ever know, but the commonalities between you all focus on family, unselfishness, and being a good person. I admire you all for that and thank you for your guidance and inspiration. I love you all.

To my sister, Heather. The toughest human being I have ever known. Your grit and determination to live everyday should serve as a model for each and every one of us. You have taught me so many things, but more than anything to cherish each day. Focus on the positive and wonderful things in life, one day at a time. Never give up.

To my grandparents, William and Marilyn and Paul and Shirley. The formative years spent with my grandparents constitute much of who I am today. The value of hard

## PARTICIPATION INTENSITY AND BREADTH

work, family time, and celebration coupled with undivided love and attention will not be forgotten. I love you all dearly.

To my friends and coworkers. Your examples of support and professionalism exhibited to me both prior and during the doctoral student process was unwavering.

Thank you for understanding when I was not always there, and helping me when I was.

## PARTICIPATION INTENSITY AND BREADTH

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PARTICIPATION INTENSITY AND BREADTH

TABLE OF CONTENTS

ACKNOWLEDGEMENTS..... ii

LIST OF TABLES ..... viii

LIST OF FIGURES ..... ix

ABSTRACT.....x

Section

1. INTRODUCTION TO THE DISSERTATION-IN-PRACTICE ..... 1

Background of the Study ..... 1

Statement of the Problem..... 3

    Problem of Practice..... 3

    Existing Gap in Literature..... 6

Purpose of the Study ..... 6

Research Questions ..... 9

Conceptual Framework..... 10

    Social Bond Theory ..... 10

    Key Pillars..... 13

        The history of ESA sports in United States ..... 13

## PARTICIPATION INTENSITY AND BREADTH

Multisport participation trends of high school-aged athletes in the United States .....	14
History of assessment and achievement in United States K-12 schools.....	15
Design of the Study.....	16
Setting .....	16
Participants.....	17
Data Collection Tools .....	19
Defining extracurricular activities .....	19
Measuring participation .....	19
Measuring academic achievement .....	21
Demographics .....	24
Data Analysis.....	25
Limitations .....	27
Assumptions.....	29
Delimitations.....	31
Design Controls .....	31
Definitions of Key Terms .....	33
Significance of the Study.....	35
Practice.....	35
School programming and offerings .....	35
Supporting education-based interscholastic athletic organizations. ....	36
Literature.....	36

PARTICIPATION INTENSITY AND BREADTH

Sports participation intensity and breadth related to academic achievement.....36

Multisport interscholastic participation in a rural community.....38

Summary.....40

2. PRACTITIONER SETTING FOR THE STUDY .....42

History of Organization .....42

    Lanlaur High School .....42

        Lanlaur extracurricular activities .....44

    Missouri High School Activities Association (MSHSAA) .....46

Organizational Analysis.....48

    Structural Frame.....49

        Lanlaur High School .....49

        Missouri High School Activities Association.....50

    Political Frame .....51

    Human Resources Frame .....53

    Symbolic Frame .....54

Leadership Analysis.....54

    Traits Approach .....55

    Situational Approach .....56

    Adaptive Approach .....57

Implications for Research in the Practitioner Setting .....58

    Social Bond Theory .....58

    Extracurricular School Activities and Financial Considerations .....58

## PARTICIPATION INTENSITY AND BREADTH

Summary .....	59
3. SCHOLARLY REVIEW FOR THE STUDY .....	60
Review of Extant Literature .....	62
Defining Extracurricular Activities.....	63
Relationship between ESA Participation and Developmental Outcomes.....	64
Academics.....	65
Delinquency and behavior .....	66
Theoretical Framework and Key Pillars .....	67
Theoretical frameworks in ESA research .....	67
Social Bond Theory .....	68
Key Pillars .....	69
The history of high school athletics in United States.....	70
Multisport participation trends of high school-aged athletes in the United States.....	71
History of assessment and achievement in United States K-12 schools .....	74
Summary .....	80
4. CONTRIBUTION TO PRACTICE.....	82
A Quantitative Analysis of High School Sports Participation Intensity and Breadth: the Relationship to Academic Achievement.....	83
References.....	116

PARTICIPATION INTENSITY AND BREADTH

5. CONTRIBUTION TO SCHOLARSHIP .....123

    High School Sport Participation Intensity and Breadth: Relationships with Academic  
    Achievement in a Rural School Setting .....125

    References.....146

6. SCHOLARLY PRACTITIONER REFLECTION .....158

    Dissertation Process Influenced Practice as Educational Leader .....158

    Dissertation Process Influenced as a Scholar.....163

REFERENCES .....168

APPENDIX.....194

    IRB Approval.....194

    School district permission letter.....195

VITA .....196

PARTICIPATION INTENSITY AND BREADTH

**LIST OF TABLES**

TABLES

1. Table 1. Research Questions and Null Hypotheses .....9

2. Table 2. Lanlaur High School Participation Breadth 2015-2017 .....18

3. Table 3. Excerpt Sample of Operationalized Student Participation Intensity Data .....21

4. Table 4. Lanlaur High School Weighted and Non-Weighted GPA Scales.....24

5. Table 5. Summary of Analyses Used by Research Question.....27

**LIST OF FIGURES**

Figures

1. Figure 1. The Dual-Step Transfer Model.....	11
2. Figure 2. Application of Social Bond Theory to Extracurricular School Activities Participation and Academic achievement .....	13
3. Figure 3. Missouri ACT Results and High School Activity Breadth in 2015 .... .....	37
4. Figure 4. Lanlaur School District Organizational Chart.....	50
5. Figure 5. Missouri High School Activities Association (MSHSAA) Organizational Chart.....	51
6. Figure 6. Utilization of Social Bond Theory Elements on ESA Participation Outcomes .....	69
7. Figure A.1 IRB Approval .....	194
8. Figure A.2 School District Permission Letter.....	195

## PARTICIPATION INTENSITY AND BREADTH

### ABSTRACT

The purpose of this study was to address the gap in research related to whether measures of participation (intensity and breadth) demonstrated a relationship with academic achievement for 11th grade student athletes ( $N=128$ ) in a rural Missouri high school. Recent research found high school-aged students in interscholastic activities were less likely to be multisport athletes than in previous decades. This decrease in multisport participation has occurred within the context of United States participation trends which demonstrated overall participation increases from 1989 to 2017 (Bell et al., 2016; Howard, 2017; Jayanthi, Pinkham, Dugas, Patrick, & LaBella, 2013; Moore, Murphey, Bandy, & Cooper, 2014). Since increased connectivity to school via extracurricular school activities (ESAs) enhances social bonds associated with positive academic and behavioral outcomes, a reduction in participation intensity and/or breadth may exhibit deleterious effects to the academic and social development students experience in the school setting (Crosnoe, 2002; Eccles & Gootman, 2002; Hirschi, 1969). Anonymous athletic participation and achievement data from 2015-2017 was obtained from the school's archive and analyzed by correlation, hierarchical regression, and one-way ANOVA. Data derived from statistical analyses demonstrated two themes regarding sport participation, ACT, and grade-point average (GPA): a) Intensity demonstrated no statistical or practical significance to student achievement measured by ACT; however intensity of participation did share a statistically significant relationship to cumulative GPA ( $p < .05$ ) and b) an ANOVA analysis demonstrated statistically significant differences in breadth and GPA ( $p < .01$ ) between one sport athletes and three sport athletes. Three sport athletes had statistically significantly higher GPAs than one

## PARTICIPATION INTENSITY AND BREADTH

sport athletes and practically significant higher GPAs than two sport athletes. Utilizing these results suggested practical considerations for rural school administrators considering both the number of ESA sport offerings and the academic benefits ESAs multisport participation provide. Future research on ESA sport, activity, and non-activity participation related to academic outcomes is justified.

**Keywords:** multisport, academic achievement, social bonds, extracurricular activities

**SECTION ONE**

**INTRODUCTION TO THE DISSERTATION-IN-PRACTICE**

**Background of the Study**

In the United States, overall participation in interscholastic athletics has increased for 28 consecutive years (Howard, 2017). During the same time, participation in out-of-school structured activities for students ages 12-17 also experienced an overall increase (Moore, Murphey, Bandy, & Cooper, 2014). This increase, while beneficial for socialization, development, and overall health, can come at the expense of other positive undertakings such as academic achievement (Coleman, 1961; Marsh, 1992; Marsh & Kleitman, 2002). Further complicating the matter, the demand of time, rigor, and pressure related to high school academics has also proportionately increased for students (Tavani & Losh, 2003). Students and parents alike are presented with a paradoxical conundrum. How does a 21st century student experience positive social and developmental outcomes while being physically and mentally healthy without detracting from the necessary time required to be successful academically? The researcher attempted to supplement the gap in extant research regarding activities participation intensity, breadth, and academic achievement.

This study was important in the context of multisport interscholastic participation and academic achievement. The study evaluated intensity and breadth of high school sport participation as juxtaposed to academic achievement measured by the ACT composite and GPA of rural Missouri 11th grade high school students at Lanlaur High School (pseudonym). It attempted to build upon previous research about extracurricular ESA participation research in the area of academic achievement and contribute to recent

## A QUANTITATIVE ANALYSIS

research regarding the over-scheduling hypothesis (Coleman, 1961; Fredricks, 2012; Mahoney & Vest, 2012). The study attempted to assess whether a threshold intensity and/or breadth of participation exhibited a curvilinear relationship for Lanlaur 11th graders in relationship to their ACT and GPA achievement. Additionally, this study helped to address a gap in the literature regarding different activities and their effects in different school contexts and populations (Heers, Van Klaveren, Groot, & Maassen van den Brink, 2016).

Sports participation by adolescents has increased globally, nationally, and in Missouri in late 20th and early 21st centuries. The infusion of sports into popular culture has been fueled by globalization of technology, social media, and professional league commercialization (Gould, 2016; Nixon, 2015; Sitkowski, 2008). Internationally popular sports, such as soccer and basketball, have professional leagues and players emulated by youth worldwide, spurring further growth. International events, such as the World Cup in soccer and the Olympic games, encourage participation due to extensive coverage through media. Comparing sports participation of adolescents internationally can be challenging due to contextual constraints. Outside of the United States and Canada, team and individual sport participation is chiefly a non-school endeavor, structured through local and regional private clubs. While the popularity of club sports for adolescents is increasingly popular in the United States, it has not surpassed the association of sports in schools. Club sports participation in other world regions, such as with European Union member countries, does mimic USA sports participation rates in the United States (Myer et al., 2015; van Bottenburg, Rijnen, & van Sterkenburg, 2005). Due to the contextual differences of sports participation of adolescents in the United States in school versus

## A QUANTITATIVE ANALYSIS

non-school participants around the world comparisons regarding academic achievement and correlation to participation intensity and breadth cannot be made.

The nature of organized sport in the United States for high school students is at an impasse. On one hand, schools urge students to participate in as many activities as possible in order to provide the most holistic developmental learning experience possible, while at the same time societal pressures exist to specialize in specific activities in order to win championships, garner elite status, and earn college scholarships (Bell et. al, 2016; Feeley, Agel, & LaPrade, 2016; Luthar & Sexton, 2004). For an increasing amount of United States students placating to societal pressures which include a rigorous academic schedule, students participate in less variety of activities or specialize in one (Haddix, 2016). The modern generation of athlete grew up with youth prodigies specializing in order to reach elite status as amateurs. Tiger Woods in golf, Michael Phelps in swimming, and Venus and Serena Williams in tennis, were examples who changed the success equation for high school athletes in the 21st century (Coakley, 2010; Myer et al., 2015; Smith, 2015).

### **Statement of the Problem**

#### **Problem of Practice**

The problem in practice is high school-aged students participating in interscholastic activities are less likely to be a multisport interscholastic athletes than in previous decades (Bell et al., 2016; Jayanthi, Pinkham, Dugas, Patrick, & LaBella, 2013; Moore et al., 2014). Since increased connectivity to school through extracurricular activities enhances belief, commitment, attachment, and involvement associated with positive academic and behavioral outcomes; a reduction in participation intensity and/or

## A QUANTITATIVE ANALYSIS

breadth may exhibit deleterious effects to the academic and social development students experience in the school setting (Crosnoe, 2002; Eccles & Gootman, 2002; Hirschi, 1969).

A corollary problem associated with decreased school athletic participation is the likelihood for school districts to reduce or remove athletic programs. A reduction in interest for school sports requires school district to assess the value of their expenditures. Budget constraints are a primary reason for reducing school extracurricular activity offerings (Kelepolo, 2011; Stearns & Glennie, 2010). This practice is particularly problematic for students from low socioeconomic backgrounds likely to only participate in competitive athletics via school offerings compared to out-of-school activities; especially in a rural setting (Bell et al., 2016; Moore et al., 2014). Therefore a problem of equity was identified by the researcher in this study.

The era of youth and adolescent sports participation has experienced a rise of privatization and commercialization (Baker, Cobley, & Fraser-Thomas, 2009; Coakley, 2010). Where youth sports was once limited to local clubs, YMCA leagues, and community intramurals; it now includes competitive and specialized teams participating nationwide (Coakley, 2010; Gould, 2016). The competitive and specialized environment comes at increased financial and time commitment for families, further reducing opportunity for equitable participation. Children and teenagers in sports sought specialization as a conduit to a college scholarships as well as experienced pressure from parents who desire to enhance chances of securing admissions from elite colleges (Cote, 1999; Luthar & Sexton, 2004; Mahoney, Harris & Eccles, 2006)

## A QUANTITATIVE ANALYSIS

Furthermore, reducing opportunities for multisport ESA participation can facilitate an engagement gap in schools regarding inequity in a broader context due as budget cuts reducing programs and the increased prevalence of pay-to-play fees schools are imposing (Gould, 2016; Lumpkin & Favor, 2012; Neely & Vaquera, 2017; Snellman, Silva, Frederick, & Putnam, 2015; Stearns & Glennie, 2010). Pay-to-play trends disproportionately affected low-income and non-traditional families who cannot afford to participate in extracurricular activities outside of the school setting or pay a fee to play inside the school setting. In 2016, of the 51% of adults 25 and older who have children between ages 6-17 that played school sports; 47% reported fee increases and only 25% saw a decrease (Physical Activity Council, 2017). The increased popularity in club sports and outside of school sports participation teams further exacerbated the impact socioeconomic disparities played on participation. According to The Aspen Project's Project Play: State of Play 2016 report, for United States students age 13-17 from homes with less than \$25,000, 27.5% participate. The gap widens between those students from homes with \$100,000 or more in income, where 45% participate. "In today's youth sports landscape, those who have the greatest opportunity to continue playing into adolescence are those who can afford the club teams, training, and equipment required to advance through the system" (pp. 3, The Aspen Institute: Project Play, 2016). Schools, in many instances, are the only low-cost or free opportunity for high school-aged students to participate in ESA sports for youth in the for-profit era (Coakley, 2010). The trend in sport has migrated from providing access to sport to rather limiting access through both explicit and implicit financial constraints.

## A QUANTITATIVE ANALYSIS

### **Existing Gap in Literature**

While literature from prior research in this area demonstrated relationships between academic achievement and ESA participation versus non-participation, this study aimed to look at the intensity and breadth of those participating in high school ESA interscholastic sports. The bulk of previous research commonly identified participation in a binary manner, with little investigation of intensity, frequency, or breadth (Eime, Young, Harvey, Charity, & Payne, 2013). While some researchers have analyzed current concerns with “overscheduling” hypotheses, current trends in participation intensity primarily relate to sports. Previous studies of rural extracurricular participation, such as Watkins (2004), identified mean GPA differences for males and females, but categorized students into non-participants, sports only, co-curricular only, and both sports and co-curricular participants. Efforts to mitigate and control for the self-selection factors in previous research that distorted differences between participation and non-participation were identified. Potential selection bias variables were utilized to help address the likelihood that academically inclined students participated in ESAs at a higher rate (Fredericks & Eccles, 2006; Shulruf, 2010). The most common methodology utilized to address for selection issues was introducing control variables into multivariate analyses (Lipscomb, 2007; Videon & Videon, 2002). The gap in the literature was whether intensity and/or breadth of participation (level of multisport participation) in a given year shared a relationship to academic achievement, specifically in rural school settings.

### **Purpose of the Study**

The purpose of this study was to identify if a relationship existed between ESA sports participation and academic achievement in a rural high school when considering

## A QUANTITATIVE ANALYSIS

the intensity and breadth of sport participation in a given school year. Nearly six decades of research regarding participation versus non-participation in ESAs has produced a litany of cross-sectional and longitudinal data to suggest a positive relationship for academic achievement existed for ESA participants (Broh, 2002; Camp, 1990; Eccles & Barber, 1999; Frederick & Eccles, 2006; Melnick, Sabo, & Vanfossen, 1992).

The researcher hypothesized a positive relationship for ACT test, a standardized college entrance examination covering English, Mathematics, Reading, and Science scores, and GPA as ESA sport participation was measured by intensity (total hours per year) and breadth (number of sports) in the 11th grade school year. Cooper, Valentine, Nye, and Lindsay (1999) found that intensity of extracurricular participation was positively correlated with achievement test scores, therefore the researcher selected the ACT as a proxy for academic achievement test score. McNeal (1998) identified relationships where students with higher standardized test scores were more likely to participate in ESAs, except athletics. Further research was needed to test the linear assumptions of the correlation between high school students' academic achievement and school sport ESA participation intensity and breadth. In addition, research is necessary to assess the presence of thresholds in ESA sport participation related to the law of diminishing returns on ACT achievement and GPA. In doing so, the researcher would be directly assessing the over-scheduling hypothesis outlined by previous researchers (Fredericks, 2012; Mahoney & Vest, 2012).

The researcher hypothesized that ESA involvement intensity and breadth in interscholastic sports through an entire school calendar year increased the social bonds, accountability, and peer status therefore making them more connected to peers and

## A QUANTITATIVE ANALYSIS

academic expectations (Broh, 2002; Silliker & Quirk, 1997; Whitley, 1999). These hypotheses were in alignment with developmental theory as well as literature on social and capital models within schools (Broh, 2002; Eccles and Gootman, 2002; Feldman & Matjasko, 2005; Marsh & Kleitman, 2002).

The context of school is central to ESA participant effects as it provided an academic setting where student-athletes maintain contact with the school environment and coaches, unlike some out of school opportunities (Darling, Caldwell, & Smith, 2005; Finn, 1989). Students who were more involved in an activity setting were more supervised, had deeper interactions with adults and peers, and were less likely to be involved in negative developmental experiences (Bohnert, Fredricks, & Randall, 2010; Fredericks & Eccles, 2005; Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996)).

Lastly, the study addressed a gap in ESA sport research related to academic achievement on standardized tests. There has been little research to address cognitive ability, and more specifically test score gains for older adolescents participating in ESAs (Morris, 2012).

**Research Questions**

Table 1

*Research Questions and Null Hypotheses*

Research Question	Null Hypothesis
1. What are the descriptive summary statistics for the study participants when disaggregated by gender, free/reduced lunch status, and minority status and dependent academic variables?	
2. Is there a relationship between high school sports participation intensity and ACT achievement at Lanlaur High School from 2015-2017?	H <sub>0</sub> 1: There is no correlation between high school sports participation intensity and ACT achievement at Lanlaur High School from 2015-2017.
3. Is there a relationship between high school sports participation intensity and GPA at Lanlaur High School from 2015-2017?	H <sub>0</sub> 2: There is no correlation between high school sports participation intensity and GPA at Lanlaur High School from 2015-2017.
4. Was there a statistically significant relationship between minority status, gender, free/reduced lunch status, previous academic ability, sport participation intensity, and GPA at Lanlaur High School from 2015-2017?	H <sub>0</sub> 3: There is no statistically significant relationship between sport participation intensity and GPA when previous academic ability is used as a covariate.
5. Is there a statistically significant difference between sport participation breadth and GPA at Lanlaur High School from 2015-2017?	H <sub>0</sub> 4: There is no statistically significant difference between sport participation breadth and GPA at Lanlaur High School from 2015-2017.

*Note.* ACT = (formerly American College Test); GPA (cumulative grade point average)

### **Conceptual Framework**

The desire for known relationships related to academic achievement is of adequate merit, but can be enhanced in research by framing the sociological phenomenon through specific lenses. Identifying theoretical frameworks helps to make sense of the observed and potentially predict future outcomes related to data or findings (Yamauchi, Ponte, Ratliffe, & Traynor, 2017). The researcher utilized the social bond theory with integrated concepts from social and cultural capital as well as the dual-transfer model conceptualized by Bradley and Conway (2016).

#### **Social Bond Theory**

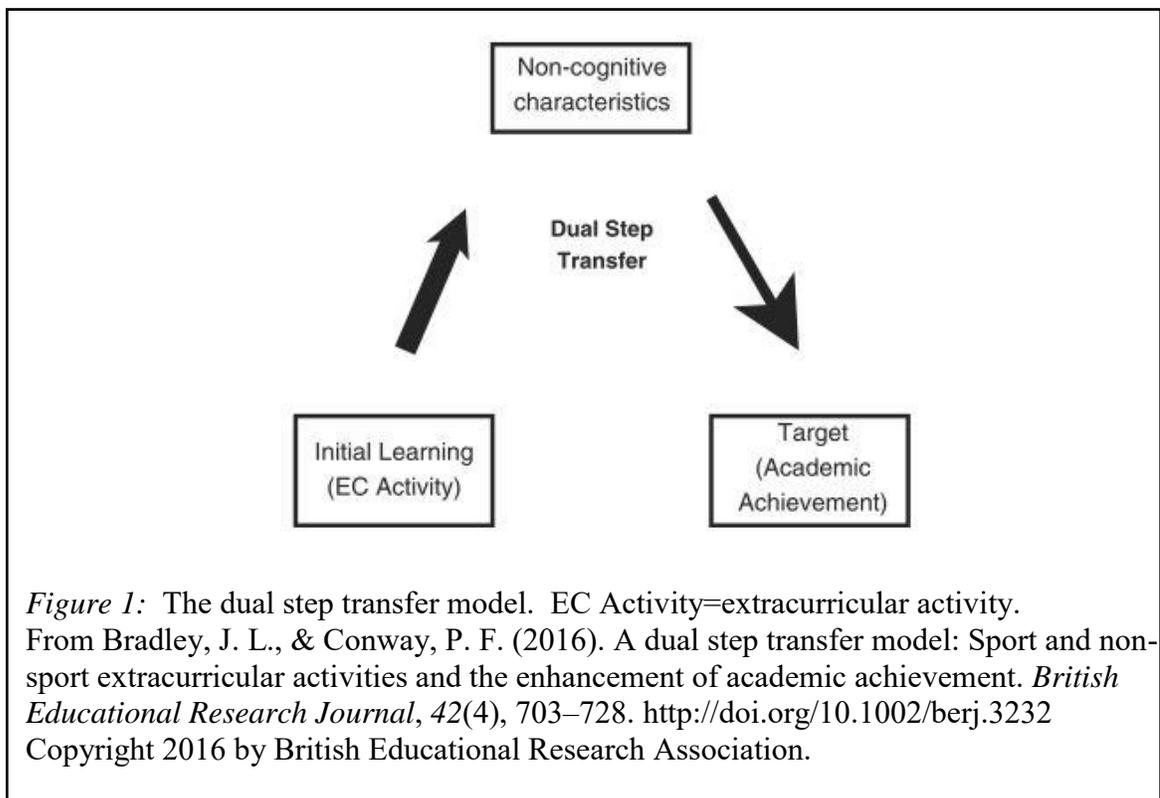
ESA sport participation and involvement can be viewed through a variety of frameworks and lenses dependent upon the analysis sought, however the social bond theory initially introduced by Hirschi in *Causes of Delinquency* (1969) best identified how ESA sports could be viewed in relationship to the effects of participation intensity and academic achievement.

In recent research regarding ESAs and their relationships with school related outcomes such as attendance, discipline, participation, and academic achievement researchers have recognized the positive relationship participation had on improving the social and cultural connectivity students have with their respective school communities (Broh, 2002; Coleman, 1961; DiMaggio, 1982; Mahoney et al., 2006; Marsh & Kleitman, 2002; Putnam, 1995; Rehberg, 1969). The increased connectivity of students to schools through sports fostered a positive culture and consequently, increased academic achievement for racial, socioeconomic, and gender sub-groups (Melnick et al., 1992; Neely & Vaquera, 2017; Snyder & Spreitzer, 1990). Social bonds are relevant in school

## A QUANTITATIVE ANALYSIS

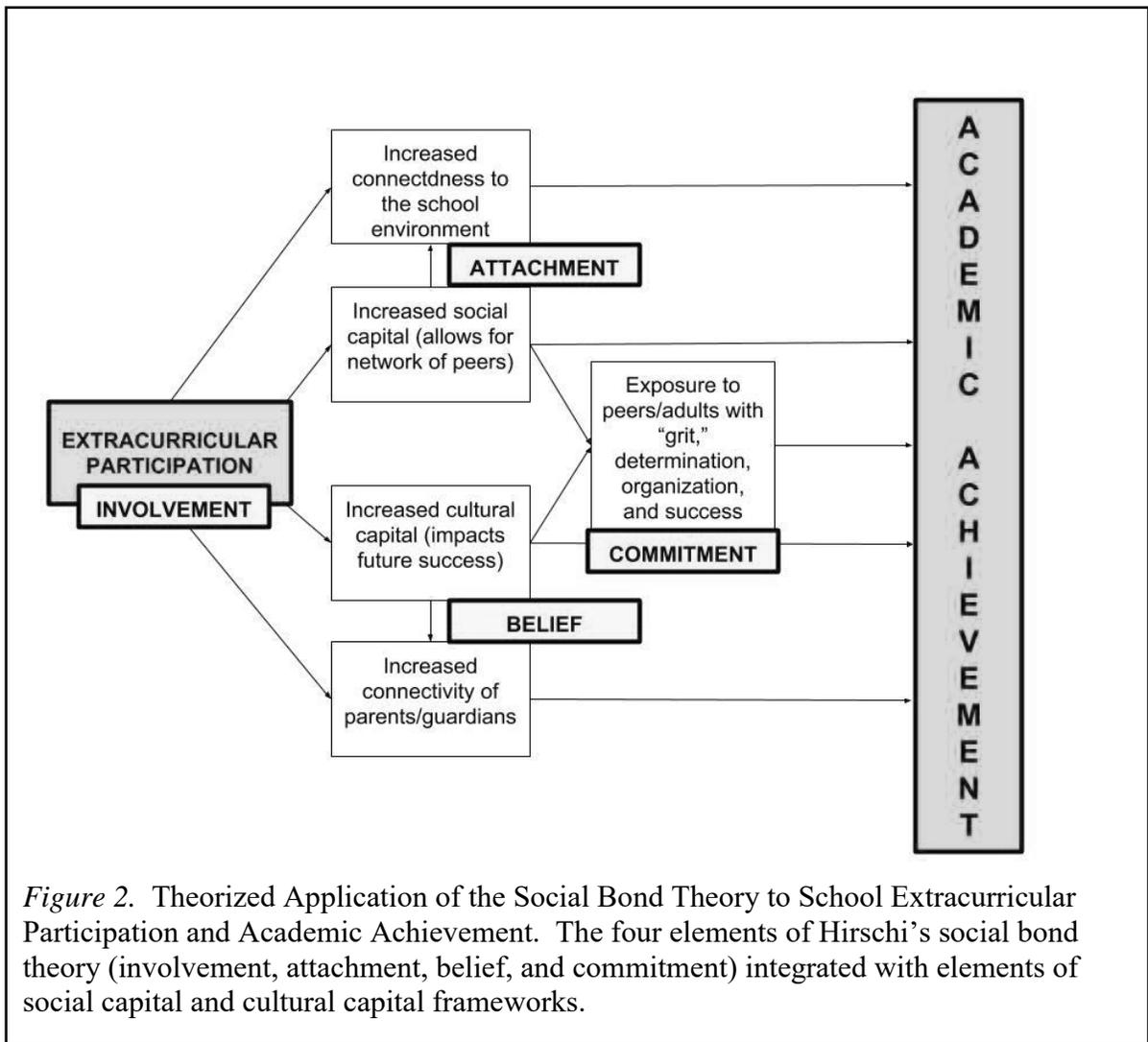
settings because students are presented with a variety of opportunities to learn from and associate with peers and adults who either participate in or lead ESAs.

Hirschi's social bond theory is centered on the concept of social bonds individuals form within institutions, such as schools. The social bonds are categorized into four primary dimensions: (a) attachment, (b) commitment, (c) involvement, and (d) belief (Neely & Vaquera, 2017; Peguero, Ovink, & Li, 2015). While attachment and commitment are tangentially related to ESA participation, involvement was directly related to ESA participation. Bradley and Conway (2016) contextualized the transfer of non-cognitive characteristics and life skill attributes developed in sports to academic outcomes. Bradley and Conway's (2016) dual-step transfer model in Figure 1 demonstrated how sports participation facilitated non-cognitive skills related to academic achievement.



## A QUANTITATIVE ANALYSIS

Furthermore, research suggested ESA participation is positive because it substituted participation in an ESA activity for unstructured time reducing delinquent behaviors (Denault, Poulin, & Pedersen, 2009; Neely & Vaquera; Osgood et al., 1996). The social bonds created in high school athletics are unique at a rural school setting such as Lanlaur High School. Due to a limited teaching staff size, most teachers are also coaches of one or more high school sports. This allowed for increased bonding between formally trained professionals both inside the classroom and in the context of coaching a high school sport. Moderate participation in ESAs with subsequent coaches has been noted to increase a sense of belonging to school and therefore enhance attachment and achievement (Knifsend & Graham, 2012). Since most school coaches hail from the education profession the confluence of teaching and coaching with education in mind are merged in the athletics context. 21st century school coaches were more likely to be trained to view ESA sport participation through an asset-promotion paradigm versus the classical deficit-reduction paradigm; which might aim to reduce drug or alcohol use by teens (Forneris, Camiré, & Williamson, 2015). The shift in approach over recent decades was known as the positive youth development (PYD) paradigm (Bradley & Conway, 2017; Forneris et al., 2015). Furthermore, increased peer bonds are created as students participate in differing sports opportunities with a diverse set of participants on each sports team expanding their social network and capital.



*Figure 2.* Theorized Application of the Social Bond Theory to School Extracurricular Participation and Academic Achievement. The four elements of Hirschi’s social bond theory (involvement, attachment, belief, and commitment) integrated with elements of social capital and cultural capital frameworks.

**Key Pillars**

The key pillars for this study are the history of ESA sports in the United States, multisport high school sports participation trends of high school-aged athletes, and assessment and achievement in United States high schools.

**The history of ESA sports in schools in the United States.** Athletics have been conducted in conjunction with the school environment in the United States since the late 19th century with the goal of aiding in the development of both character and physical fitness (Pruter, 2013). The integration of extracurricular activities in schools have thrived and grown exponentially in the twentieth century due to popularization of ESA activities,

## A QUANTITATIVE ANALYSIS

the urbanization of the United States, and growth of youth organizations (Sitkowski, 2008). In 1972, sports participation experienced a significant increase in participation particularly with females, as Title IX of the Educational Amendments to the 1964 Civil Rights Act was enacted by Congress. This statute required federally funded institutions to provide equal participation opportunities for both genders (Stevenson, 2010). While critics of sports participation have introduced concerns with zero-sum effects and over-scheduling issues; the general consensus in the extant research on the relationship of sports participation as an ESA in education was positive (Coleman, 1961; Shulruf, 2010).

**Multisport participation trends of high school-aged athletes in the United States.** Schools have encouraged multisport participation for the numerous benefits it provided to the physical and mental health of their students. The literature stated consistent growth in the numbers of participating students has risen along with the variety of offerings schools provided; the issue of multisport participation was more unclear. Measurement of multisport participation is difficult through existing literature because the variety of ways in which extracurricular activities were measured by definition (Bartkus, Nemelka, Nemelka, & Gardner, 2012).

While the prosperity of post-World War II America led to an increase in opportunities for school sport it also celebrated versatility (Smith, 2015). The well-rounded theme in American sports culture was prominent until the 1990s with the emergence of specialized youth sports celebrities. It was evident through research in the 21st century that the prevalence in privatized, club-oriented non-school sports was on the rise (Coakley, 2010; Smith, 2015; Wagner, Jones, & Riepenhoff, 2010). Privatized environments in the United States have commonly been AAU basketball, traveling team

## A QUANTITATIVE ANALYSIS

baseball, club swimming, CYSO soccer, Pop Warner football, and numerous other entities. This can lead to a desire to specialize in less sports and potentially reduce the diversity of social bonds a student made through education based athletics participation.

### **History of assessment and achievement in United States' K-12 schools.**

Assessment and achievement in United States public schools has a deeply rooted tradition that can be traced to the mid-19th century where educators were attempting to standardize and become more efficient in the assessment of curricular standards.

Advancements in technology related to scoring standardized assessments along with the political motivations to increase the rigor and minimum competencies of United States students also fueled the integration of standardized assessment in public education.

A harsh critique by the National Commission on Excellence in Education in 1983 with the release of the report, *A Nation at Risk: The Imperative for Educational Reform*, inspired a modern generation of increased federal guidelines for high-stakes testing to assess school accountability of educational achievement (United States, 1983). No Child Left Behind (NCLB), Race to the Top (RTT), and Every Student Succeeds Act (ESSA) were examples of 21st century federal statutes attempting to address school accountability of educational achievement (Fritzberg, 2004; Huddleston & Rockwell, 2015). While the deployment and utilization continued to be a controversial issue in American politics, the necessity for standardized assessment within state and federal guidelines still remained in the early 21st century American education landscape.

Achievement measurement of students in United States schools has a storied history that often borrowed from university settings. Dating back to the late 1780s Yale University attempted to utilize adjectives to report the achievement of their students

## A QUANTITATIVE ANALYSIS

(Smallwood, 1935). By the turn of the 20th century colleges and universities developed a gamut of achievement measures, scales, and marks to indicate the achievement of students. The increase of primary and secondary school students by way of compulsory education laws created a demand for efficient and standard ways for students and parents to make sense of achievement measures (Huddleston & Rockwell, 2015; Schneider & Hutt, 2013). The adoption of criterion-referenced grading scales and the grade point average (GPA) became commonplace, and although often lamented for validity and reliability issues, GPA measures are still used to some extent in nearly all public and private United States secondary schools.

### **Design of the Study**

This study utilized a quantitative methodology through the analysis of a three-year cross-sectional dataset of 11th grade high school extracurricular school activity (ESA) sport participation records and academic achievement. The design was considered quasi-experimental design because participants were selected without random group assignment (Creswell, 2014). ESA sport intensity and breadth was utilized over out-of-school participation because research suggested a strong relationship to academic achievement for school sponsored activities while research for out-of-school was mixed (Gerber, 1996; Jordan & Nettles, 1999).

### **Setting**

Lanlaur High School is a public rural 9-12 high school in Northwest Missouri with an enrollment ranging from 348-380 students. High school enrollment was variable for Lanlaur High School because of fluidity in enrollment within a school year and across the three year cross-section of 2015-2017. Lanlaur High School was a rural school

## A QUANTITATIVE ANALYSIS

district located adjacent to a major Missouri metropolitan statistical area. The high school enrolled students from both in and outside of city limits within district boundaries.

### **Participants**

The participants of the study were 11th grade students for three academic school years at Lanlaur High School from 2015-2017. The total student population for 11th grade students over the three year cross-section was 298 students. However the population who participated in high school athletics for this study was 128 students ( $N=128$ ). The percent of Lanlaur High School students eligible for free and reduced lunch (FRL) rates under the National School Lunch Act were 14% free and 6% reduced (U.S. News & World Report, 2017). The sample had 112 non-FRL students and 16 FRL students. FRL status was used as a proxy for socioeconomic status in this study. Gender classification breakdown varied annually during the three year cross-section, but ranged between 48-52% male and 48-52% female from 2015-2017. The three-year cohort sample gender breakdown was 77 males and 51 females. The high school was considered homogenous in race/ethnicity as more than 95% of Lanlaur High School were white non-Hispanic students (National Center for Education Statistics, 2017). The 11th grade athlete participant sample had 122 students who identified as white non-Hispanic and six students who identified as a minority student. GPA was relevant for ESA activities in which Lanlaur High School registered as a Missouri High School Activities Association (MSHSAA) sport and thus required individual students to meet bona fide eligible student requirements in academics. While MSHSAA does not require a minimum GPA to participate it does set the minimum academic standard for eligibility requiring 80% of credits successfully earned in the semester prior to participation

## A QUANTITATIVE ANALYSIS

(Missouri High School Activities Association, 2017a). The prior GPA for the sample ranged from 1.20 to 4.33 ( $M = 3.43$ ,  $SD = 0.725$ ), the post-11th grade GPA ranged from 1.42-4.33 ( $M = 3.47$ ,  $SD = 0.711$ ), and the ACT composite ranged from 10 to 33 ( $M = 21.1$ ,  $SD = 4.90$ ).

The range hours of intensity for a Lanlaur High School athletes participating as an 11th grader from 2015-2017 was 112 to 640 total hours ( $M = 315.3$ ,  $SD = 148.22$ ).

Breadth of sports participation at Lanlaur High School ranged from one to three sports participated in per academic school year was disaggregated by sport in Table 2.

Table 2

*Lanlaur High School Participation Breadth 2015-2017 (N = 128)*

	<i>n</i>	Percentage
One sport	49	38.3
Two sports	58	45.3
Three Sports	21	16.4

*Note.* Sport participation indicates sports participated per academic school year per athlete.

Eleventh grade students were chosen for this study for two reasons. First, by the end of the 11th grade school all Missouri 11th graders from 2015-2017 had one or more recorded ACT composite score(s) with Lanlaur High School unless it was determined as not required to under disability conditions set forth by the Missouri Department of Elementary and Secondary Education. Second, the 11th grade year was a critical year for planning, preparing, and applying for post high school career plans making success by this year paramount in pursuing future plans (Feller, 2003). Furthermore, in regards to multisport participation previous research indicated specialization was more prevalent as students progressed through high school (Post, Thein-Nissenbaum, Stiffler, Brooks, & Bell, 2017).

## A QUANTITATIVE ANALYSIS

### **Data Collection Tools**

Anonymous student data at one Missouri high school for the 2014-2015, 2015-16, and 2016-17 school years was compiled by highest ACT score earned in academic history (Lanlaur High School administrator, personal communication, October, 30, 2017). Gender, GPA prior to 11th grade, post 11th grade GPA, minority status, and free/reduced lunch status were provided by the high school counselor. Identifying self-selection and mediating factors followed the methodology similar to Lumpkin and Favor (2012) and Yeung (2015). The ESA sport participation information was accessed in an archival manner for each cohort year for all 11th grade sport participants entered in the Missouri High School Activities Association (MSHSAA) eligibility rosters for Lanlaur High School.

**Defining extracurricular activities.** Historically, defining extracurricular activities in a consistent manner was challenging. Bartkus et al.'s (2012) literature review addressed the issue regarding lack of formal definition for extracurricular activities by proposing the following definition:

Extracurricular activities are defined as academic or non-academic activities that are conducted under the auspices of the school but occur outside of normal classroom time and are not part of the curriculum. Additionally, extracurricular activities do not involve a grade or academic credit and participation is optional on the part of the student (pp. 698).

The subcategory of sports within ESAs was chosen at Lanlaur High School because their participation was limited to extracurricular time commitments outside of the required school day. The high school sports offered at the high school level and

## A QUANTITATIVE ANALYSIS

included by the researcher in the analysis were: football, girls golf, volleyball, softball, boys and girls cross country, boys and girls basketball, wrestling, boys and girls track, baseball, and boys golf. Non-sport ESAs at Lanlaur such as chorus and band subscribed to Missouri High School Activities Association by-laws and competitions, but were co-curricular because they met both during the school day and outside the school day. Sideline cheer at Lanlaur high school was a MSHSAA registered activity, but not considered a sport in the MSHSAA by-laws nor a co-curricular activity because none of the instruction or contact occurred during the school day. Measuring intensity of co-curricular participation compared to extracurricular activities would be incompatible due to their hybrid nature (Bartkus et. al, 2012; Lunenberg & Ornstein, 2008)

**Measuring participation.** Participation in extracurricular activities is typically measured through intensity and breadth (Denault et al., 2009). While both intensity and breadth are common measures utilized in research, rarely are they both studied simultaneously (Rose-Krasnor, Busseri, Willoughby, and Chalmers, 2006). Since intensity and breadth are highly correlated, this study opted to utilize both measures of participation measurement to test for differences student achievement outcomes (Knifsend & Graham, 2012; Neely & Vaquera, 2017; Rose-Krasnor et al., 2006). Busseri, Rose-Krasnor, Willoughby, & Chalmers (2006) recognized that involvement in a variety of types of extracurricular activities may have differing developmental outcomes for students and therefore, the researcher inquired to apply similar logic to academic outcomes.

*Intensity.* Intensity was operationalized by calculating the total hours in sport for each academic school year resulting in a composite time spent figure. For example, if in

## A QUANTITATIVE ANALYSIS

a given year Student A participated in football, basketball, and boys' golf the researcher would add the archived season participation hours for each sport, and compute a final intensity (in hours) index figure. Table 2 denotes an example of how a participation intensity index figure was operationalized and calculated.

Table 3

*Excerpt sample of operationalized student participation intensity data*

Student ID #	Sport	Hours <sup>a</sup>	Sport	Hours <sup>a</sup>	Sport	Hours <sup>a</sup>	Total <sup>b</sup>
145654	Football	241	Basketball	262	Boys Golf	148	651

*Note.* Hours<sup>a</sup> = represents total hours participating per season. Total<sup>b</sup> = represents total cumulative sports participation hours per student per academic year.

The operationalization of intensity was consistent with the design of Denault et al. (2009), in which researchers utilized a composite index in hours for each participant's total participation in a given year.

*Breadth.* While some researchers have defined breadth as the number of types or categories of ESA participation; this researcher, similar to Gerber (1996) contextualized breadth of participation by the total number sports participated in a given year (Eccles & Barber, 1999; Neely & Vaquera, 2017; Rose-Krasnor et al., 2006). Since this study was an inquiry related to multisport participation in a given year at Lanlaur High School, the range of breadth was from one to three.

**Measuring academic achievement.** Extant research has utilized GPA as a primary measure in evaluating the relationship between ESA participation and academic outcomes (Sitkowski, 2008; Watkins, 2004). However, modern critiques regarding the inconsistency of methods in determining academic viability from only one source, such as GPA, led the researcher to utilize two methods; GPA and ACT composite results

## A QUANTITATIVE ANALYSIS

(Moriana, Alcalá, Pino, & Ruiz, 2006). The utilization of both a localized derived student achievement measure (GPA) coupled with analysis of a nationally-normed standardized test (ACT) was more holistic and appropriate as differing measures of student achievement can explain different student characteristics (Kelepolo, 2011). GPA is a more subjective multidimensional achievement measure that includes a variety of student and teacher variables such as personality and motivation (Dickinson & Adelson, 2016; Jaramillo & Spector, 2004). The ACT aims to take a more objective approach by provide insight on college readiness and content knowledge (Marchetti, Wilson, & Dunham, 2015). Since most measures of academic achievement cannot be used in substitution for each other, the researcher included two different, but common United States measures in the analysis (Dickinson & Adelson, 2016).

*The ACT exam.* The ACT is standardized assessment measure of college readiness and academic achievement and therefore served as an independent proxy of academic achievement (Bettinger, Evans, & Pope, 2013). In Missouri, all 11th graders starting in the 2014-2015 school year as part of a required Missouri Department of Secondary Education, statute take the ACT exam in April of each school year (Helwig, 2014). Numerous students, including each year's cohort of 11th graders have taken the ACT prior to their 11th grade year or thereafter. This study identified the highest composite score for each student in a given cohort year because the highest ACT score is what was reported for school, scholarship, and post high-school purposes. The utilization of the ACT versus other measures of academic achievement, such as GPA, was unique because ACT was not a component of participation eligibility for Missouri High School Activities Association sports. In choosing ACT, the researcher aimed to avoid self-

## A QUANTITATIVE ANALYSIS

selection biases that have hindered past studies on ESA participation and academic achievement (Bohnert et al., 2010; Feldman & Matjasko, 2005; McNeal, 1995; Neely & Vaquera, 2017).

The ACT exam is a national assessment administered to high school students to evaluate their readiness for college (Marchetti et al., 2015). While the test consists of four components, English, Mathematics, Reading, and Science; the results are reported through a composite score ranging from 1-36. Colleges and university traditionally utilize ACT results as a way of evaluating admission as well as the awarding of scholarships. The popularity of the ACT has grown beyond its Midwestern origin and now rivals the SAT throughout the nation for college readiness evaluation and admissions (Farrell, 2006). Furthermore, the credibility of the ACT has grown to the extent in which states, including Missouri, have adopted the ACT as a component of official state assessments for evaluating school accountability.

*GPA (grade-point average)*. GPA is the primary way for K-12 high schools to demonstrate individual student achievement, and is one of the most studied variables in education (Kuncel, Credé, & Thomas, 2005; Watkins, 2004). It is a cumulative way to represent achievement in grading periods such as quarters or semesters as well as an overall career representation. Lanlaur High School utilized a weighted GPA system (see Table 4) in which certain college preparatory classes were weighted more significantly than the remainder of high school courses.

## A QUANTITATIVE ANALYSIS

Table 4

*Lanlaur High School Weighted and Non-Weighted GPA Scales*

	Weighted	Non-Weighted
A	5.0	4.0
B	4.0	3.0
C	3.0	2.0
D	2.0	1.0
F	1.0	0.0

The weighted GPA system created an opportunity to garner a cumulative GPA greater than the traditional top of the range (4.0), and was utilized to determine class rank, valedictorian, and salutatorian for graduation purposes.

### **Demographics**

Gender, previous academic ability (GPA), minority status, and free/reduced lunch status were collected and utilized as a way to control for other confounding variables to academic achievement and to better isolate the relationship of intensity and breadth of sports activities and academic achievement results; the dependent variable (Camp, 1990; Covay & Carbonaro, 2010; Feldman & Matjasko, 2005; Fredricks, 2006; Mahoney & Cairns, 1997; Marchetti et al., 2015; Whitley, 1999; Yeung, 2005). Additionally, these variables were utilized to attempt to better tease out the self-selection effects often associated with interscholastic sport participation and academic outcomes (Crosnoe, 2002). The confounding variables became covariates and produced data to identify individually or as a group how statistically significant they contributed to academic achievement. The tools utilized to collect the data were Microsoft Excel and Statistical Package for the Social Sciences (SPSS).

In order to maximize anonymity and utilize ethical data practices for research involving individual student assessment data and participation the researcher relied upon

## A QUANTITATIVE ANALYSIS

anonymization by the school counselor to convert student names to student identification numbers prior to export to the researcher (Punch, 2014).

### **Data Analysis**

The analysis of data was examined by correlation, hierarchical regression, and ANOVA analysis (Creswell, 2014; Field, 2013). The researcher analyzed this data with SPSS to generate descriptive statistics and quantitative results by way of correlation, hierarchical regression, and ANOVA (Field, 2013).

First, descriptive statistics were compiled and displayed for minority status, gender, cumulative participation hours (intensity), ACT composite results, previous academic ability (GPA), and post-11th grade cumulative GPA. The first analysis, a correlation, was conducted between participation intensity (cumulative hours per school year) and ACT composite results. The Pearson product-moment correlation coefficient was determined to assess statistical significance and strength of positive/negative correlation. The second analysis, a correlation, was conducted between participation intensity and cumulative GPA. Similar to the first correlation, the Pearson product-moment correlation coefficient was calculated to assess for both statistical significance and strength of positive/negative correlation.

Next, a hierarchical regression was employed in effort to determine whether a relationship existed between participation intensity and GPA when controlling for previous academic ability. The researcher utilized this analysis because measuring academic achievement and developmental outcomes involved many different interactions, including ESA sport participation (Bryk & Raudenbush, 1992; Feldman & Matjasko, 2005). In addition, recent research such as Neely & Vaquera (2017), called for

## A QUANTITATIVE ANALYSIS

future studies examining ESA sport participation and the social bond theory utilizing advanced hierarchical models. After checking for multicollinearity between independent variables, the variables were entered in two models of hierarchy. In the first model, a regression was run examining gender, FRL status, racial minority status, and prior academic achievement as independent variables and post-GPA as the dependent variable. In the second model, the previous independent variables were controlled for and ESA sport participation intensity was added. In doing so, the framework runs two regression analyses and attempts to isolate the significance of ESA sport participation intensity.

For the final research question the researcher utilized a one-way analysis of variance (ANOVA) to determine if a difference existed between breadth of sport participation and mean group GPA at Lanlaur High School from 2015-2017. Kelepolo (2011) and Lumpkin and Favor (2012) utilized similar ANOVA analyses when examining GPA differences and extracurricular participation data. Tukey post-hoc analysis was utilized to further examine significant interaction effects (Hill, 2010). The *a priori* significance level for all analyses was set up at the  $p = .05$  level.

## A QUANTITATIVE ANALYSIS

Table 5

*Summary of Analyses Used by Research Question*

Research Question	Analysis Strategy	Independent and Dependent Variables and Covariate	Data Visualization Strategy
1. Participant descriptive summary statistics	Frequencies		Histogram by minority status, gender, and FRL status
2. Sports participation related to ACT achievement	Correlation	IV: sports participation intensity DV: ACT composite scores	Scatterplot
3. Sports participation intensity related to GPA	Correlation	IV: Sports participation intensity DV: Cumulative GPA	Scatterplot
4. Relationships with cumulative GPA	Hierarchical regression	IV: Previous academic ability, sports participation intensity, gender, minority status, and FRL status DV: Cumulative GPA	Scatterplot
5. Difference between sport participation breadth and cumulative GPA	One-way ANOVA	IV: Breadth DV: Cumulative GPA	Bar chart

*Note.* FRL = Free/reduced lunch status; GPA=grade point average (cumulative); breadth = number of sports participated in given year

### Limitations

Limitations in this study were primarily related to the demographic and archival data available related to Lanlaur High School. The lack of minority status student population makes Lanlaur High School a predominantly homogenous population that

## A QUANTITATIVE ANALYSIS

does not allow for generalizability of results to other student populations in high schools throughout Missouri, other states, regions, or nations.

As a de facto policy expectation, Lanlaur High School athletic teams did not “cut” or conduct tryouts in order to reduce participation numbers. All participants, regardless of ability level or experience, were allowed to participate and were listed on the MSHSAA eligibility roster if they chose to participate. The procedure of Lanlaur High School increased the amount of participants listed on athletic eligibility rosters while also reducing the ability to make comparisons in participation intensity and ACT achievement in peer schools who may or may not invoke “cutting” policies for high school athletics participation. This type of limitation would be vital for future researchers interested in replicating this study (Creswell, 2005).

An additional limitation of this study was the availability of structured extracurricular participation data for Lanlaur High School students. Lanlaur High School, not unlike most high schools, maintains no records of non-school structured activities participation for their students. Examples of structured non-school activities might include civic organizations, club or AAU sports teams, religious groups, etc. Participation in these structured non-school activities can be associated with positive school outcomes (Jordan & Nettles, 1999).

A final limitation of this study is related to self-selection, or selection bias, related to the voluntary nature of Lanlaur students choosing to participate in interscholastic athletics. Interscholastic athletes are not a random cross-section of the average high school student (Yeung, 2015). Additionally, in order to be eligible to participate in interscholastic athletics at Lanlaur High School students would need to be considered a

## A QUANTITATIVE ANALYSIS

bona fide student by the eligibility guidelines set forth by MSHSAA and Lanlaur High School. MSHSAA eligibility guidelines were set forth requiring students to meet minimum academic, behavioral, and residency guidelines in order to participate in interscholastic activities under the auspices of MSHSAA (Missouri High School Activities Association, 2017a).

Students who do well in school academically and behaviorally are often more likely to be motivated to participate in extracurricular activities (Fejgin, 1994; Fredericks & Eccles, 2006; McNeal, 1998; Rees & Sabia, 2010; Shulruf, 2010). The researcher attempted to utilize socio-demographic factors in order to attempt to control for self-selection factors similar to Denault et al. (2009), Stevenson (2010), and Videon and Videon (2002). Known socio-demographic indicators such as racial minority status, gender, and family income have been found to demonstrate relationship with ESA participation (Darling et al., 2005).

### **Assumptions**

The assumptions in this study focused primarily on interscholastic athletic participation. The participation intensity for 11th graders who were listed on participation rosters derived from archival data retrieved for that season and sport. Eligibility rosters were archived from the beginning of each season, not the end; therefore it was unknown whether the amount of student athletes who participated at the beginning of the season also completed the season. Obtaining participation data via the school's official eligibility rosters was deemed more reliable than previous studies' participation data collection techniques such as self-reporting and school yearbook analysis (Schoggen & Schoggen, 1988).

## A QUANTITATIVE ANALYSIS

The general participation for high school athletics in a rural school represented an approximate intensity rate per athlete. This was retrieved from archived information by team, and not individual which assumed all players regardless of ability or status participated in the same number of hours within the same sport and season. This study did not collect information on levels of participation such as varsity or sub-varsity teams. Furthermore, the researcher assumed the hours of interscholastic sports intensity and their relationships to developmental and academic outcomes were similar regardless of sport participation type. No delineation of individual or team sport participation was identified in this study.

A final assumption centered on the fidelity in which the student ACT scores were garnered, and the consistent opportunity for all Lanlaur students to generate increased cumulative GPAs. This study assumed that the highest ACT score achieved for a Lanlaur 11th grader reflected the actual academic ability of each student athlete, and their best effort was put forth in the conduction of the assessment. Since numerous Lanlaur 11th graders completed the ACT in 11th grade merely as Missouri state testing requirement from 2015-17 it is unknown whether individual best efforts were achieved; consequently resulting in potentially unreliable ACT composite results for student athletes.

In regards to cumulative GPA, this study assumed that all students had equal access and opportunity to enroll and complete weighted and advanced placement coursework that may have significant positive impacts on cumulative weighted GPA. Schools, such as Lanlaur High School, often include prerequisite coursework, benchmark testing, and recommendation to enroll in weighted coursework. Consequently, it was assumed all students had equal opportunity to meet such requirements if so desired.

## A QUANTITATIVE ANALYSIS

### **Delimitations**

The researcher delimited extracurricular activities to specifically identify intensity of participation in interscholastic sports. Extracurricular sports at Lanlaur High School were the only extracurricular activities registered under the auspices of MSHSAA by-laws that did not also receive instruction/direction during the school day. Co-curricular activities such as sideline cheer, band, and choir, therefore, were not included in this study due to the inability to compare extracurricular and co-curricular intensity participation with fidelity and validity.

Additionally, the researcher limited the cross section to three years as 2014-2017 were the only years in which the state of Missouri required the ACT for all 11th grade students. 11th grade data for ACT composite achievement and sports participation intensity prior to 2014 and post 2017 was not included because of threats to validity and self-selection biases.

### **Design Controls**

The researcher implemented a series of design controls in an attempt to narrow the focus of the inquiry. The researcher examined only 11th graders at Lanlaur High School who also participated in at least one interscholastic sport during their 11th grade school year. Foreign exchanged students at Lanlaur High School were arbitrarily designated to specific grade levels based on the education record from their sending school in their home country. They were excluded in this study because they were not required to take the ACT even though their technical designation was as an 11th grade student. Eleventh grade special education students who were exempt to the ACT requirement by the state Missouri were also not included in this study.

## A QUANTITATIVE ANALYSIS

Focusing research on 11th graders was done in order to target the specific inquiry into sports intensity for a student in the latter part of their high school career preparing for post high school education and employment placement where aptitude tests such as the ACT were most critical. Additionally, within the context of multisport participation the years preceding 11th grade (typically 13-15 years old) are commonly associated with a reduction in breadth of participation and increased intensity with one or two activities (Cote, 1999; Rose-Krasnor et al., 2006).

The researcher utilized ACT composite as one proxy for academic achievement in lieu of other standardized assessment indicators for standardization and validity purposes. While the ACT assessment comprised of four sub-sections (Math, Reading, Science, and English), the researcher followed a similar rationale as Rudick, Kellen, Sugarman, Lindstrom, & Johnson (2015) in only utilizing the composite score in order to simplify the analysis and garner a more holistic predictor value. A potential weakness of the ACT is the outcome is heavily related to family socioeconomic variables and the exam is coachable. Therefore if a student has more resources (both financially and culturally) they are prone to higher achievement regardless of high school environment (Fairtest: The National Center for Fair and Open Testing, 2007).

GPA as a measure of academic achievement, although prevalent in United States high schools, has been regarded with mixed results in research for its drawbacks related to consistency and validity as a standard measure across schools (Bucknavage & Worrell, 2005; Guest & Schneider, 2003; Geiser, Santelices, & University of California, Berkeley, Center for Studies in Higher Education, 2007; Leckholm & Cliffordson, 2008; Rudick et al., 2015). Although GPA has come under recent scrutiny when examining between

## A QUANTITATIVE ANALYSIS

school variances, it has been validated as measure of academic achievement characteristics such as college grades and as a predictor for standardized assessment achievement (Ramist, 1984).

### **Definitions of Key Terms**

Since this study utilized terminology from both the structured leisure activities research genre as well as K-12 measures of academic achievement, the following definition of terms is detailed for elucidation purposes.

*ACT (formerly American College Test).* A commonly used standardized test taken to assess high school achievement and college readiness.

*Breadth.* In the context of extracurricular participation refers to the total number of sports participated in within a given time frame; for this study, one academic year.

*Co-curricular activities.* A component of school activities in which students are instructed by school personnel both during and outside of the school day. Common examples are band, choir, and orchestra.

*Elementary and Secondary Education Act (ESEA).* A federal education law passed by the U.S. Congress in 1965 that focused on funding United States schools to help in the resource allocation and professional development of schools.

*ESA (extracurricular school activities).* Activities that are offered by the school in both athletics and activities that did not include participation outside of the school or sponsored by a school employee.

*Every Student Succeeds Act (ESSA).* A federal United States legislation passed in 2015 that replaced NCLB and reconstituted accountability evaluation of school achievement to the states.

## A QUANTITATIVE ANALYSIS

*Extracurricular activities.* Activities that encompass both co-curricular and school extracurricular activities including interscholastic sports and school clubs or intramural groups. Additionally, this definition would include community groups, clubs, teams, and organizations students are involved in.

*FRL (Free and reduced lunch).* A status self-reported by students' families when applying for financial assistance under the National School Lunch Program by the United States Department of Agriculture. The financial indicator is often utilized by researchers in schools as a proxy for socioeconomic status (Peguero, Ovink, & Li, 2015).

*GPA (grade point average).* A common calculation for secondary school students in which a grade for each course is given corresponding with a number. The calculation for the average is done by adding all of the total grade points divided by the total number of courses completed. For this study, GPA was cumulative, meaning the average for the career of the student thus far in their academic progress.

*Intensity.* As it refers to interscholastic sports participation, is a way of quantifying the amount of time spent in a given parameter. This is often measured by average hours per week or cumulative hours per season/year.

*MSHSAA (Missouri High School Activities Association).* The governing body for Missouri middle and high schools in regards to high school sports and activities.

*NFHS (National Federation of High Schools).* A national governing body for writing and regulating sports and activities rules and guidelines for state high activities associations.

## A QUANTITATIVE ANALYSIS

*No Child Left Behind (NCLB).* A United States federal law that amended the Elementary and Secondary Schools Act which required any school receiving federal funds to be held accountable for the educational achievement its students.

*Pay-to-play.* The policy of schools adopting a private organization model requiring participants to contribute monies for participation to offset the offering a school sport might financially sustain.

*SAT.* Originally known as the Scholastic Aptitude Test, it is a college entrance exam utilized by college and universities to aid in determining the readiness of applicants.

*Sport specialization.* Devoting the majority of one's structured leisure time towards specific skills mastery in one sport with the exclusion of others (Jayanthi et al., 2013). Sport specialization can occur in both in and out of school sport contexts.

### **Significance of the Study**

#### **Practice**

The significance of this study in professional practice was to examine relationships between sport participation intensity, breadth, and academic achievement as measured by ACT composite results and cumulative GPA. In an era of budget cuts where athletic programs and other structured ESAs are under constant review for financial savings, administrators and school boards were provided with supplemental evidence to aid in such decisions (McNeal, 1995).

**School programming.** The study influenced policy in ways that required school administrators to re-examine policies and procedures that were prohibitive to multisport participation. In addition, stakeholders were urged to consider other ethical and

## A QUANTITATIVE ANALYSIS

inclusionary procedures athletics may facilitate in the educational process. This study fostered a dialogue at state and local levels to assist in determining the appropriate system-wide expectations for athletic participation in sport ESAs in the high school setting.

**Supporting education-based interscholastic athletic organizations.** This study made a difference at the state level by aligning with the National Federation of State High School Associations (NFHS) and Missouri State High School Activities Association's most recent educational based activities theme, "Why we play" (MSHSAA, 2017). The initiative originated by Jody Redman in 2014 aim to aide athletic coaches in facilitating a more holistic approach to coaching education-based athletics (Doshan, 2015). The research strengthened the purpose and positive associations with education-based athletics in the school setting, which provided a more holistic and developmental approach to individual and team sports ("Explaining the difference," 2017).

### **Literature**

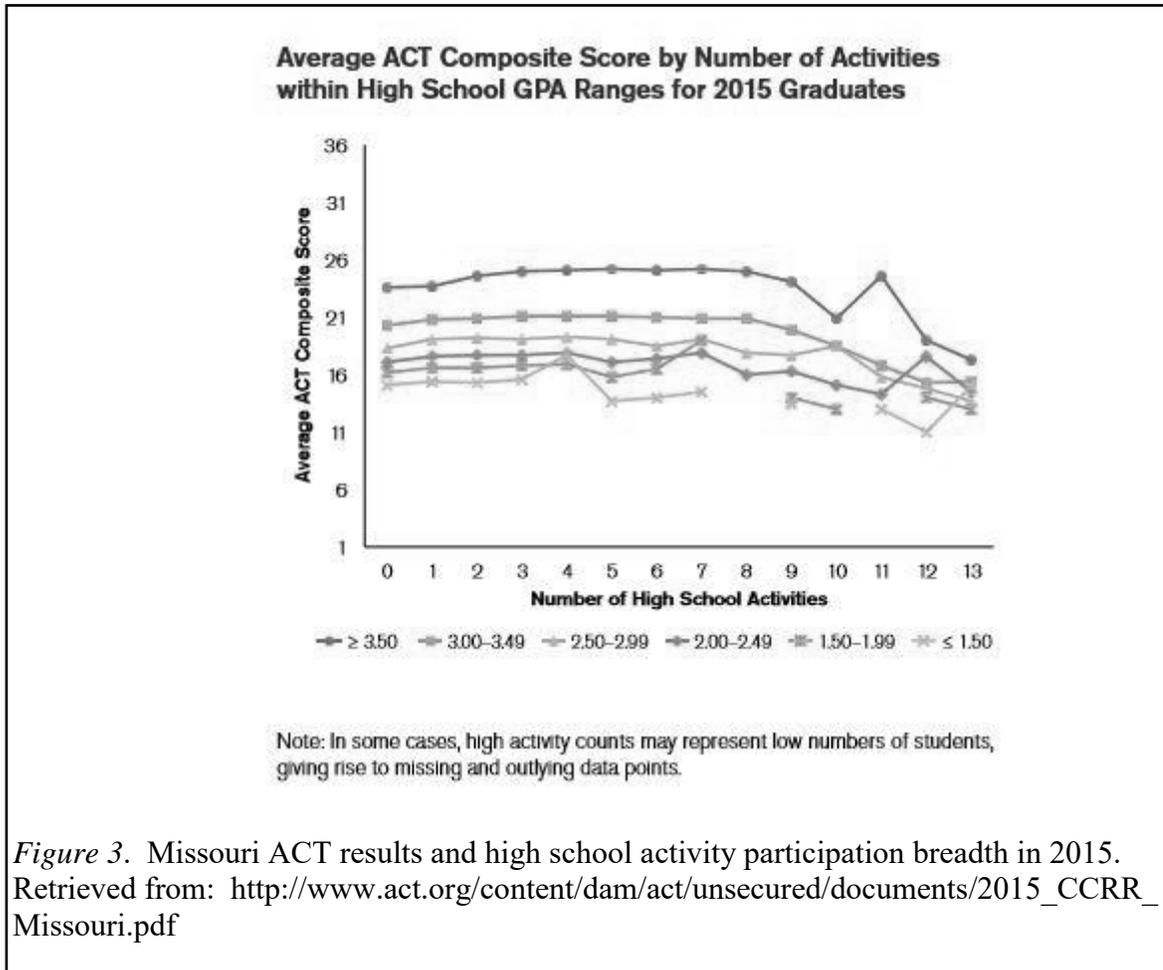
This research aimed to provide research to fill a void in literature regarding: 1) interscholastic sports participation intensity and breadth and their relationship to academic achievement and 2) multisport interscholastic participation in a rural community.

#### **Sports participation intensity and breadth related to academic achievement.**

Little academic achievement data for Missouri rural sport participants existed beyond the ACT College and Career Readiness Report Missouri in Figure 3 (ACT, 2015). This report conveyed all activities reported by Missouri test-takers collectively and did not differentiate between sports and other school activities. The researcher deemed further

## A QUANTITATIVE ANALYSIS

research was necessary to examine relationship differences in specifically interscholastic sports participation intensity and breadth with relationship to academic achievement. Finally, the researcher contributed to literature regarding the existence of high school sports participation intensity and breadth thresholds and relationships to academic outcomes.



Since the 1960s researcher have attempted to examine the relationships extracurricular and co-curricular activities had on student outcomes. Researchers have identified positive associations with extracurricular participation in sports, music, clubs, organizations, and numerous other school-sponsored organizations related to student outcomes (Eccles & Barber, 1999; Feldman & Matjasko, 2005; Fredericks & Eccles,

## A QUANTITATIVE ANALYSIS

2006; Shulruf, 2010). The positive effects associated with participation were in academic achievement, improved attendance, improved behavior and less delinquency, increased graduation rates, and increased success beyond high school.

**Multisport interscholastic participation in a rural community.** While the majority of past research focused on ESA participants versus non-ESA participants, research in the 2000s began to contextualize the amount of participation by both breadth (number of activities) and intensity (time in activities) (Denault et al, 2009; Fredericks, 2012; Griffin, 1998; Rose-Krasnor et al., 2006). Furthermore, researchers have often categorized extracurricular school activities to include all school sponsored teams or groups, and less often delineated differences and relationships between athletics, activities, and non-school sponsored activities (Bartkus et al., 2012). Additionally, limited research outside of Neely and Vaquera (2017) aimed to differentiate between urban and rural differences related to intensity of participation.

Prior research includes little evidence regarding the impact of locale or geographic setting on multisport participation and developmental outcomes (Crosnoe & Johnson, 2011; Petrin, Schafft, & Meece, 2014; Stearns & Glennie, 2010). Studies indicated differences between urban and rural dichotomies. Rural schools are more likely to have athletes who participate in more than one sport (multisport athlete) than urban student athletes (Fejgin, 1994; Marsh, 1993; Videon & Videon, 2002). One study by Din (2005) found no real difference in rural athletes' pre-season grades versus post-season grades, but did not account for multisport participation and utilized course grades not standardized assessment scores.

## A QUANTITATIVE ANALYSIS

Since rural schools were historically less resource-rich, which included extracurricular activities, than urban counterparts; outcomes for low socioeconomic status students was more profound than in urban environments (Schoggen & Schoggen, 1988). The researcher intended to fill a void in the literature regarding the criticality of social bonds community and school stakeholders play in maintaining the viability of interscholastic sport offerings through multisport participation (Bell et al., 2016; Petrin et al., 2014)

The research is expected to provide additional contributions to existing literature in the capacities of developing positive associations with high school sports participation and school achievement. Increased participation in high school sports has corollary effects that benefit the individual and school in additional ways such as increased attendance and reduced disciplinary infractions (Fejgin, 1994; Schafer & Armer, 1968; Silliker & Quirk, 1997; Snyder & Spreitzer, 1990; Whitley, 1999).

The increased stakes of standardized tests, such as the ACT, for both a measure of college and career readiness as well as an accountability measure for school districts made student success paramount for individuals and schools. High school sports participation research has documented positive corollary future attributes for students athletes such as college enrollment, levels of postsecondary education, and future earnings even when controlling for race, socioeconomic status, and other factors related to educational outcomes (Marsh & Kleitman, 2003; Shulruf, 2010; Snyder & Spreitzer, 1990). The statistically significant positive correlation which existed between intensity of participation and GPA as well as differences in breadth versus GPA will provide further assistance in school administration policies and procedures encouraging

## A QUANTITATIVE ANALYSIS

multisport participation and increase the likelihood of academic achievement and career success beyond high school.

### **Summary**

High school sports participation has increased nationally at the same time as overall ESA participation has increased. What is unknown is whether the increased amount of participation occurred in a multisport nature. The trend implies more students are participating in high school athletics but less are considered multisport athletes (Bell et al., 2016; Haddix, 2016; Jayanthi et. al, 2013; Moore et al., 2014). This may be due to increased societal pressures to attend higher education institutions on merits of athletics as much as academics. The increased demand of athletic scholarships and elite statuses, increased number of exemplars of specialized professional athletes, and the popularization of notions such as the 10,000 hour rule for excellence and expertise concept of Gladwell (2000) and Ericsson, Krampe, & Tesch-Römer (1993) fueled a desire for specialization in sport. These notions coupled with an increased likelihood of garnering a valuable athletic scholarship as college tuition increases have persisted in American education culture (Callender, 2010; Cote, 1999)

Due to increased rigor and graduation requirements, ushered in by accountability legislation in recent decades, questions emerged on whether high school students have time to be multisport participants (Fredricks, 2012; Mahoney & Vest, 2012). This conundrum lead researchers to examine the quintessential question regarding ESA participation: does participation intensity prevent time spent on academics or does the intensity of participation foster developmental skills needed to enhance academic achievement? More research was needed to complement the extant literature in this area.

## A QUANTITATIVE ANALYSIS

Additionally, the issue of multisport participation and academic achievement has ethical and inclusionary implications. Due to increased restraints on budgets schools are forced to reduce the variety of ESA offerings or cut them altogether (Darling et al., 2005). In lieu of cutting offerings, many schools have gone to a pay-to-play system which requires student fees for sports participated in. The pay-to-play system in school settings began to mirror the private club culture of sports specialization because it excluded those who may have the physical ability to participate, but lack the financial resources to do so.

The relationship that existed between ESA multisport participation and academic achievement aided in identifying increased methods for student participation as opposed to exclusionary methods. Furthermore, researchers found that beyond reducing overuse injuries due to specialization for more than one season per year; that increased intensity may have positive relationships with increased academic achievement (Busseri et al., 2006; Fredricks & Eccles, 2006).

## SECTION TWO

### PRACTITIONER SETTING FOR THE STUDY

The inclusion of extracurricular activities into the secondary school program can be dated back to the early 20th century in the United States (Kelepolo, 2011; Shropshire, 2007). While the organization of activities in school was rooted in loose associations with schools, the continued increase in popularity and connectedness to school organizations facilitated a steadfast integration into American school norms (Holland & Andre, 1987).

The widespread extracurricular school offerings throughout the state of Missouri created a void in which a consistent and thorough organization was needed to facilitate events, eligibility standards, and resources. The Missouri High School Activities Association (MSHSAA) was established in 1926 and has provided organization, structure, and guidance to member school districts since its inception.

The structural organization and leadership styles implemented by both Lanlaur School District and MSHSAA help to understand how extracurricular programs were offered, facilitated, and managed at both school district and state levels.

#### **History of Organization**

##### **Lanlaur High School**

The history of schools in Plymouth County (pseudonym) Missouri dated as far back as the ratification of the Missouri Constitution in 1820. The first constitution required counties within to develop one or more schools in each township (Roney, 1970). The Plymouth County area was populated intermittently with one-room schoolhouses until 1871 when the town of Lanlaur became incorporated along with the

## A QUANTITATIVE ANALYSIS

formation of the special school district (Roney, 1970). The first permanent Lanlaur school was built 1883. It was later added onto in 1915. While Lanlaur School District was never considered diverse in demographic profile of its students and teachers; it is of note that the town operated a segregated African-American school from 1883-1906 (Roney, 1970).

Central High School, as it would become known, operated as the secondary school in the Lanlaur School District until a larger school facility was constructed on the north side of town in 1958. The genesis for this site emerged nine years prior when ten acres was bought there for an athletic field. By this time Lanlaur had added an indoor gymnasium for basketball, a music department, and a completed stadium-field area (Hill, 1971). The northern site has been added onto numerous times since 1958 and as of 2017, was the site of both Lanlaur Middle and High Schools containing grades 5-12. The 2016 student enrollment of Lanlaur High School was 418 students while 2008 experienced Lanlaur High School's largest enrollment with 430 students. (Missouri Department of Elementary and Secondary Education, 2017).

Lanlaur High School a unique demographic and socioeconomic profile in relation to commensurate schools both regionally and classified by enrollment. The physical location of Lanlaur High School in western Plymouth County Missouri (pseudonym) in a town with a 2010 population of 2,473 would classify Lanlaur High School as a rural community (U.S. Census Bureau, 2010a). The U.S. Census Bureau (2010b) recognized a rural area by identifying any geographically delineated population that does not constitute an urban area (population of 50,000 people or more) or urban cluster (an area greater than 2,500 people but less than 50,000). The school community and surrounding county have

## A QUANTITATIVE ANALYSIS

much of its history in agriculture with nearly 47% of the county population living outside of incorporated areas (Community Policy Analysis Center, 2003). Lanlaur, Missouri, however is unique because of the town's proximity to a major metropolitan statistical area in that of Kansas City, Missouri. According to the U.S. Census Bureau Lanlaur School District would be considered rural-distant because it is not included inside of either an urban cluster (population greater than 2,500 but less than 50,000) or an urban area (population greater than 50,000) (Brenner, 2016). Residents of Lanlaur School District are less than 40 miles from the urban core of the Kansas City metropolitan statistical area (MSA), and less than one hour's drive to most major employers in the MSA. According to the Community Policy Analysis Center's 2003 report on Plymouth County's economic baseline data, Lanlaur High School resides in a county that is considered a commuter county with only 36 percent of its residents working in the county. Plymouth County continues to be made up of a hybrid geographical county with the western portion taking on the social and economic demographics of a bedroom community while the eastern portion of the county continuing to thrive on its rural roots for economic stability

**Lanlaur extracurricular activities.** By 1900 high schools throughout the United States were incorporating interscholastic athletics into education often by emulating the college environment (Shropshire, 2007). Since 1929 Lanlaur High School had offered organized interscholastic high school activities opportunities for its students. In 1937 Lanlaur School District purchased its first school buses allowing for improved attendance to school, increased enrollment, and increased opportunity to participate in extracurricular activities. An extensive review of school yearbooks at Lanlaur High

## A QUANTITATIVE ANALYSIS

School identified the 1940s bedrock era for high school athletics as boys basketball, boys track and field, and spring boys' softball regularly competed. The interwar period fostered the popularity of football in Lanlaur much like most other towns and cities in the United States. The popularity of football among World War I and World War II military members and veterans was promoted by the United States military as a source of entertainment and aggression release (Leonard, George, & Davis, 2016). As soldiers returned home from war so too did the popularity of professional and college football as it diffused to towns and schools. Football at Lanlaur High School started in 1946. As the years went on other interscholastic sports were added such as golf, cross country, and later volleyball. Female sport opportunities at Lanlaur High School grew in response to the passage of the Title IX of the Educational Amendments Act in 1972. Title IX, as it would become known, was federal law that prevented institutions receiving federal funds excluding individuals from participation based on sex (Stevenson, 2010). In practicality, this meant schools began to offer the same number or more female sports offerings as male offerings when appropriate. The implementation of Title IX increased extracurricular participation both at Lanlaur High School and nationwide.

The school's tradition of providing a holistic developmental education was evidenced by its current mission statement. The 2017 mission of Lanlaur High School was:

“To form a partnership with family, business, and community in order to provide a quality education in a safe, drug free environment that prepares students to be confident in their abilities, enthusiastic about their possibilities, and eager to engage life as contributing members of society (Lanlaur High School, 2017).

## A QUANTITATIVE ANALYSIS

Lanlaur utilized high school athletics as a significant supplemental avenue in which students were presented with the opportunity to participate in an activity that allowed for individual and team growth in which student-athletes developed a sense of accomplishment, pride, and connectedness to the school overarching mission.

As of 2017, Lanlaur High School offered nine MSHSAA sanctioned interscholastic sports teams to complement their educational offerings. Lanlaur also offered co-curricular activities in that of band and choir. Additionally, Lanlaur had extracurricular offerings in addition to sports and co-curricular activities that included scholar bowl, sideline cheerleading, color guard, drama, and various school sponsored clubs

### **Missouri High School Activities Association (MSHSAA)**

School extracurricular activities, games, and physical activity prior to 1900 was largely absent besides from what was organized by students (Keller, 1979). Lack of adequate transportation, inconsistent school structures, and a general absence of desire for activities inclusion accounted for the nonexistence of organized activities in schools prior to the turn of the 20th century. Since students were largely responsible for the growth and popularity of organizing athletic teams and contests, teams loosely coupled around a local school or town (Lee, 1983). Due to lack of resources and guidance equipment, rules, and records were sparse. Keller (1979) identified Missouri high school yearbooks in Kansas City in 1899 and Springfield in 1902 which discussed student athletic associations. In doing so researchers identified the existence of sport teams and competition by the turn of the 20th century in Missouri.

## A QUANTITATIVE ANALYSIS

The first decade of the 1900s in Missouri exhibited an increased popularity of athletics for secondary school-aged students and community members. State colleges and universities recognized the popularity and began hosting regional and state tournaments in sports such as track and basketball. As students from neighboring towns and cities arranged contests in sports such as baseball, basketball, and football the lack of organized rules, supervision, and consistency led to disagreements and often physical altercations (Keller, 1979). The negative events associated with early competitions were frequently reported by local press associating the often chaotic events with the schools and their respective leaders. School administrators who were concerned of their reputation began to organize eligibility guidelines internally in addition to creating leagues, conferences, and divisions that included schools in a geographic region. The desire to create conferences and divisions was both influenced by professional sports leagues, and by necessity for order amongst student teams. In some cases, district associations were created working with state universities to draw boundary lines, but that too was fraught with disagreements (Keller, 1979). Inconsistencies between leagues, conferences, divisions, associations, and Missouri universities by the 1920s fostered the genesis for the creation of a state athletic association. It was unclear who first suggested the creation of a state association in Missouri but it was recorded that Mr. Uel W. Lamkin, President of Northwest Missouri State Teachers College presented such a plan on September 12, 1925 (Keller, 1979). In November of 1925, five district representatives from Missouri colleges met in St. Louis to discuss drafting a constitution, and later at a constitutional convention in February of 1926, the Missouri High School Athletic Association was born. By the close of 1926, more than 472 Missouri high schools had

## A QUANTITATIVE ANALYSIS

joined (Keller, 1979). Since its inception, MSHSAA has grown in both scope and influence by adding music, sideline cheerleading, speech and debate, and junior high athletics under their regulatory umbrella. In addition, MSHSAA grew into a permanent executive office in Columbia, Missouri, where it houses a full executive staff to implement policies, provide resources to members, and conduct state championships and events under its own auspices (Missouri High School Activities Association, 2017a).

Lanlaur has competed as a member of MSHSAA since 1929 for an opportunity to advance in postseason play and state championship sporting events. As of 2017, Lanlaur High School competed in MSHSAA-sanctioned events in all nine athletic offerings as well as three activity offerings (band, choir, and scholar bowl).

### **Organizational Analysis**

The organizational analysis of a public school district was not as simple as a lay person might imagine. The conjecture of political players, the challenge in hiring and retaining the best employees, coupled with layers of legal guidelines and mandates complicated the school organization throughout the 20th century and into the 21st century. Perhaps the most holistic way to analyze an organization is through a variety of lenses or frames. Bolman and Deal (2013) offered four primary ways to frame organizations: (a) structural frame (b) political frame (c) human resources frame and (d) symbolic frame. These lenses or frames are ways in which different individuals may view or envision school organizations. Failure for school districts to understand frames puts them at risk of alienating or isolating stakeholders' needs and concerns.

## A QUANTITATIVE ANALYSIS

### **Structural Frame**

**Lanlaur High School.** The organizational structure of Lanlaur School District mirrored that of a typical K-12 public school system in Missouri and the United States, and is often what comes to mind when thinking of traditional hierarchical organizations. It was categorized as a bureaucratic hierarchical organization governed by a locally elected board in which an administrative team, often headed by a superintendent, were responsible for the carrying out of local, state, and national guidelines and statutes. Administrators utilized authority to lead specific buildings, typically designated by grade levels such as elementary, middle schools, and high schools (Lanlaur School District MSBA Online Policy, 2005a).

Lanlaur High School is guided by a building principal, one assistant principal, and one district athletic director. Since 2007, due to growing enrollment, the district activities director served additionally as middle school assistant principal and had offices in both middle and high school locations (Lanlaur High School administrator, personal communication, October 30, 2017). All interscholastic head coaches for teams in grades 7-12 were under the supervision and evaluation of the district activities director. The varsity head coaches of each sport were considered responsible for all aspects of their particular sports program from high school to middle school. The formal hierarchy of organizational structure at Lanlaur School district was in place to distribute occupational functions by following a chain of command.

The levels of organization are semi-autonomous at Lanlaur High School. This was particularly true for the district activities director and high school principal positions. The administrators in these positions operated in accordance to district

## A QUANTITATIVE ANALYSIS

guidelines and board policies. Implementation of policies and procedures were solely entrusted to the administrator in charge of their building and/or responsibility.

Advancements in technology such as cloud web-based data systems, e-mail, and voice-over-Internet-protocol (VOIP) phone systems led to a flatter decentralized and flexible structure at Lanlaur School District.

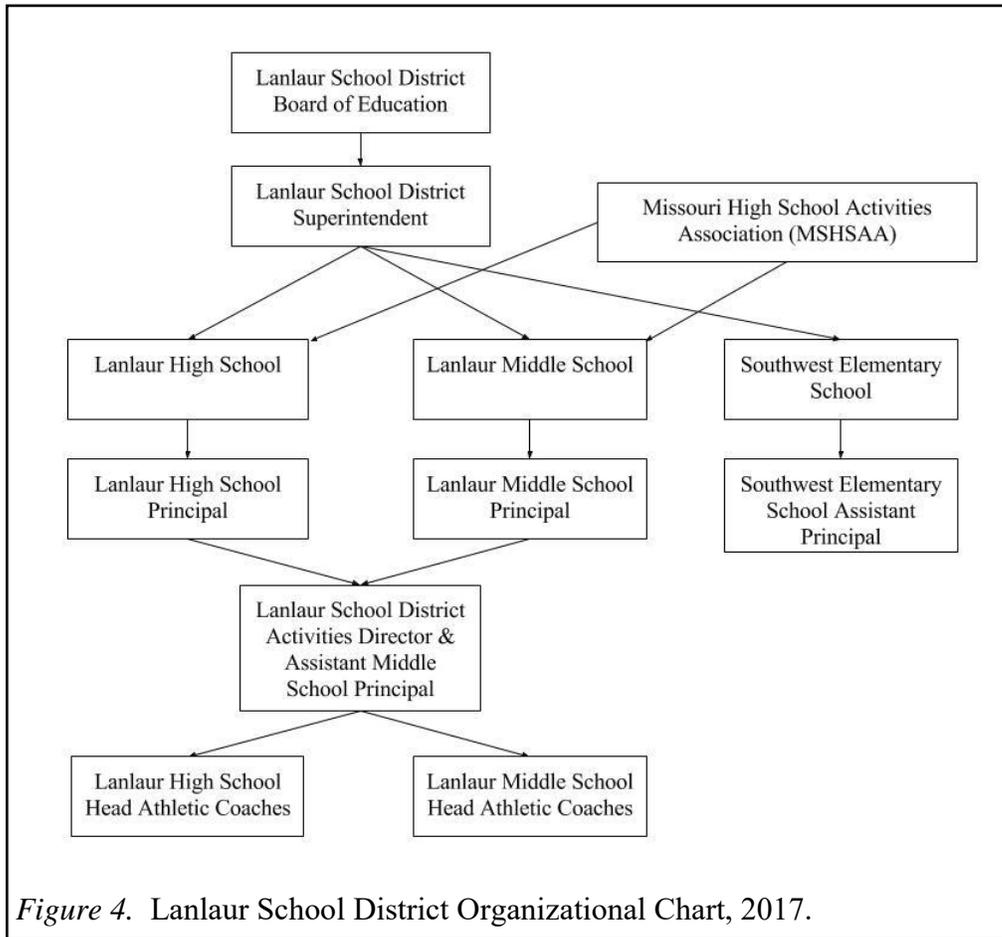
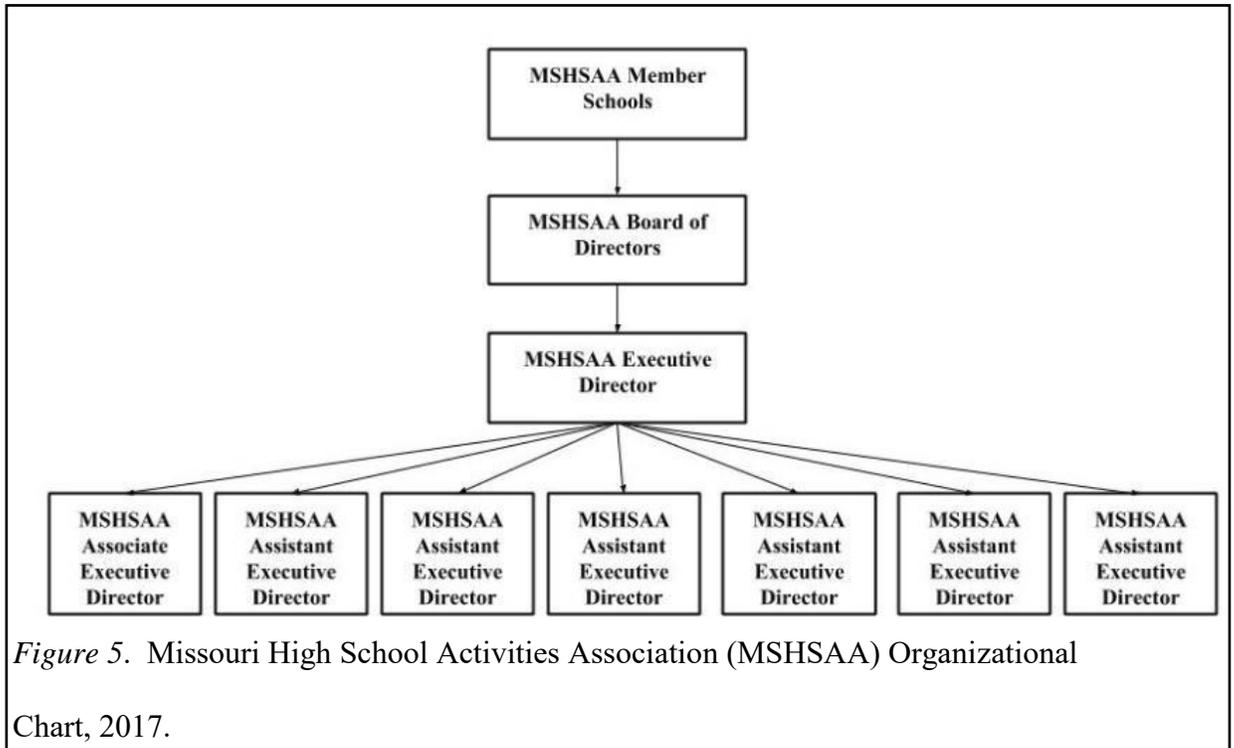


Figure 4. Lanlaur School District Organizational Chart, 2017.

**Missouri High School Activities Association.** Lanlaur Middle and High School were members of the Missouri High School Activities Association (MSHSAA). This organization was made of member schools from all geographic regions of Missouri. MSHSAA member schools elect regional board of directors to serve terms on the board, and vote annually to add or revise previous by-laws. MSHSAA conducted

## A QUANTITATIVE ANALYSIS

post-season championships and events, while enforcing by-laws, and providing guidance to member schools. MSHSAA affected the organizational structure of athletics at Lanlaur School District by outlining by-laws regarding post-season classification due to enrollment, outlining academic and citizenship eligibility by-laws, and determining what defines athletics versus activities (Missouri High School Activities Association, 2017a).



### Political Frame

Public high schools are not without politics; in fact they are political subdivisions that are often represented and governed by elected board members. Lanlaur School District is no different as it is governed by a democratically elected seven person school board (Lanlaur School District MSBA Online Policy, 2005b). While board members were obligated to represent the best interest of students, it would be unnatural to not consider your predispositions about school governance. Athletics and activities held great importance at Lanlaur School District amongst school district administration,

## A QUANTITATIVE ANALYSIS

students, and patrons, but evidence that school board members lobbied for specific preferences regarding student activities was not present in this study. The coalitions regarding student activities at Lanlaur involve student participants, parents and guardians, and coaches and directors. Lanlaur High School had a cadre of veteran head coaches within the high school who due to their positional, reputational, and expertise powers heed great deference from most stakeholders including school administrators. Striving for scarce resources was less horizontal between athletic programs, but rather vertical from the head coaches to the athletic director due to the fixed amount of annual budget dollars for high school athletics.

MSHSAA is heavily influenced by political players. The popularity of youth sports participation along with a willingness to create more opportunities to win championships has created a pressure for the state association to compete with private youth sports. The for-profit expansive sprawl of youth sports expectations by players and parents exerts similar expectations on MSHSAA member schools (Coakley, 2010). This included increases in contest limitations, less restrictive citizenship and academic eligibility requirements, and increased demands for inclusion of home-school students. The home schooling issues specifically affected MSHSAA as a number of Missouri state legislators favored home schooling as a preferred education method, and lobbied MSHSAA to include said students under their jurisdiction of participation eligibility in local school districts (Witthaus, 2015). Furthermore, the collegiate machine of sports as big business pressured MSHSAA and member schools for policy that is favorable for creating avenues for high school athletes to more easily transition into

## A QUANTITATIVE ANALYSIS

college programs by way of collegiate recruiting events (Missouri High School Activities Association, 2017c).

### **Human Resources Frame**

Schools have long been considered bastions of role models and inspiration. Individuals hired at Lanlaur School District are thoroughly vetted for what describe academic and non-academic strengths they will bring to the organization. During 2013-2015 Lanlaur High School hired less than two new employees per year to replace staff no longer with the district. This amounted to a retention rate of 95% (Lanlaur High School administrator, personal communication, October 31, 2017). Lanlaur High School's desire to hire well-rounded talented teachers who also coach fit well for both the school and the individual. In doing so, Lanlaur High School had experienced employees who find their work meaningful and satisfying, in turn providing the organization with a consistent employee roster and very little turnover (Bolman & Deal, 2013).

Lanlaur School District invested in their employees by providing opportunities for professional development reimbursement, opportunities for stepwise stipends for tutoring and student contact outside of contract time, as well as funding professional development opportunities for teachers and coaches alike (Lanlaur School District MSBA Online Policy, 2008). The attention to employees as people is evident by the familial nature of the organization which shares often in meals, milestones, and personal celebrations throughout school years (C. Ross, personal communication, October 27, 2017).

## A QUANTITATIVE ANALYSIS

### **Symbolic Frame**

The tradition of high schools in the United States is thoroughly identified with traditional symbols and Lanlaur High School was no different. The homecoming parade, the pep rallies, the vocal music concerts, the spring musical, the graduation ceremony, and much more. The intersection of activities and academics at Lanlaur High School demonstrated symbolism in numerous ways. Teams that notched more victories than opponents in athletics were often interpreted as having more tenacious and hardworking student athletes than their peers. Although not evident in any mission or motto, Lanlaur students strived to compete with class and sportsmanship (B. Banker, personal communication, August 21, 2017). Academics before athletics was also clearly articulated as coaches reinforced the importance of academic achievement, and the expectation to complete school work on bus rides, while waiting for contests to begin, as well as after events.

### **Leadership Analysis**

Conceptualizing leadership has evolved in the late 20th and early 21st century not only include those inherent traits individuals might possess for exhibiting leadership skills, but to also include leadership domains that can be acquired and honed (Northouse, 2016). Analyzing the leadership styles and structures of a public school district can be a paradoxical and challenging task. The balance of local norms, customs, and policies with conflicting societal demands related to preparing students for success in future generations requires a litany of leadership abilities and styles within a school district organization.

## A QUANTITATIVE ANALYSIS

### **Traits Approach**

One of the first leadership approaches studied was that of the trait approach (Northouse, 2016). The underlying principles focused on the innate traits individuals possessed that were precursors for successful leadership. Often this included self-confidence, determination, intelligence, integrity, and sociability. Of course possessing those traits alone do not guarantee successful leadership from one situation to another (Stogdill, 1948).

Lanlaur School District both the district superintendent and the high school principal could be personified as leaders who exemplify the trait approach. The superintendent exuded self-confidence in his abilities as well as in the organization. Additionally, the superintendent was intelligent in how he demonstrated analytical skills, short and long term planning and financial consciousness. Furthermore, the superintendent demonstrated what Goleman (1995) deemed emotional intelligence; in other words, the superintendent reflected on personal emotions associated with decisions and shared those with Lanlaur stakeholders.

The principal of Lanlaur High School also would be best personified as a trait approach leader, however as compared to the superintendent his strengths nested within his determination and sociability. The principal was proactive and persistent in his ability to address school issues. His demonstrations of determination provide stakeholders with visual evidence their leader was a person of confidence and grit. Duckworth (2017) refers to grit as the ability to stick with tasks at hand especially despite setbacks. The principal also exuded the appropriate amount of sociability in order to maximize his effectiveness. The principal demonstrated excellent listening skills and was cognizant of

## A QUANTITATIVE ANALYSIS

his staff member's personal and professional lives in order to foster better conversations and relationships in the workplace. In addition, while the principal is not always amicable to the decisions of his staff he consistently demonstrated tactfulness in working with students and staff.

### **Situational Approach**

In contrast with the school superintendent and high school principal the activities director/assistant middle school principal exemplified a different leadership style. For the activities director who performs the unique hybrid role of a director of two distinct school functions activities and middle school leadership excelling in situational leadership was crucial. The premise of this leadership style is as the name suggests; the leader must adapt their leadership style to accommodate different situations (Northouse, 2016).

For the Lanlaur activities director and his social scenario were atypical in that he was approximately ten years junior to his subordinates (head coaches) in education experience. Situational leaders understand that some circumstances require the leader to be more supportive than directive (Northouse, 2016). This was often the case at Lanlaur as the veteran coaches' exuded confidence and experience in the carrying out of their duties, but needed the activities director to support their goals, policies, and expectations to be successful. The activities director became more directive in nature when he transitioned to the assistant principal role. This was particularly true in the administration of discipline and behavior management. As the middle school assistant principal responsible for student discipline directive leadership was required because consistency was desired.

## A QUANTITATIVE ANALYSIS

The activities director was effective in both capacities because he demonstrated versatility and flexibility to meet the diverse demands of the position (Stogdill, 1974). He utilized his strengths in circumstances where a more directive style was needed, and worked improving his weaknesses associated with being more supportive to stakeholders.

### **Adaptive Approach**

As the name implies adaptive leadership is a style of leadership that emboldens stakeholders to make the necessary changes necessary to adapt to changing environments (Northouse, 2016). MSHSAA could be best described as an organization that exemplified adaptive leadership with its member schools because their primary task was providing member schools with resources, organization, and guidance on relevant issues related to extracurricular activities. As time evolves the landscape of interscholastic activities has been faced with social and political issues that require schools to make significant decisions that require leadership and guidance. 21st century activity issues such as home schooling, transgender participation, para-athletic competition, and physiological concerns were a sampling of topics Missouri member schools expected MSHSAA to provide adaptive leadership for.

MSHSAA challenges are less technical and more adaptive in nature. The leadership of the organization utilized advisory committees to “get out on the balcony” to better understand the concerns of member schools on key issues related to interscholastic activities (Heffetz & Laurie, 1997). Lastly, MSHSAA exhibits adaptive leadership because it ultimately gives the work back to the member schools. Once guidance on a topic was provided and policies or by-laws were ratified schools were often given the

## A QUANTITATIVE ANALYSIS

ability to once again adapt to their specific school community and set more restrictive policies and regulations if deemed appropriate.

### **Implications for Research in the Practitioner Setting**

This study may lead to more research on interscholastic athletic policy restructuring related to social bond theory, and policy implications related to confounding financial factors associated with extracurricular offerings in the school environment.

### **Social Bond Theory**

The relationships fostered by the school environment with diverse sets of students and adults can be unlike any other for high school students. The gains in social and cultural capital as a positive resource is underappreciated. Attachment, commitment, and involvement--all key tenets of the social bond theory, are prevalent in high school athletics. The positive development garnered for students involved in athletics should also be researched to include co-curricular activities, clubs, and non-school structured leisure activities as they relate to academic achievement. Furthermore, the social bond theory could help conceptualize extracurricular policies to improve other desirable student outcomes such as attendance, post-high school placement and retention, and graduation rate.

### **Extracurricular School Activities and Financial Considerations**

The encumbrance of cost is integral in interscholastic athletics for both the participant and the school. Further research should be done to identify how pay-to-play policies as well as other incurred financial burdens to participate also relate to other school outcomes. Furthermore, additional analyses should be conducted following this research to analyze the cost-benefit analysis of adding or cutting extracurricular activities

## A QUANTITATIVE ANALYSIS

and their relationship to student outcomes such as academic achievement and attendance. Lastly, further research should be conducted pay-scales, salary schedules, and extra duty stipends to determine if a relationship exists between pay of employee coaching or directing a school activity and desired student outcomes.

### **Summary**

Lanlaur School District exhibited leaders within its organization that exemplified both traits approach and situational approach leadership. Both styles worked harmoniously to provide guidance for an interscholastic activities program that complemented the educational mission of Lanlaur High School.

MSHSAA and their adaptive leadership style provided the necessary leadership to navigate the ever-changing political and social landscape of interscholastic activities. The coordination of all three leadership styles worked in concert to provide leadership for a robust interscholastic activities platform at Lanlaur High School.

**SECTION THREE**

**SCHOLARLY REVIEW**

A recent poll by NPR revealed that 26% of parents believed that their high school student athlete would be a professional athlete at some point and time in the future (Kelto, 2016). Data from professional sports leagues across the United States indicated that likelihood is less than 1% (NCAA, 2016). This discrepancy between fact and fallacy helped to recognize the myths associated with sports specialization in the United States that undergird school sport activity participation.

As the trend of sport specialization became prevalent so did a decrease in the intensity and breadth of school activities participation (Baker et. al, 2009; Coakley, 2010; Jayanthi et al., 2013). The ramifications of lesser school participation were particularly relevant to school administrators and PK-20 experts as the bulk of research in the area of activities participation and academic achievement represented significant positive relationships (see e.g. Broh, 2002; Cooper et al., 1999; Holland & Andre, 1987; Marsh & Kleitman, 2002; Melnick et al., 1992). If research supported increased participation in extracurricular school activity (ESA) sports because it they were more beneficial for individual students and schools when it comes to student health, development, and academic achievement further research would be useful guidance for school administration and governance. Relevant stakeholders would recognize and account for student participation in program planning and would be willing to seek increased opportunity for school activity involvement as well as expanded offerings for participation (Reeves, 2008).

## A QUANTITATIVE ANALYSIS

The literature review will aim to clarify that: (a) Statistically significant relationships existed between participants involved in ESA sports and academic achievement when accounting for mediating factors such as gender, race/ethnicity, socioeconomic status, and previous academic ability (Covay & Carbonaro, 2010; Feldman & Matjasko, 2005; Videon & Videon, 2002), and (b) Participation in extracurricular school activities has a positive relationship to related social and developmental factors associated with academic achievement (Holloway, 2002).

The gap in knowledge regarding rural participation in ESA athletics and academic achievement was whether intensity and/or breadth of ESA sport participation demonstrated relationships to academic achievement including standardized assessment and if so, to what extent the relationship was linear highlighting any threshold significance. Little research has been conducted on activities intensity beyond the work of Busseri et al. (2006) Denault et al. (2009) and Fredericks (2012); particularly within the lens of multisport participation in the United States. The researcher aimed to build upon previous evidence that extracurricular school activity participation versus non-participation resulted in positive relationships to academic achievement (Shulruf, 2010). To build upon that premise, was more participation, better? Does an increase in participation intensity and/or breadth in ESA athletics per school year share a relationship with incremental improvement in measures of academic achievement (Feldman & Matjasko, 2005)?

In regards to extant literature on breadth, contextualization varied from categories of organized school and non-school activities to within school definitions of school activities which included athletics (Eccles & Barber, 1999; Rose-Krasnor et al., 2006;

## A QUANTITATIVE ANALYSIS

Sharp, Tucker, Baril, Van Gundy, & Rebellon, 2015). This study sought to investigate whether in-school differences existed specifically within the number of sports a school athlete participated in when compared to their respective academic achievement.

### **Review of Extant Literature**

ESAs and academic achievement have long been discussed by researchers, sociologists, parents, and students alike. The role of ESAs on the student experience in school is largely positive. The nature of the positive experience is demonstrated through the United States' 28 (1990-2017) consecutive years of increased participation in high school athletics, but the relationship between the two has not always been positive (Howard, 2017). Seminal researcher James Coleman, in 1961, offered that ESAs often turned school into a zero-sum game in which students did not have enough time to excel at both academics and extracurricular endeavors (Coleman, 1961; Miller, Melnick, Barnes, Farrell, & Sabo, 2005). It was of concern that high school athletes would solely choose to utilize school as a vehicle to participate in sports, and thus detract from an additional dedication to academics. Recent research trends, however, disagree with Coleman's assumption using the social bond theory, the dual-transfer model as well as social and cultural capital theories to support how ESAs facilitated non-cognitive and contextual factors for a positive association to academic achievement (Bradley & Conway, 2016; Broh, 2002; Yeung, 2005).

Recent patterns in research regarding academic achievement and ESA involvement investigate: (a) definitions of extracurricular activities related to academic achievement, and (b) the relationship between ESA participation and student development outcomes; including academic performance.

## A QUANTITATIVE ANALYSIS

### **Defining Extracurricular Activities**

An initial integral theme of research was identifying a common definition and approach for ESAs. As recent as 2012, Bartkus et al. (2012) through their analysis failed to identify a universal definition through the extant literature on extracurricular activities. Extracurricular activities in common vernacular often referred to extracurricular *school* activities (ESAs) however, it was critical for researchers to recognize whether the definition envelops co-curricular activities, and activities outside of the school day or school context (Bohnert et al., 2010; Marsh, 1992; Marsh & Kleitman, 2002).

In an ESA context, activities are offered in both a co-curricular and extracurricular manner. Co-curricular activities are activities that require participation both during the academic day and outside of school hours. Chorus, band, and drama are common examples of co-curricular ESAs. ESAs are structured and organized by school employees entirely outside of the academic school day. Extracurricular ranged from non-athletic clubs such as robotics to varsity athletics. ESAs can meet daily or on an irregular basis for an entire school year or seasonally. Schools designated which teams competed against other schools through an annual registration with their respective state's activities association. The affiliation through a state association was most common in interscholastic athletics and provides essential eligibility and competition by-laws for a variety of activities for members to subscribe to.

Structured voluntary activities that occurred outside of the school day and are not affiliated with schools were also prominent in literature regarding leisure of adolescents in the United States (Larson, 2000; Moore et al., 2014). While research has identified generally positive developmental outcomes for activity participation for both in and

## A QUANTITATIVE ANALYSIS

outside of school, current researchers such as Mahoney & Vest (2012) investigated the “over-scheduling” hypothesis. The “over-scheduling” hypothesis was whether adolescents experience negative developmental outcomes from participating in too many out-of-school activities. Further research is needed to evaluate the “over-scheduling” hypothesis within the context of ESAs without dilution from the inclusion of any out-of-school participation data.

### **Relationship between ESA Participation and Developmental Outcomes**

The extant research for ESA athletics participation dates back to 1961 with Coleman’s formative work, *The Adolescent Society*, in which participation was examined through a zero-sum lens. Coleman posited that participation in ESAs detracted from time spent enhancing academic achievement. Despite research as early as 1968 by Schafer and Armer (1968) demonstrating athletes having higher grade point averages (GPAs), a “dumb jock” mentality prevailed in American popular culture (Whitley, 1999). By 1984 researchers, such as Feltz and Weiss (1984), continued to challenge the “dumb jock” notion that students could not excel both in athletics and academics. In their study of senior girls they found those who participated in athletics were categorically at or above the local, state, and national average on the ACT exam. Additionally, Holland and Andre (1987) indicated that ESA activities were often eluded to as a scapegoat when schools and students underperformed, however the literature does not support this causation. By the 1990s consistent research that included controls for mediating factors with academic achievement were published by Snyder and Spreitzer (1990), Marsh (1992), Fejgin (1994), McNeal (1995), Eccles and Barber (1999) and Melnick et al., (1992). In the early 21st century literature grew to include analyses of National Longitudinal Survey (NELS)

## A QUANTITATIVE ANALYSIS

data. Marsh and Kleitman (2002) as well Lipscomb (2007) found salutatory effects of athletics participation on school grades, test scores, and college enrollment (Yeung, 2005). While the usage of NELS data provided robust information for researchers to analyze, it should be noted these surveys were not given with the notion of ESA research in mind, and therefore may not be valid to be applied in such context.

Research continues to analyze the countless subgroups that participate in interscholastic athletics and relationships related to educational, developmental, and social outcomes. Research trends in 2015 by Snellman et al. as well as Weininger, Lareau, and Conley (2015) focused on extracurricular participation and gaps in social mobility related to socioeconomic status as well as race/ethnicity. Their research included key findings that clarified how ESA activities helped to bridge the socioeconomic gap of participants in the education setting, but this was often buffered by increasing financial encumbrances that occur for individual participation.

**Academics.** The majority of research related to academic achievement and a relationship to ESA participation has been conducted in both cross-sectional and longitudinal analyses comparing participants in ESAs compared to non-participants (Holland & Andre, 1987; Marsh, 1992; Melnick et al., 1992). Research on sports and academic achievement dated to the 1960s by Schafer & Armer (1968) and Rehberg (1969) did utilize national data, however they failed to control for other mediating factors related to academic achievement such as race, gender, family background, etc. (Broh, 2002).

The 1990s ushered in a litany of improved methodological research by Melnick et al., (1992) as well as Marsh (1992) that generally found no linkage between sports

## A QUANTITATIVE ANALYSIS

participation and academic achievement Fejgin (1994), Mahoney and Cairns (1997), Silliker and Quirk (1997), and Zaugg (1998) all conducted research finding positive associations between academic achievement and sport participation. This ambiguity in extant research is likely perpetuated with what is included in each studies' definition of "participation" and "extracurricular activity" or "sports." (Bartkus et al., 2012; Broh, 2002; Yeung, 2005).

**Delinquency and behavior.** The bulk of research regarding behavior of ESA participants was the association with risky behaviors which may or may not involve juvenile delinquency. Numerous studies have been done to compare alcohol, tobacco, and drug use of ESA participants to non-ESA participating peers, as well as studies comparing delinquency beyond high school illustrating mixed results (Darling et al., 2005; Eccles & Barber, 1999; Mahoney & Cairns, 1997; Rose-Krasnor et al., 2006; Silliker & Quirk, 1997).

Perhaps it was Hirschi (1969), via social bond theory, to first support the notion that students who were too busy involved in structured activities would have less time participate in risky behaviors. Research in the 1970s by Spady (1970) and Picou (1978) found that athletics provided opportunities for students to be with other academically-minded students (Davalos, Chavez, & Guardiola, 1999). Furthermore, Covay and Carbonaro (2010) found these students were also more likely to model appropriate behavioral conduct lessening the likelihood for discipline infractions.

Additional research in regards to ESA participation and behavior included a reduced likelihood of dropping out (Mahoney & Cairns, 1997; McNeal, 1995). Mixed results of research of athletic participation and alcohol use was discovered by Eccles and

## A QUANTITATIVE ANALYSIS

Barber (1999) and Frederick and Eccles (2006). The researcher noted that negative behavior association with athletic participation was anecdotal in research related to subgroups and sport types while mitigated by gender, race, and athletic status within sport context (Denault et al., 2009; Osgood et al., 1999)

### **Theoretical Framework and Key Pillars**

#### **Theoretical Frameworks in ESA Research**

ESA participation and related outcomes have been viewed by researchers through a variety of frameworks such as social and cultural capital models, developmental models, and the social bond theory. Social capital models, as explained by Broh (2002), were how individuals acquired benefits from those around them. Furthermore, the family was considered central of those derived benefits. The nexus to school and ESAs was the intensification of social capital by peers and the families of those peers within the school and ESA contexts (Hansen, Larson, & Dworkin, 2003; Stearns & Glennie, 2010). Similarly, cultural capital models focused on access to networks of peers and adults who were often associated with positive outcomes for students involved in ESAs (Adler & Adler, 1994; DiMaggio, 1982; Shulruf, 2010). Cultural capital model research was particularly beneficial to the researcher as it highlighted socioeconomic avenues ESAs provided in regards to access to preferred or elite statuses interscholastic athletics often presented.

Broh's (2002) research attempted to build upon Marsh (1992) and Fejgin (1994) regarding the developmental benefits of ESA participation. The previous researchers posited ESA participation with a positive attribution of self-concept, confidence, and work ethic—all critical developmental factors that contributed to positive academic

## A QUANTITATIVE ANALYSIS

outcomes. While research in the late twentieth century primarily focused on positive developmental outcomes from ESA participation; 21st century researchers evaluated potential negative developmental outcomes due to intense participation (see Fredericks, 2012; Mahoney & Vest, 2012).

### **Social Bond Theory**

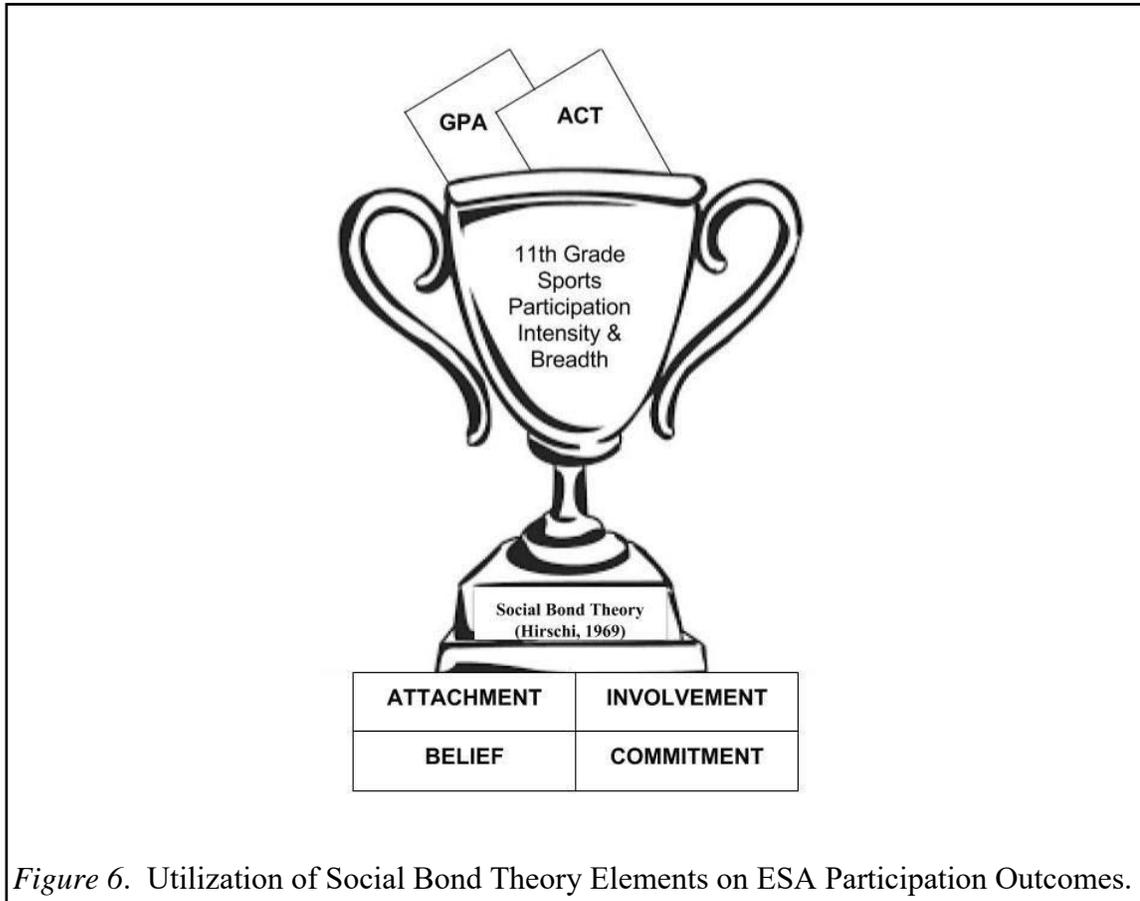
21st century ESA researchers, such as Neely and Vaquera (2017) and Peguero et al. (2015), have frequently utilized social bond theory to conceptualize outcomes related to ESA participation. Hirschi's social bond theory is centered on the concept of social bonds individuals formed within institutions, such as schools. The social bonds are categorized into four primary dimensions: (1) attachment, (2) commitment, (3) involvement, and (4) belief (Hirschi, 1969; Neely & Vaquera, 2017; Peguero et al., 2015). While Hirschi's (1969) original formulation of a theory of social control was intended to explain deviant behavior, it has been consistently used to explain a variety of social outcomes among students and other adolescents (Neely & Vaquera, 2017).

For examining relationships between ESA athletic participation and academic achievement the researcher adapted the social bond theory to focus on the first three dimensions: attachment, commitment, and involvement. Belief was not included in this research because it cannot be derived ethically from data in public schools without utilizing qualitative methods with minors. Attachment was critical in the analysis of ESA athletic participation and academic achievement because social bond theory posits that stronger levels of attachment are linked to increased performance and achievement (Peguero et al., 2010). The second component of social bond theory, commitment, was integral in analysis because increased commitment to school demonstrated improved

## A QUANTITATIVE ANALYSIS

academic performance and achievement (Bryan et al., 2012; Maddox & Prinz, 2003).

The third component of social bond theory, involvement, was included in the analysis because school involvement in ESAs has been positively identified with improvements in educational progress and success (Feldman & Matjasko, 2005; Fredericks & Eccles, 2006).



### Key Pillars

The key pillars in this literature review were (a) the history of high school athletics in United States, (b) multisport participation trends of high school-aged athletes in the United States, and (c) history of assessment and achievement in United States' K-12 schools.

## A QUANTITATIVE ANALYSIS

**The history of high school athletics in the United States.** Athletics have been conducted in conjunction with the school environment in the United States since the late 19th century with the goals of aiding in the development of both character and physical fitness (Pruter, 2013; Watkins, 2004). The integration of ESAs have thrived and grown exponentially in the twentieth century due to popularization of a variety of ESA activities, the urbanization of the United States, and growth of youth organizations (Coakley, 2010).

Opportunities for participation in the United States experienced decline during World War II and Great Depression eras, however after the war participation grew; particularly in small towns and rural areas as school teams became the pride of the communities (Bowen & Hitt, 2006). The continued popularity in communities of all populations coupled with consistent growth and communication of state activities association under the coordination from the National Federation of High School Activities Association (NFHS) advanced opportunities for America's adolescents (National Federation of State High School Associations, 2017).

In 1972, sports participation experienced a significant increase in participation particularly with females, as Title IX of the Educational Amendments to the 1964 Civil Rights Act was enacted by Congress. This statute required federally funded institutions to provide equal participation opportunities for both genders (Stevenson, 2010). To comply with Title IX schools commonly added female sports teams to a number equal to or great than the number of male sports currently offered. In the 1960s and 1970s schools started to embrace the self-esteem philosophy related to competitive sports. The focus centered less on competition and more on equal participation as well as improved self-worth. In addition, participation in multiple sports coupled with physical education

## A QUANTITATIVE ANALYSIS

coursework enhanced a curriculum of overall health and fitness education. Schools developed a unique setting to provide sport skills in athletics and physical education to all levels of skilled individuals (Myer et al., 2015). Private organizations and clubs hence filled the void outside of school for elementary aged students by the creation of leagues, teams, and organizations coached and funded by parents and sponsors (Friedman, 2013). Proliferation of Little League, Amateur Athletic Union (AAU), Pop Warner, and other such national affiliated non-school structured youth sports continued into the first decade of the 21st century. The growth of the non-school sector of youth structured activities during the second half of the 20th century did not hinder participation rates in the high school setting as schools adopted sport opportunities that students had opportunities to experience as youths such as swimming, soccer, baseball, and softball.

While critics of sports participation have introduced concerns with zero-sum effects and overscheduling issues; the general consensus in extant research on the relationship of school sports participation as an ESA were positive (Coleman, 1961; Feldman & Matjasko, 2005; Shulruf, 2010).

**Multisport participation trends of high school-aged athletes in the United States.** Sport specialization is a phenomenon, in particular in the United States, starting in the 1990s where youth athletes began to devote a majority of their leisure time to the specialization and mastery of one sport in lieu of participating in multiple ESAs over a given time period. Sport specialization for adolescents occurred both in out of school and ESAs often with the intention of earning an opportunity to continue a playing career beyond high school in a college or university setting (Bell et al., 2016; Feeley et al., 2016; Luthar & Sexton, 2004).

## A QUANTITATIVE ANALYSIS

A corollary youth sports industry in the United States has fueled the sport specialization progression offering tailored instruction, facility and travel access, and exposure events for youth athletes (Jayanthi et al., 2013; Smith, 2015). This trend affected school activity offerings by decreasing the participants who were likely to be or were once multisport participants (Haddix, 2016). State activities associations have by-laws that do not allow for secondary school-aged students to participate in the same sport for a school entity and a private group simultaneously. These by-laws have forced students to choose either their school team or a private organization/club thus reducing multisport athletes in the school setting. The reduction in school participation can lead to such dismal participation that teams are often absolved and seasons cancelled. This practice of eliminating school opportunities is most significant for those individuals who lack the resources to participate for private teams (Lumpkin & Favor, 2012; Neely & Vaquera, 2017; Weininger et al., 2015). Literature was clear regarding growth in the numbers of students participating in school sports however; the issue of multisport participation is more unclear. Measurement of multisport participation was difficult through existing literature because the variability of ways in which extracurricular activities were measured by definition (Bartkus et al., 2012).

In this study regarding ESA multisport participation in was imperative for the researcher to bring clarity between multisport participation and sport specialization. The two phenomenon were not mutually exclusive. A mixed-methods or qualitative analysis is required to derive whether high school athletes were participating less intense patterns in ESAs due to specialization, therefore operationalizing intensity participation and breadth through quantitative analyses does not solely explain why a high school athlete

## A QUANTITATIVE ANALYSIS

chooses to participate in one sport compared to two or more. The data cannot delineate such rationales and therefore one cannot assume high school sport participants who had less intensity and/or breadth were specializing. Strachan, Cote, and Deakin (2009) referred to those who train and compete year-round as “specializers.” Low participation intensity and breadth of participation for high school athletes may occur for reasons other than specialization. These reasons are multifactorial and may include prohibitive costs, family circumstances, academic commitments, lack of interest, lack of offerings as well as other possible reasons.

As the trend of multisport participation decreased, America’s youth also experienced a decrease in variety of contact with the school-employed coaches professionally trained to enhance academic achievement through education-based athletics. It was evident through research in the 21st century that the prevalence in privatized, club-oriented non-school sports was on the rise (Coakley, 2010; Smith, 2015; Wagner et al., 2010). This can lead to a desire to specialize in less sports and potentially reduce the diversity of social bonds a student made through education based athletics. While the ability of privatized and non-school sports teams to offer adequate instruction, practice, and competition was often adequate; the coaches associated with these programs often fail to compare to the formal training in educational psychology, safety, and school law school coaches might provide (Gerdy, 2000; Griffin, 1998; Wiersma & Sherman, 2005).

Further research is needed to determine if individuals who participate on school teams and are coached by trained, licensed, and endorsed through approved state associations are more/less beneficial to individual development as compared to

## A QUANTITATIVE ANALYSIS

mentors/coaches in the private environment. Therefore, as mentioned by Broh (2002) in regards to the developmental and social capital models, licensed coaches and teachers are more likely to organize their ESAs with academic and developmental growth in mind. Furthermore, school coaches who are a part of the same school organization are more likely to be communally tied and encourage students to sample a variety of sports. Sampling multiple sports can benefit students both physically and non-cognitively by transferring physical and mental skills from one sport to another as well as to academic contexts (Baker, Cote, & Abernathy, 2003; Bradley & Conway, 2016; Pujalte, 2016).

**History of assessment and achievement in United States K-12 schools.** A third pillar in the area of academic achievement and extracurricular involvement was the method in which researchers measured academic achievement of high school students. Many variables have been constructed in present and past research to measure the academic achievement of students including, but not limited, to grade point average (GPA), standardized assessment scores, post-high school education success, and college retention. (Mueller & Colley, 2015). Each measure of achievement/ability is a tool designed related to measure specific academic attributes. Dickinson and Adelson (2016) recognized that achievement measures cannot be used interchangeably and thus examining whether differing measures of achievement explain the same phenomenon was worthy and timely in 21st century education research. The social bond framework lent itself appropriately to achievement on standardized tests and GPA in school contexts through the pillar *attachment*. Neely and Vaquera (2017) explained how *attachment* through school context created an educational atmosphere where students exhibited self-awareness of academic abilities, including standard test achievement.

## A QUANTITATIVE ANALYSIS

*Assessment.* The historical establishment of standardized assessment in United States public education can be traced to the mid-19th century when educators, such as Horace Mann, pushed for a more standardized and efficient way to assess the growing enrollment of students derived from compulsory education laws (Huddleston & Rockwell, 2015). Prior to a need for more standardized and efficient assessment, oral recitation was the most common method for evaluating academic competencies and those methods varied widely from school to school.

The efficiency and reliability of standardized assessment gained popularity in both business and the military following World War I in the United States as popular ways to assess minimum competencies for current and potential employees (Huddleston & Rockwell, 2015). Academia too, recognized standardized assessment in education could be utilized to do more than assess the I.Q. of students, but also their academic achievement levels. In the early 20th century, prominent collegiate researchers such as, Harry Chauncey from Harvard University and Edward Thorndike from Columbia University, developed norm-referenced assessments in a variety of academic subjects to assess what students learned (Higgins, 2009; Pearson & Stallman, 1994). The conceptualization of more widely utilized standard assessment style was spurred by technological innovation in the early 20th century. Reynold B. Johnson, a Science teacher, invented an automated way to use electrical current to indicate a correct or incorrect answer utilizing the electromagnetism of graphite used in student pencils for multiple choice assessments (Higgins, 2009). Johnson's invention known as the Markograph, was later adapted by IBM and by 1936 was being utilized consistently in Providence, Rhode Island schools to score assessments (Lehmann, 1995).

## A QUANTITATIVE ANALYSIS

Since its inception standardized assessment was always intertwined with political agendas. In the mid-19th century educators were utilizing standardized assessments in writing to address the growing diversity in student populations due to mass migration streams in the 1800s. Perhaps no moment was more historically significant in the indirect popularity of standardized assessment in the United States than the launching of the Sputnik, the world's first artificial satellite by the Soviet Union in 1957. This monumental scientific breakthrough triggered a scientific and technological race between the United States and the Soviet Union, both key actors in the Cold War of the mid-20th century. The United States, in order to facilitate growth in the areas of science and mathematics, was forced to improve education expectations in order to produce citizens capable of developing the world's best space technology. By 1965, a federal statute, the Elementary and Secondary Education Act was issued, which included requirements for standardized testing (Huddleston & Rockwell, 2015). The 1960s and 1970s were eras in education plagued with concerns of declining test scores in achievement tests and hybrid tests such as the Scholastic Aptitude Test (SAT). Perceived failings in these areas ushered in an era of minimum competency assessments. By the mid-1970s 36 states required minimum competency or basic skills assessments (Rothman, 1995).

Perhaps no more pivotal epoch in education related to standardized assessment existed than when the Commission on Excellence in Education released a report on the status of education called *A Nation at Risk: The Imperative for Educational Reform* was published in 1983 (United States, 1983). This report indicted United States schools for dismal student achievement results and high dropout rates from high schools. The report garnered national attention and by the 1987-88 academic school year 45 states and the

## A QUANTITATIVE ANALYSIS

District of Columbia were utilizing standardized assessments (Marks, 1989). In 2002, President George W. Bush and Congress passed new federal legislation that amended and reauthorized the Elementary and Secondary Education Act called, No Child Left Behind (NCLB). This legislation mandated that all schools receiving federal funds be held accountable for the educational achievement of their students through adequate yearly progress (Fritzberg, 2004). In 2009, governors and state commissioners of education came together and designed a set of nationalized standards deemed the Common Core. The Common Core was controversial because it changed traditional standardized testing to more performance-based and often incorporated the construction of the assessment associated with the standards through computerized testing (Huddleston & Rockwell, 2015). By 2015, Congress once again changed course with the passage of the Every Student Succeeds Act (ESSA). This law replaced NCLB but maintained the requirements for standardized testing, but gave flexibility to states to utilize data to evaluate individually low performing schools and students.

The storied past of standardized assessment is evolutionary in nature, but regardless of legislation or political time appears to maintain an integral place in educational evaluation and assessment practice.

In addition to using nationally normed standardized assessments for a gauge for individual college readiness, states formally adopted national assessments for school district accountability measures in growth and progress (Baird, 2013; Farrell, 2006; Wiliam, 2010). For example, the ACT has been considered a quality measure of college readiness and academic achievement and therefore served as an independent proxy of academic achievement (Bettinger et al., 2013). In Missouri, all 11th graders starting in

## A QUANTITATIVE ANALYSIS

the 2014-2015 school year as part of a required Missouri Department of Secondary Education, statute take the ACT exam in April of each school year (Helwig, 2014).

Community colleges as well as four year colleges and universities have expressed concern for preparedness for incoming students from high school. With GPA and class rank variability by calculation, higher education institutions have increasingly relied on national assessment scores. As states adopted statutes to pay for administration of national assessments, such as the ACT, more students had access to take the exam at no cost. This practice has a proportionately positive effect on low income and rural students who lack the means to take additional attempts at national assessments to improve scores and demonstrate readiness (Pignolet, 2017). By 2017, the trend of national assessment utilization by states for accountability measures was in jeopardy due to costs associated with implementation. In 2017, states such as Missouri, facing looming budget shortfalls in assessment budgets, chose to abandon the practice of providing one free ACT assessment to each junior effective in 2018 (Sireno, 2017).

*Achievement.* Measuring achievement within school contexts has a storied history, and much like assessment, can be found to have mirrored practices initiated at the collegiate and university setting. Student achievement measurement in K-12 schools in the United States has also evolved but to a lesser extent due to political and legal changes. The evolution of measuring student achievement in United States K-12 schools was largely due to research on validity and feedback related to student achievement measures.

The most common measure of student achievement in United States school setting is that of grade point average (GPA) (Kuncel et al., 2005). The system involves

## A QUANTITATIVE ANALYSIS

converting letter grades (A, B, C, D, & F) to a point value where A=4, B=3, C=2, D=1, and F=0 (Chansky, 1964, Lang, 2007). A student's final course grade from each course completed is collectively added and divided by the total number of courses to derive a cumulative grade point average.

The abundance of grading and achievement markings and calculations in American education history is related to colleges and universities, specifically Yale University. Smallwood (1935) traced professor markings and adjectives used to describe students back to 1785. By 1813, Yale was utilizing central tendency calculations of examinations for records, and making markings on a scale from one to four (Durm, 1993). Extant research found that a variety of student evaluation markings and procedures were utilized by colleges and universities for a majority of the 19th century producing by 1897 a scale that included letter grades and percentage ranges (Durm, 1993). Mount Holyoke was often credited with establishing the standard for modern grading that includes GPA today.

Traditionally, what was included in an individual course grade to determine the final course grade was the prerogative of the individual teacher. The course grade is frequently a combination of achievement demonstrated through assessment, effort, meeting deadlines, and a variety of other measures. The use of individual teacher grading practices gives the flexibility from course to course and teacher to teacher, but can create inter-teacher reliability and validity issues due to the hodgepodge nature of grading practices (Allen, 2005). The variation of what was included in an individual student grade was therefore subject to grade inflation and deflation (Chansky, 1964; Hoover, 2012; Lekholm & Cliffordson, 2008). Brookhart (2009) explained that hodgepodge

## A QUANTITATIVE ANALYSIS

grading practices can be confusing for parents and students because of the variance in teacher and school practices. Furthermore, variance exists within school grading practices and between schools making comparing students from school to school challenging when using GPA (Hoover, 2012).

A corollary student achievement measurement related to GPA is that of class rank. Class rank is where a school utilizes a rank-file of a cohort of students from highest to lowest GPA. Schools have utilized both weighted and unweighted GPA calculations to create class ranks. Weighted GPA calculations were utilized to combat the issue of students choosing less rigorous courses in order to preserve a higher GPA (Lang, 2007). Therefore, high schools began adding a fifth weight to their most rigorous courses. Weighted grading scales often are structured as such: A=5 points, B=4 points, C=3 points, D=2 points, and F=1 point (Lang, 2007). Class rank was once heavily considered by college admissions offices, it has become less reliable and considered due to the lack of standard ranking procedures and vagueness (Hoover, 2012; Lang, 2007).

Reliability aside, extant literature was plentiful regarding positive relationships GPA had to norm-referenced standardized assessments and as a predictor of college success (Ramist, 1984; McDaniel, 2010).

### **Summary**

The crossroads of academic achievement and activities intensity in ESAs can be viewed through many prisms. Multisport participation, developmental models, and social bond theory are a few in which researchers have attempted to undergird their studies of academic achievement and ESA involvement. These studies, both longitudinal and cross section analyses, have primarily focused on those who participate in ESAs versus those

## A QUANTITATIVE ANALYSIS

who do not participate. Researchers have noted that even when mediating factors were controlled for, differences between ESA participants and non-participants were biased due to self-selection factors related to ESA participation.

Further research is needed to address a gap in the knowledge on whether ESA athletics participation intensity alone can be accounted for in various measures of academic achievement. This research is critical for the field of educational leadership and programming. Furthermore, outcomes from ESA research offer *actionability* for practitioners (Colquitt & George, 2011). The implications for schools are yet to be examined and doing so would be critical in an era of high-stakes testing, accountability, and budget cuts. If research indicated that increased ESA athletic participation intensity has a positive relationship to academic achievement when controlling for mediating factors such as gender, race/ethnicity, socioeconomic status, previous academic ability, etc. then integral changes to activity planning should be accounted for in school programming. Furthermore, it would be of consequential importance for school administrators to increase opportunities within ESA athletics while lobbying their local governing boards to create participation guidelines to promote participation.

**SECTION FOUR**

**CONTRIBUTION TO PRACTICE**

**Plan for Dissemination of Practitioner Contribution**

Who: Attendees of the National Association of Secondary School Principals (NASSP)

Annual Conference (principals and aspiring principals)

When: 2018 annual conference, proposal submitted by April of 2018

How: Through a presentation at the NASSP annual conference. The presentation will be a slide show.

**Type of Document**

The document type will be a slide show presentation that will be presented at the NASSP annual conference. The slide show will inform the audience of the practical and theoretical considerations regarding high school athletics participation intensity and related outcomes. Upon request the full report will be made available.

**Rationale for this Contribution Type**

NASSP is the foremost professional development organization for secondary school principals in the United States and leaders from over 30 countries. The purpose of NASSP is to serve the needs of school leaders by providing relevant resources, networking opportunities, research trends and results, as well as providing an avenue for current political and legal changes. The professional association serves over 25,000 secondary school administrators. NASSP is widely known as an association that can provide robust resources to facilitate both individual leadership growth capacity, but also school improvement. This conference is the largest conference in the nation for secondary school leaders.

## A QUANTITATIVE ANALYSIS

### **Outline of Proposed Contents**

- Background history of high school athletics and current trends in extracurricular school activities (ESAs)
- Research regarding the social bond theory, social and cultural capital research, and extracurricular activities
- Findings (quantitative analyses of sports participation intensity, breadth and academic achievement (ACT and GPA))
- Discussion and implications
  - Academic achievement, high school sports,
  - Implications for school programming (policy) and financial concerns (budgeting and human resources)
  - Equity implications for both socioeconomic status and gender related to participation in ESAs

**Slide 1**

A Quantitative Analysis of Rural High School Sport Participation Intensity and Breadth: The Relationship to Academic Achievement

Chad M. Lang  
National Association of Secondary School Principals (NASSP) National Conference  
July 12th, 2018

A presentation planned for the 2018 national principals' conference. This presentation could be adapted for state level presentations and venues as well as for a variety of school administration professional development opportunities.

**Slide 2**

Purpose

- There is a gap in research regarding extracurricular school activities (ESA) sport participation intensity and breadth related to academic outcomes, particularly in rural settings.

While literature from prior research in this area demonstrated relationships between academic achievement and ESA participation versus non-participation, this study aimed to look at the intensity of those participating in high school ESA interscholastic sports. The bulk of previous research commonly identified participation in a binary manner, with little investigation of intensity, frequency, or breadth (Eime et al., 2013).

Din (2005) investigated rural sport participation by comparing pre and post-season grades on a course by course basis and found no significant difference, however Din's study did

## A QUANTITATIVE ANALYSIS

not address intensity or breadth as it related to rural multisport participation and academic achievement.

### Slide 3

#### Background

- The goal of this study was to examine relationships and differences for rural sport participants and their academic achievement.
  - Compare differing proxies of academic achievement (ACT composite and cumulative GPA).
  - Examine differences related to measurement of participation (intensity and breadth).
  - Assess the presence of diminishing returns in academic achievement juxtaposed to participation intensity and breadth.
- The analyses of rural high school sport participation and academic achievement was evaluated through correlations, hierarchical regression, and one-way ANOVA.

Cooper et al., (1999) found that intensity of extracurricular participation was positively correlated with achievement test scores, therefore the researcher selected the ACT as a proxy for academic achievement. Since the measurement of participation, according to Bohnert, Randall, & Fredericks (2010), explain a different context of participation both intensity and breadth were considered as suggested by Denault, Poulin, & Pedersen (2009). In addition, research was necessary to assess the presence of thresholds in ESA sport participation related to the law of diminishing returns on ACT achievement and GPA. In doing so, the researcher would be directly assessing the over-scheduling hypothesis outlined by previous researchers (Fredericks, 2012; Mahoney & Vest, 2012).

### Slide 4

#### Theoretical Framework Integration

- Social bond theory (Hirschi, 1969): attachment, commitment, involvement, and belief.



## A QUANTITATIVE ANALYSIS

In recent research regarding ESAs and their relationships with school related outcomes such as attendance, discipline, participation, and academic achievement researchers have recognized the positive relationship participation had on improving the social and cultural connectivity students have with their respective school communities (Broh, 2002; Coleman, 1961; DiMaggio, 1982; Mahoney et al., 2006; Marsh & Kleitman, 2002; Putnam, 1995; Rehberg, 1969). The increased connectivity of students to schools through sports fostered a positive culture and consequently, increased academic achievement for most sub-groups (Melnick et al., 1992; Neely & Vaquera, 2017; Snyder & Spreitzer, 1990). Social bonds are relevant in school settings because students are presented with a variety of opportunities to learn from and associate with peers and adults who either participate in or lead ESAs.

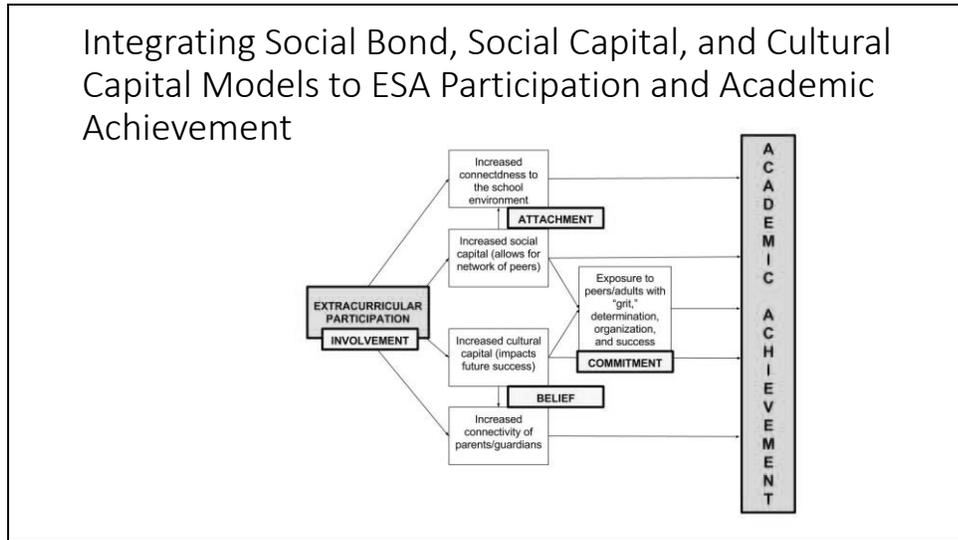
### Slide 5

#### Social & Cultural Capital Models

- **Social capital** - how individuals acquired benefits from those around them, in particular family. The nexus to school and ESAs was the intensification of social capital by peers and the families of those peers within the school and ESA contexts (Broh, 2002; Hansen, Larson, & Dworkin, 2003; Holland & Andre, 1987; Stearns & Glennie, 2010).
- **Cultural capital** - access to networks of peers and adults who were often associated with positive outcomes; particularly through activities available by way of socioeconomic means. ESA participation is included due availability of school offerings in a variety of activities (Adler & Adler, 1994; DiMaggio, 1982; Shulruf, 2010).

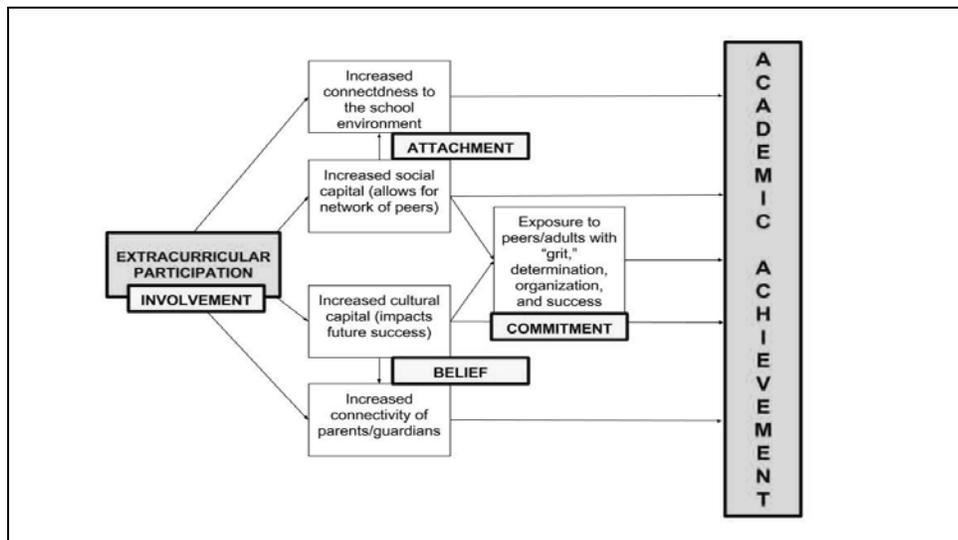
Broh (2002) as well as numerous other extracurricular participation researchers ( for e.g.- Snellman, Silva, Frederick, & Putnam, 2015) have utilized social and cultural capital models to explain the relationships between developmental and academic outcomes for individuals participating in extracurricular activities beyond physical and health promotion. ESAs have played increasingly relevant roles in developmental mental outcomes due to their popularity in recent decades (Howard, 2017).

Slide 6

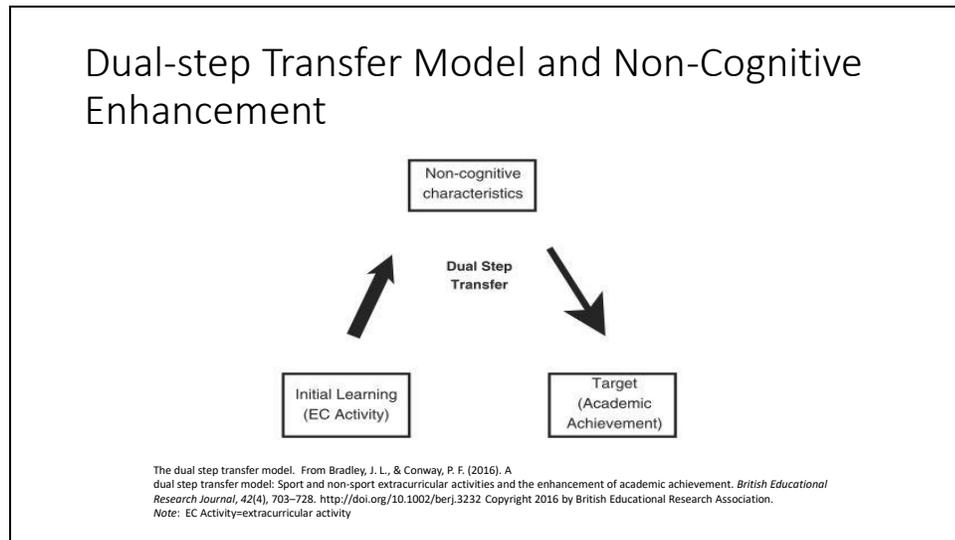


The contributing factors to academic achievement are multivariate in nature, and are mediated heavily by personal and family characteristics (Everson & Milsap, 2004; Leckholm & Cliffordson, 2008). However, when evaluating the difference school programming may have on academic achievement through the lens of extracurricular participation a multi-model conceptualization is helpful in orienting multiple frameworks into one.

Slide 7



Slide 8



In addition to social bond and capital frameworks, recent research is attempting to recognize potential transfer benefits from learning events within extracurricular activities which are therein applied by participants in academic settings (Bradley & Conway, 2016). Participation in sports has been shown to promote being conscientious, efficient, organized and systematic (Courneya & Hellsten, 1998; Saklofske et al., 2007; Nia & Besharat, 2010). Being part of an organized school team, practicing several times per week and representing the school competitively will promote self-esteem, self-concept and social capital within the student (Holland & Andre, 1987) and develop a strong level of school connectedness (Bradley & Conway, 2016).

Slide 9

- ### Pillars of the Literature Review
- History and popular culture of high school athletics in the United States.
  - Multisport participation trends of high school-aged athletes in the United States.
  - History of assessment and achievement in United States public schools.

## A QUANTITATIVE ANALYSIS

The three pillars of the study are: (a) History and popular culture of high school athletics in the United States, (b) multisport participation trends of high school-aged athletes in the United States, and (c) history of assessment and achievement in United States public schools.

By tracing and analyzing the history of sports offerings, participation, and subsequent measurement of academic achievement allows for a necessary perspective when analyzing differences and relationships related to sport participation and academic achievement.

### Slide 10

#### History and Popular Culture of High School Athletics in the United States

- Rooted in 19th century for perceived benefits to physical health and character development (Pruter, 2013, Watkins, 2004).
- Post-World War II participation and inclusion was enhanced due to the popularization of collegiate athletics and professional sports as well as increased opportunities for youth in organized sampling opportunities (Bowen & Hitt, 2006; Coakley, 2010).
- Critics of sports participation have introduced concerns with an over-commitment to sports and not education (“dumb jock”) and overscheduling issues; however the general consensus in extant research on the relationship of school sports participation as an ESA were positive (Coleman, 1961; Feldman & Matjasko, 2005; Shulruf, 2010; Whitley, 1999).

The evolution of and popularity of amateur sports in the United States mirrored the popularity of collegiate and professional athletics. The glorification of all-around athletes such as Jim Brown and Jesse Owens were heralded as American heroes. As the popularity of collegiate and professional athletics continued, so did the desire to achieve such statuses. This desire coupled with examples of athletes who were intensely specialized in sport at a young age reaching professional pinnacles, fostered a highly intensive and specialized competitive culture in most school sports environments.

**Slide 11**

### **Multisport Participation Trends of High School-Aged Athletes in the United States.**

- “All-around” athletes were once aspired to and the premier status of athletic prowess; however increased competition for elite status and college scholarships led to a desire to specialize.
- Sport specialization is a phenomenon, in particular in the United States, starting in the 1990s where youth athletes began to devote a majority of their leisure time to the specialization and mastery of one sport in lieu of participating in multiple ESAs over a given time period.
- A corollary youth sports industry in the United States has fueled the sport specialization by offering tailored instruction, facility and travel access, and exposure events for youth athletes (Jayanthi et al., 2013; Smith, 2015).

Sport specialization trends affected school activity offerings by decreasing the participants who were likely to be or were once multisport participants (Haddix, 2016). A reduction in school offerings, where activities are typically sponsored and coached by school employees who are likely educators, can have implications on the amount of social bonds an adolescent might develop related to positive social, academic, and developmental outcomes.

**Slide 12**

### **History of Assessment and Achievement in United States K-12 Schools.**

- Many variables have been constructed to measure academic achievement of students including, but not limited, to grade point average (GPA), standardized assessment scores, post-high school education placement, and college retention. (Mueller & Colley, 2015).
- Achievement of K-12 students in the U.S. is rooted in ranking and assessing the achievement of university students as far back as the late 18th century (Smallwood, 1935).
- Compulsory education vastly increased students enrolled and therefore more efficient measures for grading and evaluation were developed, such as GPA (Huddleston & Rockwell, 2015).

As compulsory education vastly increased the number of students requiring efficient and valid academic achievement measures, the number of students interested in participating in schools ESA sports grew. The growth of participation coupled with mixed academic achievement results in the mid-20th century, led some to blame the popularization of extracurricular activities for the pivoting of students’ interest in pursuing academic excellence (Holland & Andre, 1987; Rockwell & Huddleston, 2015).

**Slide 13**

### History of Assessment and Achievement in United States K-12 Schools Continued.

- Standardized assessment and norm-referenced assessment of K-12 students was also developed due to a desire for efficiency and consistency (Huddleston & Rockwell, 2015).
- Political movements and national critiques developed in the latter half of the 20th century chastising the lack of quality education for American students and consequently minimum competency assessments became the norm in most states and federal legislation (Rothman, 1995).
- Standardized assessment was elevated further when in the late 20th century federal legislation such as, No Child Left Behind and Every Student Succeeds Act, mandated academic growth measured by way of standardized assessment (Fritzberg, 2004).

The utilization of standardized assessment to measure academic achievement was originally fostered by advancements in technology, and adopted after critiques of the inadequacies of education such as, *A Nation at Risk* in 1983 (Marks, 1989).

Norm-referenced assessments have now been long considered adequate and valid predictors of academic success and college retention. Examples would be the SAT and ACT in the U.S.

**Slide 14**

### Research Questions

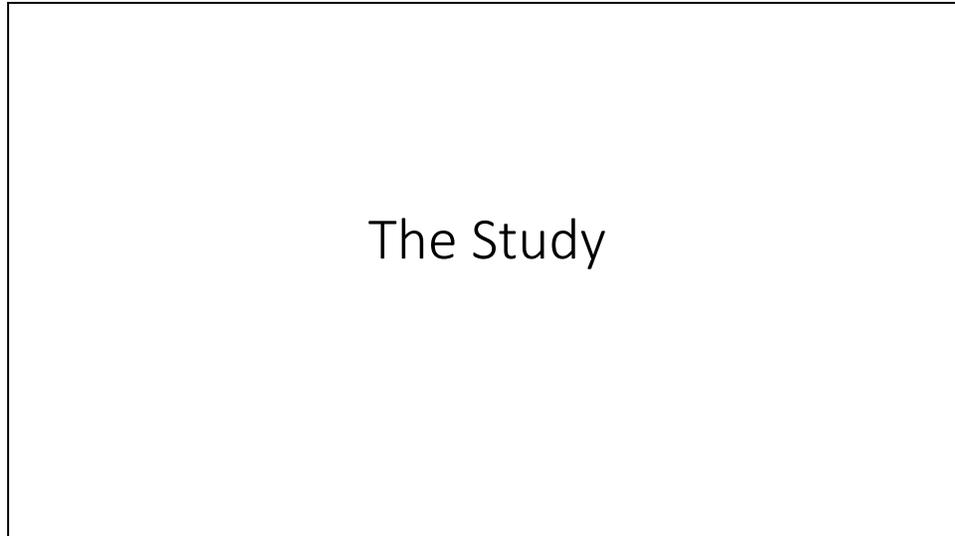
- Is there a correlation between high school sports participation intensity and ACT achievement?
- Is there a correlation between high school sports participation intensity and GPA?
- Is there a relationship between high school sports participation intensity and GPA when controlling for other mediating factors related to academic achievement?
- Is there a difference between mean GPA when comparing sports participation breadth (number of sports per year)?

Since common measures in extracurricular participation included both intensity and breadth (Bohnert, Fredericks, & Randall, 2010) they were included in this study. Furthermore, measures of academic achievement most commonly utilized and for varying rationales in the United States, were cumulative GPA and standardized

## A QUANTITATIVE ANALYSIS

assessment achievement. Both GPA and ACT were included as measures for academic achievement in this study.

### Slide 15



### Slide 16

Context-Quantitative Data

- Athletic Participation
  - Students may participate in 1-4 sports in a given year\*. The range in breadth for this study was 1-3 sports participated in for a given school year.
    - Fall season: football, girls' golf, softball, volleyball, cross country
    - Winter season: boys' basketball, girls' basketball, wrestling
    - Spring season: track and field, boys' golf, baseball
  - The total hours of intensity varied each year due to teams/individuals length of season regarding post-season participation

\*To participate in four sports in a given year, an athlete would require an approved dual participation agreement with all stakeholders

Lanlaur High School had no dual sport athletes during 2015-2017 therefore the greatest breadth for any given athlete was three sports.

**Slide 17**

Context-Quantitative Data continued

- Measuring Academic Success
  - Students could score between a 1-36 on the ACT exam; the range at Lanlaur High School from 2015-2017 was 10-33.
  - Students could earn a weighted cumulative GPA through 11th grade of 0.00 to 4.50; the post-11th grade GPA range for students in this study was 1.44 to 4.33.

**Slide 18**

Context-Qualitative Data

- Free & reduced lunch status (FRL) as a proxy for socioeconomic status similar to Rauschenberg (2014) and Stearns and Glennie (2010).
- Gender and minority status (Covay & Carbonaro, 2010; Feldman & Matjasko, 2005; Videon & Videon, 2002).
- Mediating factors for academic achievement are known demographic variables that research indicates can demonstrate a relationship with academic achievement. Mediating factors can be confounding variables when examining relationships and differences associated with other independent variables and academic achievement.
  - Gender, FRL status, minority status, and previous academic ability were considered mediating factors academic achievement (Broh, 2002).

The inclusion of categorical interdependent variables are necessary to account for mediating factors often considered to have relationship to academic achievement. Early studies on extracurricular activities and academic achievement failed to account for the mediating effects of categorical variables and have thus been considered weaker compared to corollary contemporary studies.

### Slide 19

#### Participants

- Quasi-experimental design. Participants were selected without random group assignment (Creswell, 2014).
- N=128 11th graders at Lanlaur High School from 2015-2017.
- The study was delimited to 11th graders only because:
  - All Missouri 11<sup>th</sup> graders had at least one composite ACT score in compliance with Missouri requirement (Helwig, 2014).
  - 11th grade was the third of four high school years, and composite GPA was more valid measure of academic achievement.
  - 11th grade is pivotal in evaluating college readiness and career preparedness (Feller, 2003).

Participation in extracurricular activities was a voluntary self-selected component of high school programs; therefore random assignment to sport participation intensity and breadth was not possible and made this study quasi-experimental (Creswell, 2014).

### Slide 20

#### Data Collection and Analysis

- Researcher contacted Lanlaur High School principal and guidance counselor.
- Data collected anonymously by database from school administration.
- University of Missouri IRB: study did not constitute human subjects.
- Confidentiality
  - Data was stripped of student name and supplied to researcher by randomized student identification number.
  - Three cohort years of 11th grade students aggregated into one database.

In order to maximize anonymity and utilize ethical data practices for research involving individual student assessment data and participation the researcher relied upon anonymization by the school counselor to convert student names to student identification numbers prior to export to the researcher (Punch, 2014).

**Slide 21**

Data Collection and Analysis

- Measuring participation
  - Intensity operationalization was consistent with the design of Denault, Poulin, and Pedersen (2009), in which a composite index in hours for each participant’s total participation in a given year.
  - Breadth was tabulated by adding total number of sports participated in per student, per year.

Intensity was operationalized similar to Denault et al. (2009) by creating a composite index per student based on sport participation length in hours. Previous studies reviewed average hours per week, but due to the nature of high school sport seasons an average does not accurately capture student contact throughout a season. Intensity is a measure that captures the element of how students spend their time in ESA sport participation.

Breadth shares a relationship with intensity but reflects a different element of participation. Breadth denotes the differentiation sport contexts have on social and developmental outcomes as related to academic achievement. (Rose-Krasnor et al., 2006). Breadth is a measure of social contexts students are exposed to in a given year, and less a measure of time as in intensity (Hansen, Larson, & Dworkin, 2003).

**Slide 22**

Table 2  
Excerpt sample of operationalized student participation intensity data.

Student ID #	Sport 1	Sport 1 Hours	Sport 2	Sport 2 Hours	Sport 3	Sport 3 Hours	Total Hours Intensity (1 school year)
145654	Football	241	Basketball	262	Boys' Golf	148	651

*Note.* Hours represent total hours participating per season.

**Slide 23**

Data Collection and Analysis

- Measuring Academic Achievement
  - ACT
    - The highest score was utilized for this study if a student had taken the exam more than once prior to the end of 11th grade.
  - GPA
    - The cumulative weighted grade point average (GPA) calculated at the end of 11th grade was utilized for this study.

College bound students frequently attempt the ACT exam beyond the required exam for Missouri eleventh graders, and consequently utilize their highest score on college applications, scholarships, etc., therefore the researcher remained consistent and utilized the highest ACT score garnered by the end of the 11th grade for research participants.

**Slide 24**

Data Collection and Analysis

- Conduct correlations between participation intensity and ACT outcomes as well as post-11th grade GPAs.
- Conduct a hierarchical regression to examine the relationship between participation intensity and GPA, while controlling for mediating factors related to academic achievement (gender, minority-status, socioeconomic status, and previous academic ability).
- Conduct ANOVA analysis to examine differences in mean GPAs when categorized by sport participation breadth.

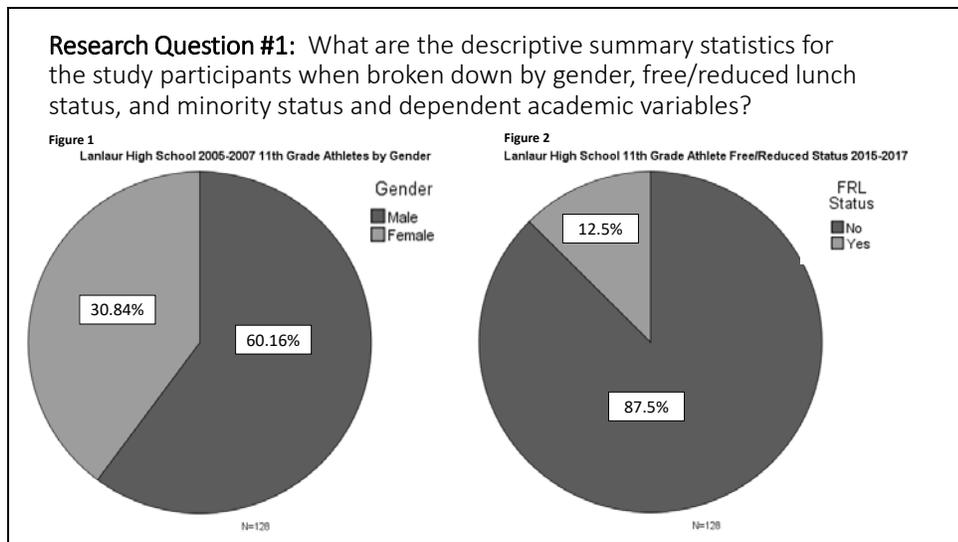
The analyses chosen by the researcher scaffold off each other in some regard based on the initial analyses of correlation between participation and academic achievement.

The nature of the two differing dependent variables in the study require differing analysis. When cumulative GPA is the dependent variable, it is a continuous variable and regression analyses were desired (Field, 2013). When the dependent variable is categorical in nature and the researcher is interested in group differences, the one-way analysis of variance (ANOVA) is appropriate (Field, 2013).

Slide 25

Results by Research Questions

Slide 26



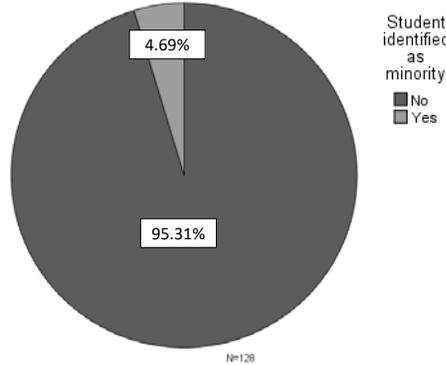
Lanlaur High School athletes from 2015-2017 in 11th grade were 60.16% male to 30.84% female. A majority (87.5%) of 11th grade athletes did not qualify for federal free or reduced lunch prices based on household income.

# A QUANTITATIVE ANALYSIS

## Slide 27

**Research Question #1:** What are the descriptive summary statistics for the study participants when broken down by gender, free/reduced lunch status, and minority status and dependent academic variables?

Figure 3  
Lanlaur High School Athlete Minority Athlete Minority Status Identification 2015-2017



Lanlaur High School, located in a homogenous and relatively non-racially diverse region of Missouri, was not represented differently within the 11th grade athlete population from 2015-2017 as 95.31% of student athletes identified as non-minority racial status.

## Slide 28

**Research Question #1:** What are the descriptive summary statistics for the study participants when broken down by gender, free/reduced lunch status, and minority status and dependent academic variables?

Academic Achievement-ACT and Categorical Variable Demographics

Figure 4

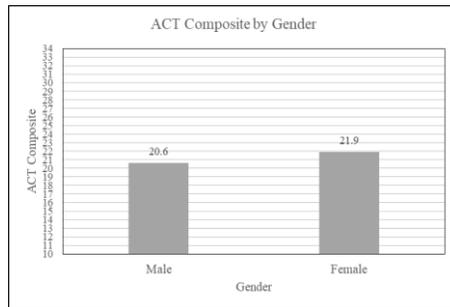
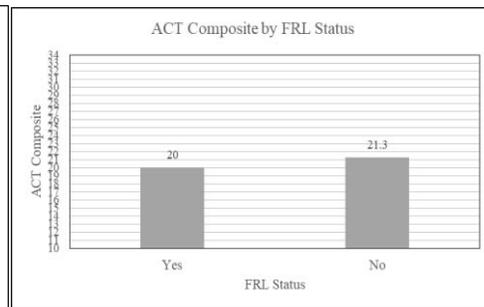


Figure 5



Female 11th grade athletes from 2015-2017 scored 1.3 points higher on the ACT on average. Students who were not categorized as FRL students scored 1.3 points higher on the ACT exam on average.

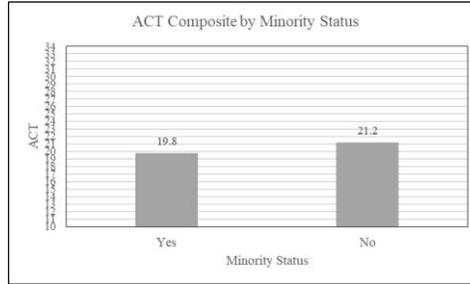
# A QUANTITATIVE ANALYSIS

## Slide 29

**Research Question #1:** What are the descriptive summary statistics for the study participants when broken down by gender, free/reduced lunch status, and minority status and dependent academic variables?

**Academic Achievement-ACT and Categorical Variable Demographics**

**Figure 6**



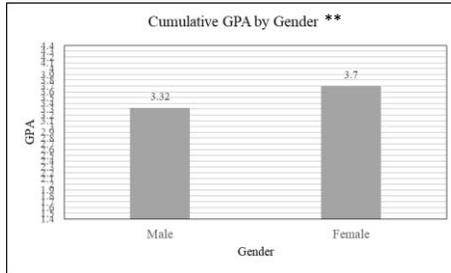
Lanlaur High School 11th grade athletes who did not self-identify as a minority status student scored on average 1.4 points higher on the ACT from 2015-2017.

## Slide 30

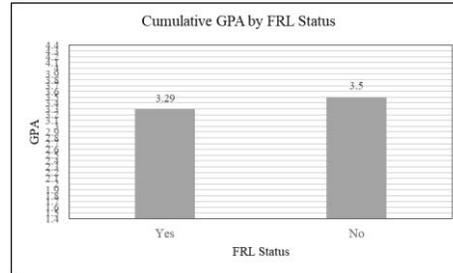
**Research Question #1:** What are the descriptive summary statistics for the study participants when broken down by gender, free/reduced lunch status, and minority status and dependent academic variables?

**Academic Achievement-GPA and Categorical Variable Demographics**

**Figure 7**



**Figure 8**



Note: \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Female 11th grade student athletes at Lanlaur High School achieved on average a 0.38 higher GPA than their male counterparts. In other words, females had 10.3% higher cumulative GPAs.

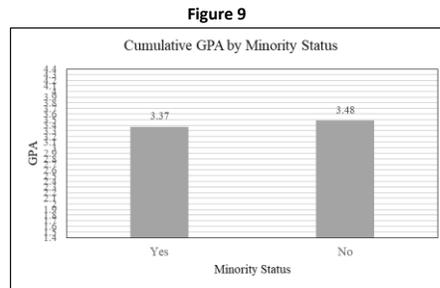
Lanlaur High School 11th grade student athletes who were not categorized as a FRL student achieved on average 0.21 (6%) than those students who were categorized as FRL students, the researcher's proxy for socioeconomic status.

## A QUANTITATIVE ANALYSIS

### Slide 31

**Research Question #1:** What are the descriptive summary statistics for the study participants when broken down by gender, free/reduced lunch status, and minority status and dependent academic variables?

#### Academic Achievement-GPA and Categorical Variable Demographics



Lanlaur High School 11th grade athletes who did not self-identify as a minority status student garnered on average 0.11 points (7%) higher on the GPA from 2015-2017 than students who identified as minority students.

### Slide 32

#### Academic Achievement Dependent Variable Outcomes-Dichotomous Mean Differences

- There was no statistically significant difference between group means when considering ACT by gender [ $F(1,126) = 2.22, p = .139$ ]
- There was no statistically significant difference between group means when considering ACT by FRL status [ $F(1, 126) = 0.557, p = .457$ ]
- There was no statistically significant difference between group means when considering ACT by minority status [ $F(1, 126) = 0.267, p = .606$ ]
- Mean GPA difference by gender was statistically significant [ $F(1, 126) = 9.571, p = .002$ ]\*\*
- There was no statistically significant difference between group means when considering GPA by FRL status [ $F(1, 126) = 1.152, p = .285$ ]
- There was no statistically significant difference between group means when considering GPA by minority status [ $F(1, 126) = 0.125, p = .724$ ]

Note: \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

# A QUANTITATIVE ANALYSIS

## Slide 33

**Research Question #1:** What are the descriptive summary statistics for the study participants when broken down by gender, free/reduced lunch status, and minority status and dependent academic variables?

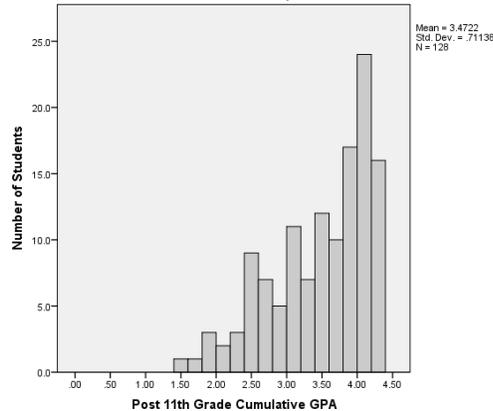
**Academic Achievement-Dependent Variable Frequency Distributions**

Academic achievement frequency distributions differed in relationship to each other. GPA demonstrated a positive linear relationship as the number of students increased as the composite GPA increased for student athletes. In regards to ACT distribution, the Lanlaur High School 11th grade athlete population followed a more curvilinear relationship commonly seen in traditional Missouri and national ACT results.

## Slide 34

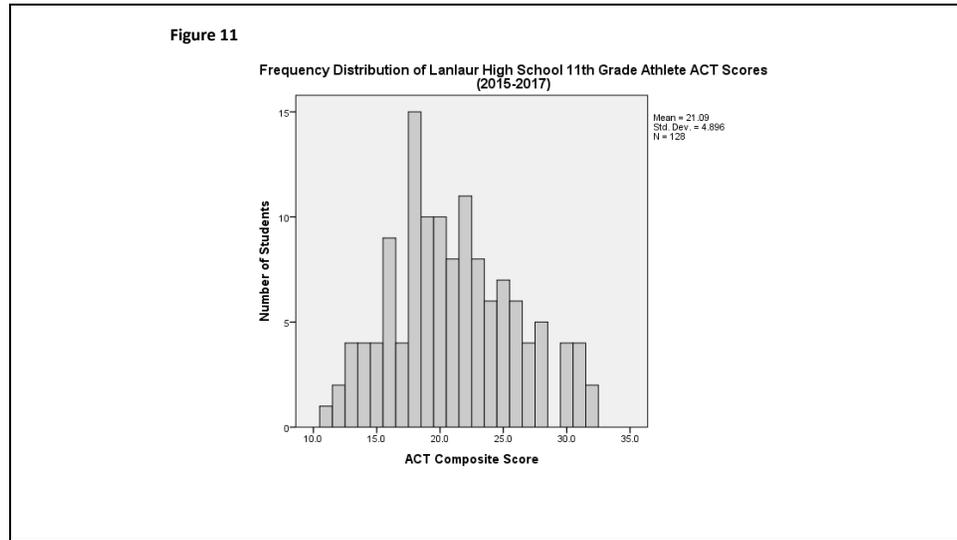
Figure 10

Frequency Distribution of Lanlaur High School 11th Grade Athlete GPA (2015-2017)



# A QUANTITATIVE ANALYSIS

## Slide 35



## Slide 36

### Descriptive Statistics Summary

- $N=128$  11th grade athlete participants comprised 42.9% of all enrolled Lanlaur High School 11th graders from 2015-2017.
  - “Small” schools tend to have greater participation than larger due to less competition for “spots”; less due to socio-demographic factors (Lindsay, 1984).
- While more than half of the 11th grade athlete participants were male, most student athletes were not on free and reduced lunch programs or of minority racial status.
- Comparatively speaking, females athletes achieved higher scores on the ACT and GPA as well as non-minority and non-FRL students at Lanlaur High School in both ACT and GPA.

The largest discrepancy in academic achievement data was in gender and GPA were Lanlaur High School females earned significantly higher GPAs than their male counterparts who participated in athletics.

## A QUANTITATIVE ANALYSIS

### Slide 37

Research Question #2: Correlation between participation intensity and ACT.

- There was no significant relationship between participation intensity and ACT ( $p < 0.05$ ).
- Lipscomb (2007) found that extracurricular scored better on non-participants on standardized tests; but in this analysis intensity was not a significant factor.

The distribution of ACT scores as related to intensity of athletic participation intensity was not statistically significant for 11th graders at Lanlaur High School.

### Slide 38

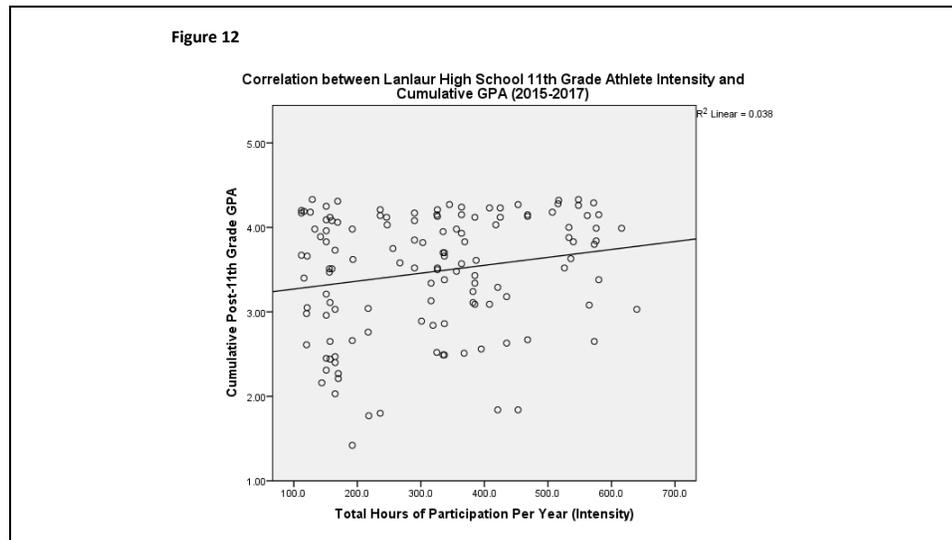
Research Question #3: Correlation between participation intensity and GPA.

- There was a statistically significant positive correlation between participation intensity and GPA ( $r=0.195$ ,  $N=128$ ,  $p = 0.027$ ).
- The coefficient of determination ( $r^2=0.038$ ). Participation intensity accounted for 3.8% of the variance in cumulative GPA.
- A scatterplot summarizes the results in Figure 12.

A positive correlation did exist between participation intensity and GPA that was statistically significant however; the relationship of the coefficient of determination was relatively small accounting for 3.8% of the variance in cumulative GPA.

## A QUANTITATIVE ANALYSIS

### Slide 39



The correlation between participation intensity and GPA was statistically significant ( $p < 0.05$ ). Furthermore, the relationship was linear and positive. The correlation analysis helped in determining one goal of this study which was whether a curvilinear relationship existed for participation intensity and academic achievement. For this cross section, no threshold of participation was identified or law of diminishing returns related to academic achievement verified.

### Slide 40

#### Research Question #4: Relationship between participation intensity, gender, FRL status, minority status, previous academic ability and GPA.

- A hierarchical regression was conducted to hold mediating factors for academic achievement such as gender, FRL status, minority status, and previous academic ability to isolate the effect of participation intensity on GPA.
- There was no statistically significant relationship between participation intensity and GPA while holding constant for other mediating and contributing factors to academic achievement.
  - Mediating factors known to account for variance in academic achievement were gender, FRL status, minority status, and previous academic ability.
- Model 1 and Model 2 did produce one statistically significant relationship between previous academic ability and GPA.

The hierarchical regression analyses did not yield any significant results related to GPA and participation intensity when holding constant for known mediating factors for academic achievement (Rose-Krasnor et al., 2006). The one statistically significant relationship demonstrated in the hierarchical analysis was not uncommon as previous academic ability is a consistent predictor of future academic ability (Din, 2005).

## A QUANTITATIVE ANALYSIS

### Slide 41

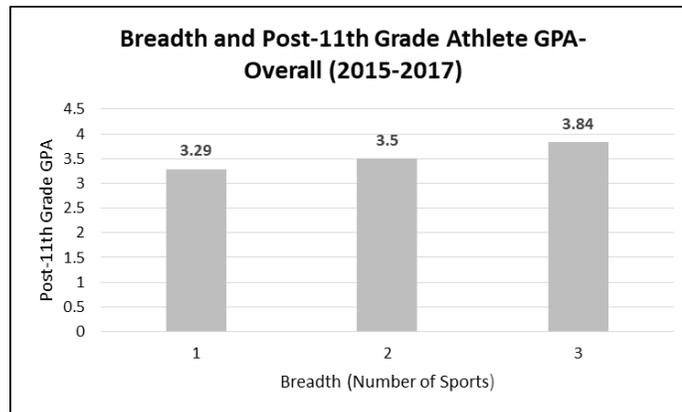
Research Question #5: Differences between participation breadth and GPA.

- There was a statistically significant difference between participation breadth and GPA at the  $p < .01$  level for Lanlaur High School 11th grade athletes from 2015-2017 [ $F(2, 125) = 4.76, p = 0.010$ ].
- Post hoc comparisons using the Tukey HSD test indicated a mean score for a breadth of 1 ( $M = 3.29, SD = 0.821$ ) **was** significantly different than a breadth of 3 ( $M = 3.84, SD = 0.470$ ), but a breadth of 2 ( $M = 3.51, SD = 0.636$ ) was **not** statistically significant different from breadths 1 and 3.
- Figure 13 demonstrates the difference in GPA by breadth overall and by gender within the context of breadth.

A statistically significant difference between a breadth of 1 and 3 at Lanlaur High School suggested that the more sports you participated the higher GPA you were likely to have as an 11th grader, in particular females.

### Slide 42

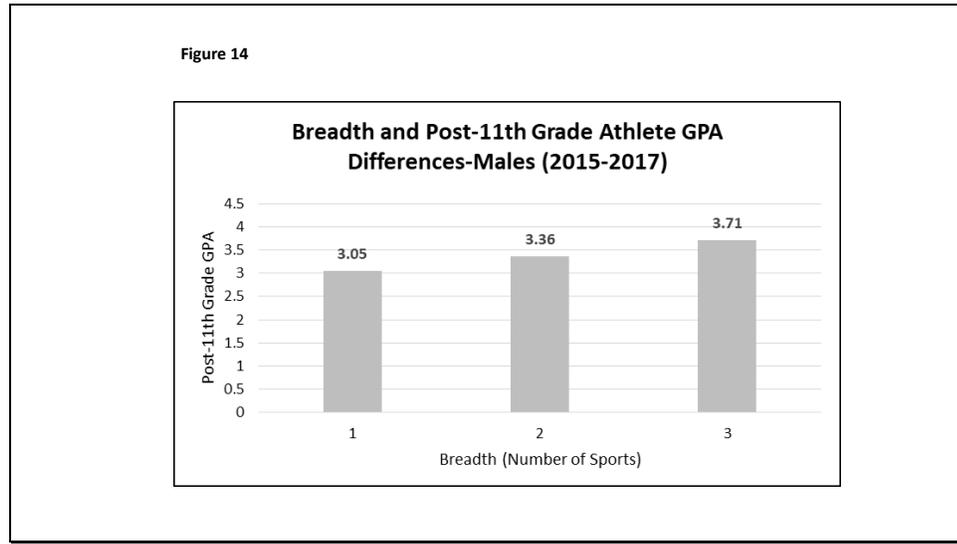
Figure 13



ANOVA analysis for breadth and GPA indicated a positive linear relationship between GPAs of 1, 2, and 3 sport athletes from 2015-2017.

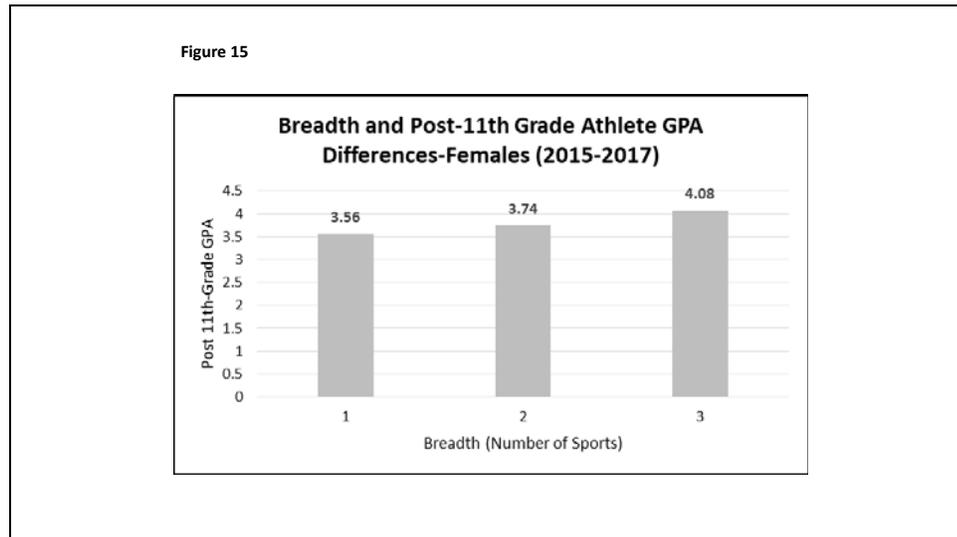
## A QUANTITATIVE ANALYSIS

### Slide 43



When broken down by gender, males showed a positive linear relationship regarding differences between GPAs of 1, 2, and 3 sport athletes from 2015-2017.

### Slide 44



When broken down by gender, female athletes showed a positive linear relationship between GPAs of 1, 2, and 3 sport athletes from 2015-2017

**Slide 45**

Discussion and Implications:  
By Research Question

- The goal of this study was to determine if measures of high school sport participation demonstrated relationships and/or differences to 11th grade academic achievement.
  - Participation intensity and breadth
  - Participation versus ACT
  - Participation versus GPA

These results should be discussed by school administration associations and local school boards in regards to extracurricular programming. In addition, the results of this study should be examined, in particular by rural schools, when considering budget cuts and reduction in high school sport offerings (Knifsend & Graham, 2012; Stearns & Glennie, 2010).

**Slide 46**

Discussion and Implication  
Intensity and Breadth

- While statistically significant findings were noted in both intensity and breadth as measures of participation, it is critical to differentiate which methodology should be utilized to explain desired ESA sports related outcomes.
- Intensity operationalization does not delineate sport differences related to overall hours, but does demonstrate linear relationships with academic achievement (GPA).
- No threshold of participation (curvilinear relationship) existed.
- Breadth too, demonstrated a linear relationship with academic achievement (GPA).

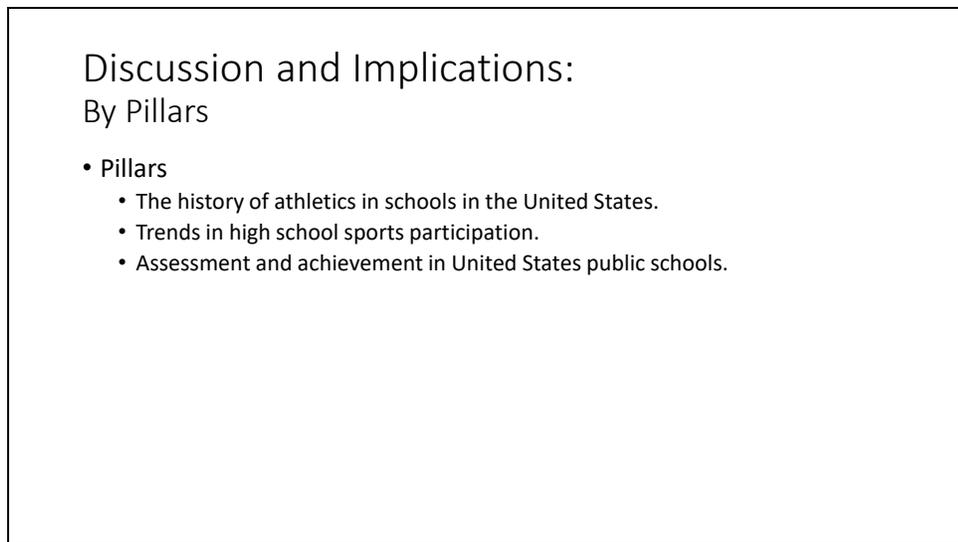
The statistical significance between breadth groupings and mean GPA was potentially more powerful than intensity because of the different environments of peers, adults, and cultural capital breadth provides. This could be explained by the social bond framework and ESA sport participation (Hirschi, 1969; Neely & Vaquera, 2017).

**Slide 47**



Discussion and Implications

**Slide 48**



Discussion and Implications:

By Pillars

- Pillars
  - The history of athletics in schools in the United States.
  - Trends in high school sports participation.
  - Assessment and achievement in United States public schools.

These results should be reviewed through the lens of the original research pillars, which were: (a) the history of athletics in schools in the United States, (b) trends in high school sports participation, and (c) assessment and achievement in United States public schools.

### Slide 49

#### Discussion and Implications:

The history of athletics in schools in the United States.

- Evolution of athletics initially not associated with school and then gradually interconnected by the 21st century, but growth of private sports culture has diversified structured activities interest for youth today (Keller, 1979; Lee, 1983; Smith, 2015).
- Based on the results of this research it is recommended:
  - Rural schools should continue to develop budgets that include extracurricular offerings (Lumpkin & Favor, 2012).
  - Schools communicate to all stakeholders the general benefits associated high school sports participation.
  - State and national activity associations reconsider policies that require adolescents to choose between school and non-school sport opportunities to participate that occur at the same time.

The history of high school sports in the United States public schools has generally been reflective of the times and political movements. At one time, youth sports participation centered on urban adolescents compared to rural, but over time unstructured and structured activity time became incorporated into the youth experience.

### Slide 50

#### Discussion and Implications:

Trends in high school sports participation

- Sampling sports a youth and later in interscholastic offerings was once commonplace for adolescents (Baker, Cote, & Abernathy, 2003; Russell & Symonds, 2015).
- The notion of a well-rounded “all-American” prototype was desired (Smith, 2015).
- By 1990s, child prodigies who specialized on intensive training sparked a desire for parents and children to emulate training and participation behavior, decreasing sampling in many cases (Coakley, 2010; Haddix, 2016).
- School offerings too, have been influenced by private youth sports market, and coaches feel compelled to train both in and out of season.
  - May lead to increase in burnout, lack of interest, and injury overuse (Jayanthi et al., 2013)

High school sports participation has witnessed an increase in overall participation in total number of students for 28 consecutive years; however what is unknown is the amount of those participants who are multisport participants (Howard, 2017). Future goals of schools should build upon the momentum of getting students to sample one sport and encourage multiple sports and attempt to remove stigmas associated with “trying out” or not being on “varsity.”

**Slide 51**

Discussion and Implications:

Trends in high school sports participation continued

- Based on the results of this research it is recommended by the researcher that:
  - Schools promote the academic benefits associated with multisport participation through educational awareness events and literature for athletes and parents.
  - Schools increase athletic offerings that appeal to a diverse interests and seek outside financial support to sustain increased offerings (Denault, Poulin, & Pedersen, 2010).

Rural schools should not consider a reduction in ESA sport offerings in an effort to save financial resources, but rather consider the academic and developmental opportunities missed through the interscholastic setting. The older students get often the more expensive sport participation is, therefore causing some individuals who cannot incur the pending costs to not participate (Denault, Poulin, & Pedersen, 2010).

**Slide 52**

Discussion and Implications:

History of assessment and achievement in United States public schools.

- K-12 education has mirrored much of its assessment and achievement measures from college and university practices (Smallwood, 1935).
- Increased accountability measures imposed by the federal and state governments throughout the late 20th and early 21st century utilized student achievement data to analyze the effectiveness of schools, teachers, and students (Fritzberg, 2004; Huddleston & Rockwell, 2015).
- Schools have vested interests in the achievement of their students and consequently must evaluate programming in all facets that could affect achievement; including ESA sports.
- Data suggest that multisport school sport participation is associated with higher GPAs in rural schools; therefore efforts should be coordinated to increase participation for enrichment of the student both developmentally and academically.

The history and trends of K-12 school achievement and assessment measures are likely to continue to be imperative in the conversation of school effectiveness. Since ESA programming has been ingrained so consistently through much of K-12 education, it too, should merit consideration by schools as extant literature exhibits positive associations with participation and academic achievement. Furthermore, as rural schools continue to value their limited resources, ESA multisport participation are perhaps one in which

## A QUANTITATIVE ANALYSIS

could show the greatest return on investment in regards to student achievement gains (Marsh & Kleitman, 2002).

### Slide 53

#### Discussion and Implications:

History of assessment and achievement in United States public schools, continued.

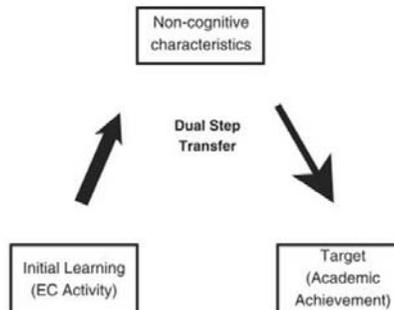
- Rural schools often serve a population who are not college bound but career-oriented. Bradley & Conway (2016) demonstrated, via the dual-step transfer model, how extracurricular activities (EC) enhance non-cognitive skills necessary for both increased academic achievement and “real-world” career success.

K-12 schools have the obligation to both meet federal, state, and local standards of achievement while preparing their students for success beyond high school. This dualistic task is not always achieved through similar methodology and programming. ESA participation, and particularly ESA sport multisport participation, in rural high schools in Missouri appears to at the very least share a relationship the non-cognitive skills necessary to be successful in both academic and post-high school endeavors.

### Slide 54

#### Discussions and Implications continued.

**Figure 16**  
The dual step transfer model



From Bradley, J. L., & Conway, P. F. (2016). A dual step transfer model: Sport and non-sport extracurricular activities and the enhancement of academic achievement. *British Educational Research Journal*, 42(4), 703–728. <http://doi.org/10.1002/berj.3232> Copyright 2016 by British Educational Research Association.

Slide 55

### Conclusions

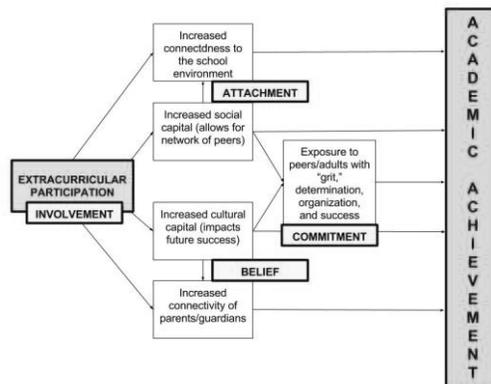
- ESA's have been both lauded and liable for their intersection with academic achievement and development.
  - Overscheduling hypothesis (Fredricks, 2012)
  - Positive results from increased connectedness (Social Bond Theory)
- Rural schools, like their urban counterparts, are particularly vulnerable to financial restraints; where ESA opportunities are often the first to be considered in budget cuts (Kelepolo, 2011; Lumpkin & Favor, 2012).
  - However, due to lack of overall structured leisure activity opportunities for rural students; they in fact may need ESA opportunities most (Sharp et al., 2015).
  - Lanlaur High School was considered a rural school within a rural district as designated by the U.S. Census Bureau (2010).

Researchers in the latter half of the 20th century and into the 21st century have largely debunked the zero-sum theorists of the 1950s and 1960s by demonstrating positive outcomes associated with ESA participation. The future of the ongoing research now must coincide with both school accountability expectations and finance, as well as the private sport trends such as sport specialization. In doing so, future research can scaffold off the framework developed by this researcher in an effort to capture dimensions relationship intensity and breadth of multisport participation might contribute to student achievement and development.

Slide 56

### Conclusions

#### The Integrated Framework Model Revisited



**Slide 57**

Conclusions

The Integrated Framework Model Revisited

- **Social Bond Theory (Hirschi, 1969)**
  - **Involvement**
    - ESA sport participation intensity and breadth demonstrate a relationship with positive behavior, academic, and developmental outcomes, therefore a reduction in negative behaviors also exists as sport participation often requires citizenship and academic eligibility requirements (Neely & Vaquera, 2017; Peguero, Ovink, & Li, 2015).

Stearns & Glennie (2010) found that schools who offer more extracurricular opportunities tend have students (and adults) make a larger investment in their school environment. This increased connectedness highlights both the involvement and attachment components of Hirschi's social bond theory (1969).

**Slide 58**

Conclusions

The Integrated Framework Model Revisited continued

- **Attachment**
  - ESA sport participation represents a stronger link to school environment and mission. Improves intrapersonal relationships with peers and teachers (Gerber, 1996; Libbey, 2004; Crosnoe, Johnson, and Elder 2001; Peguero, Ovink, & Li, 2015). A reduction of school drop-out has also been demonstrated (Bryan et al., 2012).
  - Social capital connection. Multisport participants were exposed to increased peer and adult networks and developed efficacy as valuable members of school networks (Eccles & Barber, 1999; Stearns & Glennie, 2010).
    - Multisport participation also increases the parents/guardians access to social capital and awareness of educational dialogues because they attend games with each other and enhance their own personal networks (Olszewski-Kublious, & Lee, 2004, Portes, 1998).

Slide 59

## Conclusions

### The Integrated Framework Model Revisited

- Social Bond Theory (Hirschi, 1969) continued
  - Belief
    - Multisport athletes are more likely to be prosocial and abide by model behaviors that sports participation promotes (Camire, Trudel, & Forneris, 2012).
    - Increased participation in school sports is often an avenue where less privileged students can rely upon the school institution to uphold rules, fairness, and expectations regardless of status (McNeal, 1995).
    - Cultural capital integration.
      - Parent communication that ESA sport participation promotes enhances the educator/coach relationship which is integral in actualizing educational expectations (Broh, 2002; Lareau, 1987).
      - Often in rural settings, participation in ESAs is consistent with class ability to devote time and resources consequently participation exposes athletes and parents to increased “status” and contagion effects related academic expectations (DiMaggio, 1982; Eitle & Eitle, 2002; McNeal Jr., 1995).

Belief in both one’s self as well as the institution (school) are critical components of a quality education and subsequent student achievement. Multisport participation allows for students to develop belief that schools can be a beacon for opportunity and equity while the consistent exposure to a more expansive peer and adult network invokes a more developed support network for belief in one’s self.

Slide 60

## Conclusions

### The Integrated Framework Model Revisited

- Social Bond Theory (Hirschi, 1969) continued
  - Commitment.
    - Increased school commitment in order to participate has been shown to increase academic performance (Bryan et al., 2012; Lumpkin & Favor, 2012; Maddox & Prinz, 2003).
    - Multisport participation increases exposures to adults who are committed to other facets of life thus providing additional cultural capital.
    - Increased access to adults who are committed teachers, leaders, mentors provide resource access to multisport rural athletes that they otherwise may not be exposed to (Dworkin, Larson, & Hansen, 2003). Characteristics might included organization, communication, grit, determination, and equity.
    - Consistent with the dual step transfer model of Bradley & Conway (2016) commitment to multisport participation enhances intrinsic motivation, self-control, persistence, and discipline often associated with academic success.
    - Increased commitment as a multisport athlete and its relationship to academic achievement continues to refute early work by zero sum theorists such as Coleman (1961) who argued athletic pursuits detracted from student commitments toward academic pursuits (Marsh, 1992).

For students who do not exhibit a natural predisposition to be intrinsically motivated to be committed to academic achievement, ESA sport participation can offer alternative avenues for student commitment and thus increasing opportunity for positive academic achievement. Furthermore, the enhancement of life skills and other non-cognitive factors allows for ESA sport participation to enhance the holistic growth of a student beyond developmental and academic gains only.

**Slide 61**

### Conclusions

- The “extra” in “extracurricular” may now be a misnomer as the social bonds facilitated by the attachment, commitment, belief, and involvement ESA sports offer may be pivotal in the academic achievement for rural high school students.
- Recommended that schools recognize the academic and developmental benefits related to ESA multisport participation and aim to:
  - Offer more interscholastic sport programs/offering
  - Conduct a program evaluation of current ESA sport offerings for purposes of analyzing overlaps and rationales for lack of multisport participation
  - Develop and conduct stakeholder information and resources regarding academic benefits of ESA multisport participation
  - Seek community partners and resources to strengthen the ESA sport offerings.

The extant body of literature regarding ESA participation on developmental and academic outcomes is well researched. The extent of which the level of participation is less clear, but this cross-sectional analysis of a rural high school in Missouri offers some unique insight on differences related to measurement of participation (breadth and intensity). Breadth demonstrated significant GPA differences for both male and female 11th grade athletes. The researcher recommends evaluation of current school programming, increased communication and education resources for students and parents on the benefits of multisport participation, and identification of adequate funding and resource acquisition from community resources to continue to bolster multisport participation.

**Slide 62**

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# A QUANTITATIVE ANALYSIS

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**SECTION FIVE**

**CONTRIBUTION TO SCHOLARSHIP**

**Target Journal**

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**Rationale for this Target**

The *Journal of Contemporary Athletics* publishes research related to all level of sport from youth to professional levels of sport. The journal is peer reviewed through a double-blind process by experts in the field and is published in four editions per year. This journal provides peer reviewed articles that facilitate a variety of high-level medium for practitioners in a wide array of athletics, administrative, and fitness fields.

**Outline for Proposed Contents**

- Title Page
- Abstract
- Keywords (4 to 6)
- Introduction
  - Hypotheses
- Method (include demographic information about participants; have a subheading for each key variable)
  - Participants
  - Measures
  - Procedure

## A QUANTITATIVE ANALYSIS

- Data analysis
- Results
- Discussion and Conclusion
- References
- Appendices (if needed)

### **Plan for Submission**

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A QUANTITATIVE ANALYSIS

HIGH SCHOOL SPORT PARTICIPATION INTENSITY AND BREADTH:  
RELATIONSHIPS WITH ACADEMIC ACHIEVEMENT IN A RURAL SCHOOL  
SETTING

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Submitted to:

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By:

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**Abstract**

The purpose of this study was to determine whether measures of participation (intensity and breadth) demonstrated a relationship with academic achievement for 11th grade student athletes ( $N=128$ ) in a rural Midwestern high school. Recent research found high school-aged students in interscholastic activities were less likely to be multisport athletes than in previous decades. Since increased connectivity to school via extracurricular school activities (ESAs) enhances social bonds associated with positive academic and behavioral outcomes, a reduction in participation intensity and/or breadth may exhibit deleterious effects to the academic and social development students experience in the school setting (Crosnoe, 2002; Eccles & Gootman, 2002; Hirschi, 1969). Anonymous athletic participation and achievement data from 2015-2017 was obtained from the school's archive and analyzed by correlation, hierarchical regression and one-way ANOVA. Data derived from statistical analyses demonstrated two outcomes regarding sport participation, ACT, and GPA: (a) Intensity demonstrated no statistical significance to student achievement measured by ACT, however intensity demonstrated a statistically significant relationship to cumulative GPA ( $p < .05$ ), and (b) ANOVA analysis demonstrated statistically significant differences in breadth and GPA ( $p < .01$ ) between one sport athletes and three sport athletes. Three sport athletes had statistically significantly higher GPAs than one sport athletes and practically significant higher GPAs than two sport athletes. Future research on ESA sport, activity, and non-activity participation related to academic outcomes is justified.

**Keywords:** multisport, academic achievement, social bonds, participation intensity

## **Introduction**

In the United States, overall participation in interscholastic athletics has increased for 28 consecutive years (Howard, 2017). During the same time, participation in out-of-school structured activities for students ages 12-17 also experienced an overall increase (Moore et al., 2014). This increase, while beneficial for socialization, development, and overall health, can come at the expense of other positive undertakings such as academic achievement (Coleman, 1961; Marsh, 1992; Marsh & Kleitman, 2002). Further complicating the matter, the demand of time, rigor, and pressure related to high school academics has also increased for students (Tavani & Losh, 2003). Students and parents alike are presented with a conundrum. How does a 21st century student experience positive social and developmental outcomes while being physically and mentally healthy without detracting from the necessary time required to be successful academically? Social pressures for parents and students to achieve elite athlete status and garner collegiate scholarships can complicate the matter.

The nature of organized sport in the United States for high school students is at an impasse. On one hand, schools urge students to participate in as many activities as possible in order to provide the most holistic developmental learning experience possible, while at the same time societal pressures exist to specialize in specific activities in order to win championships, garner elite status, and earn college scholarships (Bell et. al, 2016; Feeley, Agel, & LaPrade, 2016; Luthar & Sexton, 2004). A recent poll by NPR revealed that 26% of parents believed that their high school student athlete would be a professional athlete at some point and time in the future (Kelto, 2016). Data from professional sports leagues across the United States indicated that likelihood is less than 1% (NCAA, 2016).

## A QUANTITATIVE ANALYSIS

This discrepancy between fact and fallacy helped to recognize the myths associated with sports specialization in the United States that undergird school sport activity participation.

As the trend of sport specialization became prevalent so did a decrease in the intensity and breadth of school activities participation (Baker, Cobley, & Fraser-Thomas, 2009; Coakley, 2010; Jayanthi et al., 2013). The ramifications of lesser school participation were particularly relevant to school administrators and PK-20 experts as the bulk of research in the area of activities participation and academic achievement represented significant positive relationships (see e.g. Broh, 2002; Cooper, Valentine, Nye, & Lindsay, 1999; Holland & Andre, 1987; Marsh & Kleitman, 2002; Melnick, Sabo, & Vanfossen, 1992). For an increasing amount of United States students, in order to placate to pressures which include a rigorous academic schedule, students participate in less varied of activities or specialize in one (Haddix, 2016). The modern generation of athlete grew up with youth prodigies specializing in order to reach elite status as amateurs. Tiger Woods in golf, Michael Phelps in swimming, and Venus and Serena Williams in tennis, were examples who changed the success equation for high school athletes in the 21st century (Coakley, 2010; Myer et al., 2015; Smith, 2015). The researcher hypothesized decreases in multisport participation would be problematic for rural schools versus their urban counterparts due to lack of sport opportunities present outside the school context.

The gap in knowledge regarding rural participation in ESA athletics and academic achievement was whether intensity and/or breadth of ESA sport participation demonstrated relationships to academic achievement including standardized assessment

## A QUANTITATIVE ANALYSIS

and if so, to what extent the relationship was linear highlighting any threshold significance. Little research has been conducted on activities intensity beyond the work of Busseri, Rose-Krasnor, Willoughby, and Chalmers, (2006); Denault, Poulin, and Pedersen, (2009) and Fredericks (2012); particularly within the lens of multisport participation in the United States. The researcher aimed to build upon previous evidence that extracurricular school activity participation versus non-participation resulted in positive relationships to academic achievement (Shulruf, 2010). To build upon that premise, was more participation, better? Does an increase in participation intensity and/or breadth in ESA athletics per school year share a relationship with incremental improvement in measures of academic achievement (Feldman & Matjasko, 2005)?

The purpose of this study was to address the gap in research related to whether measures of participation (intensity and breadth) demonstrated a relationship with academic achievement for 11th grade student athletes ( $N=128$ ) in a rural Midwestern high school. Nearly six decades of research regarding participation versus non-participation in ESAs has produced a litany of cross-sectional and longitudinal data to suggest a positive relationship for academic achievement existed for ESA participants (Broh, 2002; Camp, 1990; Eccles & Barber, 1999; Frederick & Eccles, 2006; Melnick et al., 1992). It was hypothesized that because rural students were more bonded (socially) through increased participation measured by both intensity and breadth that dual-transfer non-cognitive benefits as well as other developmental benefits would exhibit linear associations with academic achievement.

Extant literature on defining breadth included contextualization from categories of organized school and non-school activities to within school definitions of school

## A QUANTITATIVE ANALYSIS

activities which included athletics (Eccles & Barber, 1999; Rose-Krasnor, Busseri, Willoughby, & Chalmers, 2006; Sharp, Tucker, Baril, Van Gundy, & Rebellon, 2015).

This study sought to investigate whether in-school differences existed specifically within the number of sports a school athlete participated in when compared to their respective academic achievement.

The researcher hypothesized a positive relationship for ACT test scores and GPA as ESA sport participation was measured by intensity (total hours per year) and breadth (number of sports) in the 11th grade school year. Cooper et al. (1999) found that intensity of extracurricular participation was positively correlated with achievement test scores, therefore the researcher selected the ACT as a proxy for academic achievement test score. Further research is needed to test the linear assumptions of the correlation between high school students' academic achievement and school sport ESA participation intensity and breadth. In addition, research is necessary to assess the presence of thresholds in ESA sport participation related to the law of diminishing returns on ACT achievement and GPA. In doing so, the researcher would be directly assessing the over-scheduling hypothesis outlined by previous researchers (Fredericks, 2012; Mahoney & Vest, 2012).

The researcher posited that ESA involvement intensity and breadth in interscholastic sports through an entire school calendar year increased the social bonds, accountability, and peer status therefore making them more connected to peers and academic expectations (Broh, 2002; Silliker & Quirk, 1997; Whitley, 1999). These hypotheses were in alignment with developmental theory as well as literature on social

## A QUANTITATIVE ANALYSIS

and capital models within schools (Broh, 2002; Eccles and Gootman, 2002; Feldman & Matjasko, 2005; Marsh & Kleitman, 2002).

The context of school is central to ESA participant effects as it provided an academic setting where student-athletes maintain contact with the school environment and coaches, unlike some out of school opportunities (Darling, Caldwell, & Smith, 2005; Finn, 1989). Students who were more involved in an activity setting were more supervised, had deeper interactions with adults and peers, and were less likely to be involved in negative developmental experiences (Bohnert, Fredricks, & Randall, 2010; Fredericks & Eccles, 2005; Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996).

### **Hypotheses**

The four null hypotheses that guided the researchers were:

H01: There is no correlation between high school sports participation intensity and ACT achievement at rural Midwestern rural high school from 2015-2017.

H02: There is no correlation between high school sports participation intensity and GPA at rural Midwestern high school from 2015-2017.

H03: There is no statistically significant relationship between sport participation intensity and GPA when previous academic ability is used as a covariate.

H04: There is no statistically significant difference between sport participation breadth and GPA at rural Midwestern high school from 2015-2017.

### **Method**

#### **Participants**

The participants of the study were 11th grade students for three academic school years at rural Midwestern high school from 2015-2017. The total student population for

## A QUANTITATIVE ANALYSIS

11th grade students over the three year cross-section was 298 students; however the population who participated in high school athletics for this study was 128 students ( $N=128$ ). The percent of high school students eligible for free and reduced lunch (FRL) rates under the National School Lunch Act were 14% free and 6% reduced (U.S. News & World Report, 2017). FRL status was used as a proxy for socioeconomic status in this study. Gender classification breakdown varied annually during the three year cross-section, but ranged between 48-52% male and 48-52% female from 2015-2017. The high school was considered homogenous in race/ethnicity as more than 95% of students were white non-Hispanic students (National Center for Education Statistics, 2017).

Eleventh grade students were chosen for this study for two reasons. First, by the end of the 11th grade school all Missouri 11th graders from 2015-2017 had one or more recorded ACT composite score(s) with the high school unless it was determined as not required to under disability conditions set forth by the Missouri Department of Elementary and Secondary Education. Second, the 11th grade year was a critical year for planning, preparing, and applying for post high school career plans making success by this year paramount in pursuing future plans (Feller, 2003). Previous research in multisport participation indicated specialization was more prevalent as students progressed through high school (Post et al., 2017).

### **Measures**

**Demographics.** Gender, previous academic ability (GPA), minority status, and free/reduced lunch status were collected and utilized as a way to control for other confounding variables to academic achievement and to better isolate the relationship of intensity and breadth of sports activities and academic achievement results; the dependent

## A QUANTITATIVE ANALYSIS

variable (Camp, 1990; Covay & Carbonaro, 2010; Feldman & Matjasko, 2005; Fredricks, 2006; Mahoney & Cairns, 1997; Marchetti, Wilson & Dunham, 2015; Whitley, 1999; Yeung, 2005). Additionally, these variables were utilized to attempt to better tease out the self-selection effects often associated with interscholastic sport participation and academic outcomes (Crosnoe, 2002). The confounding variables became covariates and produced data to identify individually or as a group how statistically significant they contributed to academic achievement.

**Measuring participation.** Participation in extracurricular activities is typically measured through intensity and breadth (Denault et al., 2009). While both intensity and breadth are common measures utilized in research, rarely are they both studied simultaneously (Rose-Krasnor et al., 2006). Since intensity and breadth are highly correlated, this study opted to utilize both measures of participation measurement to test for differences student achievement outcomes (Knifsend & Graham, 2012; Neely & Vaquera, 2017; Rose-Krasnor et al., 2006). Busseri et al. (2006) recognized that involvement in a variety of types of extracurricular activities may have differing developmental outcomes for students and therefor the researcher inquired to apply similar logic to academic outcomes.

**Intensity.** Intensity was operationalized by calculating the total hours in sport for each academic school year resulting in a composite time spent figure. For example, if in a given year Student A participated in football, basketball, and boys' golf the researcher would add the archived season participation hours for each sport, and compute a final intensity (in hours) index figure. Table 2 denotes an example of how a participation intensity index figure was operationalized and calculated. The range hours of intensity

## A QUANTITATIVE ANALYSIS

for a Lanlaur High School athletes participating as an 11th grader from 2015-2017 was 112 to 640 total hours (M=315.3, SD=148.22). The operationalization of intensity was consistent with the design of Denault et al. (2009) in which researchers utilized a composite index in hours for each participant's total participation in a given year.

*--insert Table 1 here--*

**Breadth.** While some researchers have defined breadth as the number of types or categories of ESA participation; this researcher, similar to Gerber (1996) contextualized breadth of participation by the total number sports participated in a given year (Eccles & Barber, 1999; Neely & Vaquera, 2017; Rose-Krasnor et al., 2006). Since this study was an inquiry related to multisport participation in a given year at Lanlaur High School, the range of breadth was from one to three. Sport participation measured by breadth at Lanlaur High School for 11th grade athletes from 2015-2017: 38.3% (n=49) participated in one sport, 45.3% in two sports (n=58), and 16.4 % (n=21) participated in three sports.

**Measuring academic achievement.** Extant research has utilized GPA as a primary measure in evaluating the relationship between ESA participation and academic outcomes (Sitkowski, 2008; Watkins, 2004). However, modern critiques regarding the inconsistency of methods in determining academic viability from only one source, such as GPA, led the researcher to utilize two methods; GPA and ACT composite results (Moriana, Alcalá, Pino, & Ruiz, 2006). The utilization of both a localized derived student achievement measure (GPA) coupled with analysis of a nationally-normed standardized test (ACT) was more holistic and appropriate as differing measures of student achievement can explain different student characteristics (Kelepolo, 2011). GPA is a more subjective multidimensional achievement measure that includes a variety of

## A QUANTITATIVE ANALYSIS

student and teacher variables such as personality and motivation (Dickinson & Adelson, 2016; Jaramillo & Spector, 2004). The ACT aims to take a more objective approach by provide insight on college readiness and content knowledge (Marchetti et al., 2015).

Since most measures of academic achievement cannot be used in substitution for each other, the researcher included two different, but common United States measures in the analysis (Dickinson & Adelson, 2016).

*The ACT exam.* The ACT has been considered a quality measure of college readiness and academic achievement and therefore served as an independent proxy of academic achievement (Bettinger, Evans, & Pope, 2013). In Missouri, all 11th graders starting in the 2014-2015 school year as part of a required Missouri Department of Secondary Education, statute take the ACT exam in April of each school year (Helwig, 2014). Numerous students, including each year's cohort of 11th graders have taken the ACT prior to their 11th grade year or thereafter. This study identified the highest composite score for each student in a given cohort year because the highest ACT score is what was reported for school, scholarship, and post high-school purposes. The utilization of the ACT versus other measures of academic achievement, such as GPA, was unique because ACT was not a component of participation eligibility for Missouri High School Activities Association sports. In choosing ACT, the researcher aimed to avoid self-selection biases that have hindered past studies on ESA participation and academic achievement (Bohnert et al., 2010; Feldman & Matjasko, 2005; McNeal, 1995; Neely & Vaquera, 2017).

The ACT exam was a national assessment administered to high school students to evaluate their readiness for college (Marchetti et al., 2015). While the test consists of

## A QUANTITATIVE ANALYSIS

four components, English, Mathematics, Reading, and Science; the results are reported through a composite score ranging from 1-36. Colleges and university traditionally utilize ACT results as a way of evaluating admission as well as the awarding of scholarships. The popularity of the ACT has grown beyond its Midwestern origin and now rivals the SAT throughout the nation for college readiness evaluation and admissions (Farrell, 2006). The credibility of the ACT has grown to the extent in which states, including Missouri, have adopted the ACT as a component of official state assessments for evaluating school accountability.

***GPA (grade-point average).*** GPA is the primary way for K-12 high schools to demonstrate individual student achievement, and is one of the most studied variables in education (Kuncel, Credé, & Thomas, 2005; Watkins, 2004). It is a cumulative way to represent achievement in grading periods such as quarters or semesters as well as an overall career representation. Lanlaur High School utilized a weighted GPA system in which certain college preparatory classes were weighted more significantly than the remainder of high school courses. In other words students could enroll in courses that resulted in an A=5 points, B=4 points, C=3 points, D=2 points, and F=1 point versus the non-weighted coursework where A=4 points, B=3 points, C=2 points, D=1 point, and F=0 points. The weighted GPA system created an opportunity to garner a cumulative GPA greater than the traditional top of the range (4.0), and was utilized to determine class rank, valedictorian, and salutatorian for graduation purposes. The prior GPA for the sample ranged from 1.20 to 4.33 (M=3.43, SD=0.725).

## A QUANTITATIVE ANALYSIS

### **Procedure**

The researcher acquired archival student data from Lanlaur High School administration and counseling department after confirmation from a university institutional review board regarding the threshold of human subject research was not met and therefore use of secondary anonymous school data was permitted.

In order to maximize anonymity and utilize ethical data practices for research involving individual student assessment data, achievement data, and extracurricular participation the researcher relied upon anonymization by the school counselor to convert student names to student identification numbers prior to export to the researcher (Punch, 2014).

### **Data Analysis**

The tools utilized to collect the data were Microsoft Excel and Statistical Package for the Social Sciences (SPSS, Version 23). The analysis of data was examined by correlation, hierarchical regression, and ANOVA analyses (Creswell, 2014; Field, 2013). The researcher analyzed this data with SPSS to generate descriptive statistics and quantitative results by way of correlation, hierarchical regression, and ANOVA (Field, 2013).

First, descriptive statistics were compiled and displayed for minority status, gender, cumulative participation hours (intensity), ACT composite results, and previous academic ability (GPA), and post-11th grade cumulative GPA. The first analysis, a correlation, was conducted between participation intensity (cumulative hours per school year) and ACT composite results. The Pearson product-moment correlation coefficient was examined for both statistical significance and strength of positive/negative

## A QUANTITATIVE ANALYSIS

correlation. The second analysis, a correlation, was conducted between participation intensity and cumulative GPA. Similar to the first correlation, the Pearson product-moment correlation coefficient was examined for both statistical significance and strength of positive/negative correlation.

Next, a hierarchical regression was employed in effort to determine whether a relationship existed between participation intensity and GPA when controlling for previous academic ability. The researcher utilized this analysis because measuring academic achievement and developmental outcomes involved many different interactions, including ESA sport participation (Bryk & Raudenbush, 1992; Feldman & Matjasko, 2005). In addition, recent research such as Neely & Vaquera (2017), called for future studies examining ESA sport participation and the social bond theory utilizing advanced hierarchical models. After checking for multicollinearity between independent variables, the variables were entered in two models of hierarchy. In the first model, a regression was run examining gender, FRL status, student identified as a minority, and prior academic achievement as independent variables and post-GPA as the dependent variable. In the second model, the previous independent variables were controlled for and ESA sport participation intensity was added. In doing so, the framework runs two regression analyses and attempts to isolate the significance of ESA sport participation intensity.

For the final research question the researcher utilized a one-way analysis of variance (ANOVA) to determine if a difference existed between breadth of sport participation and mean group GPA at Lanlaur High School from 2015-2017. Kelepolo (2011) and Lumpkin and Favor (2012) utilized similar to ANOVA analyses when

## A QUANTITATIVE ANALYSIS

examining GPA differences and extracurricular participation data. Tukey post-hoc analysis were utilized to further examine significant interaction effects (Hill, 2010). The *a priori* significance level for all analyses was set up at the  $p=.05$  level.

### Results

The disaggregated gender of the sample ( $N = 128$ ) was 77 males and 51 females. Free/reduced lunch status (FRL) included 112 non-FRL students and 16 FRL students. The race/ethnicity breakdown of the sample included 122 students who identified as white non-Hispanic and six students who identified as a minority student. Previous academic ability (measured by previous 11th grade GPA) for the sample ranged from 1.20 to 4.33 ( $M = 3.43$ ,  $SD = 0.725$ ).

The academic achievement variable outcomes were analyzed for both ACT and GPA. The ACT composite range for the 2015-2017 Lanlaur High School 11th grade athlete participants sample was 10-33 ( $M=21.1$ ,  $SD = 4.90$ ). When broken down by gender, males in the sample averaged 20.0 ( $SD=5.48$ ) and females averaged 21.9 ( $SD = 3.77$ ) on the ACT exam respectively. When analyzed by FRL status, those who did not qualify for FRL averaged 21.3 ( $SD = 5.05$ ) while those students in the sample who did qualify for FRL averaged 20.0 ( $SD = 3.63$ ) on the ACT. When ACT was analyzed by minority status within the sample non-minority students averaged 21.2 ( $SD = 4.98$ ) while students who did identify as a minority student averaged 19.8 ( $SD = 2.48$ ).

The post-11th grade cumulative GPA for the sample ranged from 1.42-4.33 ( $M = 3.47$ ,  $SD = 0.711$ ). When broken down by gender males in the sample averaged 3.32 ( $SD = 0.753$ ) and the females averaged 3.70 ( $SD = 0.578$ ) for post-11th grade GPA. The group mean difference between gender and GPA was 0.38 and statistically significant ( $p$

## A QUANTITATIVE ANALYSIS

= .002). When analyzed by FRL status, those who did not qualify for FRL averaged 3.48 ( $SD = 0.719$ ) while those students in the sample who did qualify for FRL averaged 3.37 ( $SD = 0.578$ ) for their respective post-11th grade GPAs. When post-11th grade GPA was analyzed by minority status within the sample non-minority students averaged 3.50 ( $SD = 0.719$ ) while students who did identify as a minority student averaged 3.37 ( $SD = 0.586$ ).

Results from the first correlation between participation intensity and ACT composite were not statistically significant, Pearson's  $r(126) = .098, p = .270$ . The null hypothesis was accepted; there was no statistically significant correlation between ESA sport participation intensity and ACT for 11th grade athletes at the rural Midwestern high school from 2015-2017. Results from the second correlation between participation intensity and post-11th grade GPA were statistically significant ( $p < .05$ ), Pearson's  $r(126) = .195, p = .027$ . The coefficient of determination ( $r^2 = .038$ ) means participation intensity accounted for 3.8% of the variance in cumulative post-11th grade GPA at the rural Midwestern high school from 2015-2017. Results from this analysis fell within the typical one to four percent variance sports participation explains of academic outcomes in extant literature (Hanks & Eckland, 1976; Spreitzer & Snyder, 1976) The null hypothesis was rejected; there was a statistical significance between participation intensity and post-11th grade athletes' GPA at the high school from 2015-2017.

Results from the hierarchical regression analysis were not statistically or practically significant ( $p > .05$ ) between participation intensity and post-11th grade GPA when holding constant for other known contributing factors to academic achievement which included previous academic ability, gender, minority status, and FRL status. Tests for multicollinearity indicated that a very low level of multicollinearity was present ( $VIF$

## A QUANTITATIVE ANALYSIS

= 1.080 for gender, 1.080 for previous academic ability, 1.078 for FRL status, and 1.075 for minority status). Beta coefficients for model 1 results were: previous academic ability ( $\beta = 0.986$ ,  $t = 70.463$ ,  $p = .000$ ), FRL status ( $\beta = -.14$ ,  $t = -.987$ ,  $p = .326$ ), minority status ( $\beta = .23$ ,  $t = 1.656$ ,  $p = .100$ ), and gender ( $\beta = 0.009$ ,  $t = 0.628$ ,  $p = .531$ ). Addition of participation intensity in model 2 did not change the statistical significance of the prediction ( $R^2$  change = .000.  $F = .457$ ,  $p = .501$ ) ( $R^2$  Change = .10;  $F(1, 122) = .040$ ,  $p = .842$ ). The null hypothesis was accepted.

Results from the one-way ANOVA between breadth of sport participation and post-11th grade GPA were statistically significant. There was a statistically significant difference between participation breadth and GPA at the  $p < .01$  level for the rural Midwestern high school 11th grade athletes from 2015-2017 [ $F(2, 125) = 4.76$ ,  $p = .010$ ]. Post hoc comparisons using the Tukey HSD test indicated a mean score for a breadth of one sport ( $M = 3.29$ ,  $SD = .821$ ) was significantly different than a breadth of three sports ( $M = 3.84$ ,  $SD = .470$ ), but a breadth of two sports ( $M = 3.51$ ,  $SD = .636$ ) was not statistically significant different from breadths one sport and two sports. The null hypothesis was rejected for the portion of the one-way ANOVA analysis regarding three sport participants' versus one sport participants' cumulative post-11th grade GPA differences ( $p = .008$ ), but accepted for differences in GPA and breadths of one sport participation versus two sport participation ( $p = .254$ ) as well as two sport participation versus three sport participation ( $p = .137$ ).

--insert Table 2 here--

### Discussion

The purpose of this study was to address the gap in research related to whether measures of participation (intensity and breadth) demonstrated a relationship with academic achievement for 11th grade student athletes in a rural Missouri high school. The findings identified by the researchers demonstrated two themes associated with sport participation measurement and academic achievement. First, intensity (total hours participated in athletics per school year) demonstrated a weak statistically significant relationship to GPA ( $p = .027$ ) and no relationship to ACT achievement. Since ACT is a standardized assessment and can be prepared for on single occasions it perhaps captures differing academic elements of rural athletes academic prowess. GPA in comparison, when analyzed in a cumulative fashion, tends to represent a more holistic overall academic tenacity within the high school setting. Neither intensity nor breadth demonstrated curvilinear effects to academic achievement previously noted by researchers of the “overscheduling” hypothesis (Mahoney et al., 2006). The student athletes in the study did not exhibit a threshold of participation related to decreasing academic achievement.

Breadth (number of sports) participated in per year demonstrated statistically significant ( $p < .01$ ) results when analyzing differences between one, two, and three sport athletes and their respective post-11th grade GPAs. In particular, females demonstrated the largest group mean differences in GPA when categorized by breadth compared to their male counterparts.

Limitations of this study are particularly related to the anecdotal nature of a cross-section study (Broh, 2002). Results from this study cannot be conflated to any other rural

## A QUANTITATIVE ANALYSIS

school district in Missouri or the United States. The demographics of the rural Midwestern high school was homogenous in both socioeconomic status and racial identity. A final limitation of this study was associated with self-selection, or selection bias, related to the voluntary nature of students choosing to participate in interscholastic athletics. Interscholastic athletes are not a random cross-section of the average high school student (Yeung, 2015). Additionally, in order to be eligible to participate in interscholastic athletics the rural Midwestern high school students would need to be considered a bona fide student by the eligibility guidelines set forth by the Missouri High School Athletics Association (MSHSAA) and the high school. MSHSAA eligibility guidelines were set forth requiring students to meet minimum academic, behavioral, and residency guidelines in order to participate in interscholastic activities under the auspices of MSHSAA (Missouri High School Activities Association, 2017a).

Students who do well in school academically and behaviorally are often more likely to be motivated to participate in extracurricular activities (Fejgin, 1994; Fredericks & Eccles, 2006; McNeal, 1998; Rees & Sabia, 2010; Shulruf, 2010). Critics of positive associations between athletic participation and academic achievement propose athletics equally draws individuals who are high-achieving, determined, and goal-oriented to athletics (Spreitzer, 1994; Videon & Videon, 2002). Others argue athletics should be credited with enhancing academic achievement. Most of these arguments have lauded the non-cognitive benefits of sports, not only that it builds character, but that sports, can build self-esteem, confidence and motivation transferable to academic success (Bradley & Conway, 2016; Ferris & Finster, 2004; Olszewski-Kublious & Lee, 2004; Rishe, 2003). The researchers attempted to utilize socio-demographic factors in order to attempt to

## A QUANTITATIVE ANALYSIS

control for self-selection factors similar to Denault et al. (2009), Stevenson (2010), and Videon and Videon (2002). It should be noted longitudinal studies are more influential than cross-sectional studies for limiting the effects of selection bias and establishing causation (Broh, 2002).

Results from this study suggest programming and potential policy recommendations for rural school administrators and school boards. First, results from this study demonstrated no observable threshold or diminishing return related to athletic participation and academic achievement measured by GPA. In fact, as breadth of sport participation increased cumulative GPA also increased. Furthermore, the linear relationship at Lanlaur High School between breadth and GPA was more apparent for females versus their male counterparts. These results suggest particular consideration for increased school athletic offerings for females in rural school settings.

In addition, no evidence was found for increased athletic participation (measured by intensity or breadth) as being detrimental to academic achievement. Therefore, budget considerations by school districts related to academic achievement that include a reduction in athletic offerings or funding are not recommended. A reduction in athletic offerings due to financial considerations is particularly problematic in rural settings where extracurricular opportunities are less prevalent outside of the school environment. Weininger, Lareau, and Conley (2015) found that community type effected participation by: 1) supply of opportunities and 2) costs to participate. Covay and Carbonaro (2010) and Snellman, Silva, Frederick, and Putnam (2015) confirmed extant literature regarding inequities within athletic participation as recent findings indicated athletic participation was still largely stratified by socioeconomic factors. Schools have a history of offering

## A QUANTITATIVE ANALYSIS

school sports in an effort to help mitigate the impact of parent resources (Bennett, Lutz, & Jayaram, 2012).

Lastly, benefits for ESA school sport participation have evolved beyond original notions related to positive associations noted by Coleman (1961) and later by Jordan and Nettles (1999) where ESA sport participation served as a structured activity placeholder in lieu of unstructured and/or unsupervised time. A shift in contemporary research versus the classical deficit-reduction paradigm; is known as the positive youth development (PYD) paradigm (Bradley & Conway, 2017; Forneris, Camiré, & Williamson, 2015). ESA sport participation has demonstrated developmental and academic gains through the acquisition of social and cultural capital provided by peers, coaches, teachers, and other extra-familial adults association with ESA sports (Broh, 2002; Mahoney, Harris, & Eccles, 2006; Marsh & Kleitman, 2002; McNeal, 1995).

The results of this study indicate that extracurricular school activities share a statistically significant relationship with academic achievement when measured by breadth and GPA in rural school settings. Implications for secondary rural school academic and student participation were noted. Future research is recommended to assess gender differences related to multisport participation and academic achievement in varied school contexts and sizes. In addition, a qualitative inquiry is recommended to test the application of the social bond theory to breadth of sports participation and academic achievement outcomes. A mixed-methods analysis may attempt to include participation in both in and out of school athletic participation to examine possible differences related to participation and academic achievement as in-school participation only accounts for a portion of an adolescent's leisure time (Cooper et al., 1999).

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Appendix

**Table 1. Excerpt Sample of Operationalized Student Participation Intensity Data**

Student ID #	Sport	Hours <sup>a</sup>	Sport	Hours <sup>a</sup>	Sport	Hours <sup>a</sup>	Total <sup>b</sup>
145654	Football	241	Basketball	262	Boys Golf	148	651

*Note.* Hours<sup>a</sup> = represents total hours participating per season. Total<sup>b</sup> = represents total cumulative sports participation hours per student per academic year.

**Table 2. ANOVA Comparisons of a rural Midwestern High School 11th Grade Athlete Breadth and GPA 2015-2017**

Group	<i>n</i>	Mean	<i>SD</i>	Tukey's HSD Comparisons		
				Breadth 1	Breadth 2	Breadth 3
Breadth 1	49	3.29	.820		.254	.008**
Breadth 2	58	3.50	.636	.254		.137
Breadth 3	21	3.84	.470	.008**	.137	

\*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**SECTION SIX**

**SCHOLARLY PRACTITIONER REFLECTION**

The cooperative doctoral program provided a platform for rigorous reflection, analysis, and leadership development beyond any other educational experience or training this researcher has completed. The privilege to be challenged and collaborate with peers from a variety of educational backgrounds provided a litany of implicit and explicit learning opportunities. This document will explain the influence the University of Missouri cooperative doctoral program and dissertation had on me as an organizational leader, advocate, teacher, and scholar.

**Dissertation Process Influenced Practice as an Educational Leader**

**Organizational Analysis**

Organizational analysis is critical for the school leader as much as it is for the leader and/or manager in the private sector and other public entities. The challenge for school leaders is to appropriately mesh the tenets of leadership and management. While leadership and management are not the same, both require reflection, analysis, and growth for successful school leadership (Kotter, 2011). Schools can be viewed in a number of different lenses or frames in regards to their organization, but perhaps the most comprehensive is the four frame model of Bolman and Deal (2013). The four frame model designed to reframe how organizations view themselves and change are posited by the Bolman and Deal as the: structural frame, human resources frame, political frame, and symbolic frame.

Prior to my studies in the doctoral program my analysis and evaluation of organizations was primarily limited to human resources and politics. The study of

## A QUANTITATIVE ANALYSIS

Bolman and Deal, *Reframing Organizations: Artistry, choice and leadership* (2013) opened my eyes to additional ways organizations can be analyzed. The authors' usage of frames or lenses to view organizations made sense, and could be easily applied to the K-12 educational landscape. Viewing school district organizations through structural, human resources, political, and symbolic frames helped to put theory to often traditional yet complicated organizations.

The evolution from teacher to school administrator was buoyed by the holistic organizational analysis provided by the doctoral program which allowed for me to make more sense of how school organizations functioned. My career journey has allowed me to work in a variety of settings which all operated differently by organization. The interplay of politics, fiscal and physical resources, as well as human resources is an ever-changing and unique landscape that as a school leader I am more aware of than prior to the doctoral program. I now have a greater repertoire of resources such as leadership theory, organizational change, and program evaluation to infuse into whatever organizational culture I am a part of now and in the future.

### **Growth as a Leader**

Many of the skills required to be a successful doctoral student and researcher in the dissertation process are applicable to the leadership desired to be a K-12 educational leader. Organization, resiliency, grit, reflectivity, confidence, and determination were the key leadership components this leader advanced while in the doctoral program. Prior to participation in the doctoral program my leadership centered on the ability to lead due to a position title. I only felt empowered by the positionality the educational structure provided for me at a given time (Kezar, Carducci, & Contreras-McGavin, 2006). I now

## A QUANTITATIVE ANALYSIS

utilize leadership skills that have both been initiated and fostered by the doctoral student process and utilize a growth mindset to continue to hone those abilities by facilitating growth in educational organizations (Dweck, 2017). In particular, I plan to invoke more systematic and strategic leadership measures to facilitate policy implementation, evaluation, and creation while also serving as lead learner on components of social justice and diversity reflectivity necessary to meet all stakeholders in the educational setting.

**Policy implementation, evaluation, and creation.** In my future as a school leader responsible for policy creation, evaluation, and implementation I will focus on the context of the policy environment. A specific strategy for understanding the context is mapping the policy environment to identify integral political policy players and implementers (Bennett & Jessani, 2011; Bolman & Deal, 2013; Stone, 2002). I will utilize the policy mapping recommendations to create a visual diagram in order to better evaluate and implement educational policies.

In addition to mapping the policy environment school leaders need to continue to evolve in their ability to conduct program evaluation as related to policy goals. Program evaluation lends itself to teaming, and as a leader I will take advantage of those opportunities to create diverse group of stakeholders in order to implement and evaluate in spite of traditional schedules and calendar barriers (Caffarella & Daffron, 2013; Kofman & Senge, 1993; Levi, 2014). In doing so, I will embolden improved stakeholder buy-in and policies that are derived from shared visions. It is my goal to create teams which can highlight the diversity of the organization and emphasize equity with policy recommendations and implementation.

## A QUANTITATIVE ANALYSIS

For creation of new policy, I will again look for stakeholder contribution while laying out realistic and succinct policy creation deadlines. I will continue to utilize policy mapping of Bennett and Jessani (2013) while also including consideration from all four frames related to the organizational environment (Bolman & Deal, 2013). To conclude and deploy policy creation I will strive to include the most comprehensive and technologically appropriate methods of communication in order to fully and appropriately inform all necessary stakeholders.

**Diversity and social justice.** Perhaps no greater area of personal and professional leadership growth have I reflected so greatly upon than the impact of diversity and social justice in the educational setting. My leadership can set the tone and facilitate the environment needed to adequately address power and privilege, racial and gender differences, as well as otherness in all in realms. I plan to organize schools and districts through teams to account for diversity and groupthink so the issue of redundancy and stagnation can be addressed (Janis, 1971/2005; Levi, 2014; Lencioni, 2002). I will work with other school leaders and stakeholders to create a framework where school leaders explicitly prepare staff for the inclusion of teaching social justice within a school framework. In doing so school leaders can assist in addressing elements of institutional inequities and preparing educators to be proactive in teaching in a socially-just way (Hernandez & Bell-McKenzie, 2010; Roland, 2008; Schultz, 2010).

An area of doctoral coursework I foresee increased employee reflection among staff members is that of privilege. Privilege is the unearned power status due to race, socioeconomic status, gender, or other positions (Merriam & Bierema, 2014; Johnson, 2006; Murray, 2013). In my current school district of employment we would be

## A QUANTITATIVE ANALYSIS

considered homogeneous in race and socioeconomic status. However, this is not to say organizational leaders should not utilize the positionality of their teaching and coaching positions to shed light on inequities that students and adults can address through their participation in school and extracurricular activities (Bruffee, 1999; French & Raven, 1959/2005; Holmes, 2010).

### **Educational Leadership Opportunities**

The doctoral program has provided me with both the skill-set, knowledge, and peer network in order to provide leadership and education on a variety of leadership pillars as well as specifically my research expertise, extracurricular activities in the K-12 school setting.

**State-level development.** While I have always been a member of state administration associations (both principal and athletic director), I have not contributed beyond membership and attendance to annual conferences. The knowledge and confidence garnered by the doctoral program led to a development for me to give back to both association's members, but also the educational community as a whole. Since starting the doctoral journey in 2015 I have presented on extracurricular activities and related outcomes for the state principals' association, rural state education association, and the state athletic directors' annual conference. I have future goals of consulting state activity associations in their development of education-based activity promotions and education.

The doctoral program has allowed for me to utilize a professional set of research and presentation resources expected of state association level presenters and researchers.

## A QUANTITATIVE ANALYSIS

I have tapped my explicit knowledge of educational leadership to offer policy and practice suggestions that are based in theory.

**Local leadership.** On a more informal basis, the doctoral program has facilitated a level of confidence and leadership that both local school district, peer school administrators, and corollary non-school organizations seek out from me. Within my current school district, my level of reflective scrutiny is sought out by fellow administrators and teachers in order to enhance decision making on a variety of educational policies and decisions. Neighboring school districts have inquired advice and leadership on similar concerns and issues based on success I have been involved with in my current school district. Furthermore, non-school related activity organizations have sought out activity leadership advice in the incorporation of youth leagues and organizations as well as structural of age appropriate expectations. The leadership invoked locally has allowed me to synchronize a local effort in both school and non-school structure activities that enhance the overall mission of activities and athletics.

### **Dissertation Process Influenced as a Scholar**

#### **Reading and Writing as a Scholar**

**Reading.** Participation in the doctoral program has enlightened me as a reader and scholarly writer beyond what I previously thought possible. The level of synthesis required transcends any other scholarly reading I have taken part of. I have become cognizant of writing paradigms and lenses in which scholars' research and consequently report. Furthermore, the difference epistemological assumptions regarding how knowledge forms and is communicated is appreciated (Scotland, 2012). I now understand my personal predisposition to social constructivism, while also

## A QUANTITATIVE ANALYSIS

acknowledging the prevalence of positivist, transformative, pragmatic, and other paradigms. The ability to recognize this in research has been paramount in my ability to adequately conduct the literature review on extracurricular activity participation and relative developmental outcomes. Additionally, as a scholarly reader I seek to identify both confirmation and opposition to proposed theory and outcomes in extant literature. Within the realm of extracurricular activities participation and academic achievement, my specific growth as a scholarly reader developed in an ability to identify the gap in research. The gap in research was how extracurricular sports intensity and breadth exhibited a relationship with academic achievement. Prior literature focused primarily on the academic and developmental outcome differences between those who participated in extracurricular activities (both athletics and activities) and those who did not.

**Writing.** My ability to write as a scholar has grown tremendously through the doctoral program. My writing has improved due to the quality feedback of Dr. Carole Edmonds and Dr. Timothy Wall. The consistent efforts by both Drs. Edmonds and Wall has led me to write utilizing the terminology within extant literature as well as writing with the ability to be concise. Prior to participation in the program my writing was conversational in style and included numerous colloquialisms. Additionally, my ability to write in a style, modeled after the American Psychological Association (APA) guidelines, improved the professional style and voice of my writing.

The focus of my scholarly writing within the realm of K-12 education and extracurricular activities now takes heed of both policy and practice implications. My goal as a scholarly writer is to write and publish in a way that fuses theoretical

## A QUANTITATIVE ANALYSIS

frameworks to clinical practice methodology administrators, coaches, and teachers can utilize.

### **Teaching**

My first professional aspiration was to become a teacher and coach. Since I was impacted so distinctly by teachers in formative years I sought to be a teacher at an early age. Upon graduation from college I was able to teach in the high school setting for eight years. Those first eight years in education were challenging, rewarding, and inspiring. I yearn for the opportunity to teach again. The examples of teaching present in the doctoral program, in particular for adult learners, has inspired me to seek teaching opportunities for adults in education. While I felt prepared to teach K-12 students, I underestimated the different needs adult learners needed as well as potential barriers for adult learners until completion of the doctoral program (Catafalmo, 2010). I understand the need for experiential learning, and feel confident that my future endeavors will include professional development presentations and teaching of education or sports management graduate coursework. Through this coursework I can scaffold my ability to read and write as a scholar within both my innate and developed skills for teaching to increase the effectiveness of K-12 educators and administrators. My desire for continuous inquiry as a researcher and ability for critical reflections aligns with modern definitions of the 21st century educational leader I aspire to be (Schultz, 2010).

### **Conclusions**

The doctoral education and dissertation process can be described in summation by the term empowering. The adage, knowledge is power, is true. The innate thirst for knowledge as a learner and achiever was identified early through a self-evaluation of

## A QUANTITATIVE ANALYSIS

leadership assessments and inventories (StrengthsQuest, 2015). While I recognized my propensity for learning and achieving early in the program, I was not prepared for the depth and complexity the program would allow me to experience. The ability to work in heterogeneous groupings from clergy to higher education and PK-12 professionals while collaborating and synthesizing current trends and issues was transformational for me as a leader. I feel equipped with knowledge and practices of leadership, teamwork, reflectivity, and synthesis I am obligated to bequeath to others. The empowering feeling of knowledge acquisition within a social and human science for the betterment of others is one of the most rewarding experiences I have taken part of.

Furthermore, as an emboldened researcher, teacher, and leader I am now part of a continuum of research within the unique field of extracurricular activities intensity and academic outcomes. I am able to continue to contribute to the larger conversation in educational leadership and educational policy hemispheres in a way others will be able to scaffold from and improve.

My greatest wish is that I have inspired others to take on their journey for critical inquiry both of their own leadership and practice and for others as a whole. I hope that I have provided an example of grit and determination for my own children, and for others who will not let what might be considered traditional obstacles to an advanced degree inhibit their ability to grow and contribute to academia. The diversity of researchers, teachers, and leaders comprised in a cooperative doctoral education setting are unique and powerful in a way many other degree programs are not. If I have provided the platform for others to recognize the power of reflective transformational leadership

## A QUANTITATIVE ANALYSIS

change as opposed to the transactional world we so often become victim to; I will be forever proud of my contribution to both research and practice.

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APPENDIX

Figure A.1 IRB Approval



University of Missouri-Columbia  
Campus Institutional Review Board  
486 McReynolds Hall  
Columbia, Missouri 65211

October 12, 2017

Hello Investigator,

The MU Institutional Review Board has determined your project does not constitute human subjects research according to the Department of Health and Human Services regulatory definitions, because you are collecting anonymous secondary data. As such, there are no further IRB requirements.

If you have questions, please feel free to contact the IRB office at 882.3181.

Sincerely,

MU Institutional Review Board

**Figure A.2 School District Permission Letter**

11/03/2017

University of Missouri-Columbia  
Campus-Institutional Review Board  
482 McReynolds Hall  
University of Missouri  
Columbia, MO 65212

Dear IRB Members,

After reviewing the proposed study entitled "A Quantitative Analysis of Athletic Participation Intensity and Academic Achievement in a Rural Missouri High School", presented by Chad M. Lang, I have granted permission for the study to be conducted at [REDACTED] High School. Chad M. Lang also has permission to access data at [REDACTED] High School.

The purpose of the study is to determine if academic achievement has a relationship with the intensity of a rural Missouri high school athlete's intensity level. The primary activity will be analysis of archival student participation and performance data.

I understand that accessing archival data will occur for 5-9 months. I expect that this project will end not later than 12/31/2018.

I understand that Chad Lang will receive anonymous archival student data for all participants from [REDACTED] School District, and will not require any student surveys, questionnaires, focus groups, or interviews.

If the IRB has any concerns about the permission being granted by this letter, please contact me at the phone number listed below.

Sincerely,

  
[REDACTED]  
Superintendent of Schools  
[REDACTED] School District  
816-580-7200

**VITA**

Chad M. Lang was born and raised in Northwest Iowa. Chad is a graduate of the University of Northern Iowa with a Bachelor's degree in Social Science Education. He began his career as a high school educator in Social Studies in Dubuque, Iowa, with later career stops in Missouri. Chad's primary teaching focus was American Government and Geography in which he also taught Advanced Placement coursework for both subjects. Chad was a classroom teacher and coach for eight years prior to his transition to secondary school administration in 2013. Chad holds a Master of Arts degree in Educational Administration from William Woods University. Chad has been a district activities director and assistant middle school principal for four years.

Chad's research interests are in the area of multisport participation, education-based athletics, hybrid school administrators as well as grading and assessment. Chad is a frequent presenter at state athletic director and principal's conferences in the areas of extracurricular activities and academic achievement.

Chad was married to Ericka Lang, also an educator, in 2007. Chad and Ericka welcomed twin children, Landon and Lauren into their family in 2012. Chad enjoys traveling with his family, boating, woodworking, and golfing.