

**MIDDLE SCHOOL ATHLETICS: IMPACT ON ACADEMIC
ACHIEVEMENT AND STUDENT CONNECTEDNESS IN THE MIDDLE
SCHOOL**

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ABSTRACT

The purpose of this study was to investigate the connection between interscholastic sports participation and the academic achievement and perceptions of connectedness of eighth grade students in the Blue Valley School District. This mixed-methods research study took place in Blue Valley USD 229 School District in Overland Park, Kansas. The sample included over 1,600 eighth grade students during the 2011-2012 academic year. The quantitative research in the study measured the academic growth of eighth grade students using the 2011-2012 Measure of Academic Progress (MAP) assessments. Using the fall and spring RIT scores of every eighth grade student who took all four portions of the assessment (fall reading, fall math, spring reading, spring math), a one-factor analysis of variance was conducted to determine if the number of sports a student played (zero, one, two, or three) had an impact on his/her level of growth from the fall to the spring. The results indicated a statistically significant relationship did not exist with academic growth as measured by the MAP and students' level of athletic participation. Additional analysis was warranted. The researcher then divided the students' fall RIT scores (for both reading and math) into three categories: lowest fall scores, medium fall scores, and highest fall scores. This allowed the researcher to determine if the level of athletic participation had an impact on students based on their level of achievement at the beginning of their eighth grade year. For the reading portion of the assessment, students who participated in 1 sport ($M = 2.71$) experienced less growth than students who participated in no sports ($M = 20.83$). Students who participated in 2 sports ($M = 17.2$) experienced more growth than students who participated in no sports ($M = 3.56$). For the math portion of the assessment,

students who participated in 1 sport ($M = 8.11$) experienced more growth than students who participated in no sports ($M = 3.56$). Students who participated in 2 sports ($M = 7.95$) experienced more growth than students who participated in no sports ($M = 3.56$). Students who participated in 3 sports ($M = 8.89$) experienced more growth than students who participated in no sports ($M = 3.56$).

The qualitative portion of the study employed the use of focus groups to measure students' perceptions of connectedness toward school relative to athletic participation. Response to the researcher's request for participation in the focus groups was limited, so only one focus group comprised of seven students was conducted. The results indicated that students reported the highest levels of connectedness when quality teaching staff and positive relationships with peers were in place.

DEDICATION

This dissertation is dedicated to my family. For Mom, for always being what a mom should be; Dad, for demonstrating to us what a strong work ethic can accomplish; and Emily and Matt, for always being there for me, no questions asked. I love you all.

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TABLE OF CONTENTS

Abstract	iii
Dedication	v
Acknowledgements	vi
TABLE OF CONTENTS	vii
List of Tables	x
CHAPTER ONE: INTRODUCTION AND RATIONALE	1
Background	1
Statement of Problem	7
Significance of Study	12
Purpose of Study	13
Delimitations	13
Assumptions	14
Research Questions	15
Definition of Terms	15
Overview of the Methods	16
Organization of Study	17
CHAPTER TWO: REVIEW OF LITERATURE	19
Cognitive Development: A Theoretical Framework	19
The Adolescent Learner	23
The Evolution of Middle Schools	26
Extracurricular Activities and Their Benefits	32
The Impact of Athletic Participation on Adolescents	34

School Connectedness	36
Summary	42
CHAPTER THREE: METHODS	44
Research Design.....	44
Population and Sample	44
Sampling Procedures	45
Instrumentation	45
Measurement.....	50
Validity and Reliability.....	51
Data Collection Procedures.....	56
Data Analysis and Hypothesis Tests.....	58
Limitations	59
Summary	60
CHAPTER FOUR: RESULTS	61
Hypothesis Testing.....	61
Additional Analyses.....	63
Qualitative Analysis.....	65
Summary	76
CHAPTER FIVE: INTERPRETATION AND RECOMMENDATIONS	78
Study Summary.....	78
Overview of the Problem	78
Purpose Statement and Research Questions	79
Review of Methodology	80

Major Findings.....	80
Findings Related to the Literature.....	81
Conclusions.....	84
Implications for Action	84
Recommendations for Future Research.....	85
Concluding Remarks.....	86
REFERENCES	89
APPENDIXES	104
APPENDIX A: PERMISSION TO CONDUCT RESEARCH	104
APPENDIX B: BAKER IRB APPROVAL.....	107
APPENDIX C: LETTER TO BLUE VALLEY PARENTS.....	109

LIST OF TABLES

Table 1. ACT Composite Scores: Blue Valley v. National Average.....	9
Table 2. Measure of Academic Progress Mean RIT Scores: Blue Valley v. National Average	12
Table 3. Athletics in the Blue Valley Middle Schools.....	14
Table 4. Rasch Unit (RIT) Score Ranges for the Reading Survey with Goals MAP Assessment	47
Table 5. Rasch Unit (RIT) Score Ranges for the Math MAP Assessment	48
Table 6. NWEA Reliability Tests: NWEA Norms Study (2002) – Test/Retest Reliability.....	53
Table 7. NWEA Reliability Tests: NWEA Norms Study (1999) – Marginal Reliability Coefficients	55
Table 8. One-Factor ANOVA: Reading Portion of the Measure of Academic Progress assessment	62
Table 9. One-Factor ANOVA: Math Portion of the Measure of Academic Progress assessment	63

CHAPTER ONE

INTRODUCTION

The landscape of American middle schools has changed over the last century, both in terms of configuration of the schools and the way students have been taught. “From 1900 to 1940, the kindergarten through eighth grade model was the predominant configuration, only to be supplanted by the junior high model (grades 7-9) by the 1960’s. The junior high was then replaced by the middle school model, which rose in the late 1960’s and early 1970’s to become the dominant school structure of the 1990’s and 2000’s” (Byrnes & Ruby, 2007, p.4). The reason for this transition from the junior high model to the middle school model was a shift in focusing solely on adolescents’ academic progress to focusing also on students’ increased social and emotional needs for the years between elementary and high schools (George, Stephenson, Thomason, & Beane, 1992). The change to this model makes middle schools well suited to the academic and emotional needs of adolescents.

As a result of this change in focus, the middle school model places a greater emphasis on middle school teachers’ roles as advisors for their students. According to findings of the National Middle School Association (2010), a greater emphasis has been placed on this advisory role because a student’s middle school years are typically the time in his or her life when the most dramatic changes in physical, cognitive, and social development take place. Under the middle school model, teachers began to advise students not only on their academic growth, but their emotional and social growth as well. Thompson and Homestead (2004), in an article for the National Middle School

Association, insisted it is imperative for middle schools to create opportunities outside the classroom for students to hone these skills and to get to know, respect, and develop compassion for one another. These opportunities can include advisory time, peer groups, and any extracurricular activities, including interscholastic athletics.

According to the National Middle School Association (2010), middle school interscholastic athletics are common today, with between 80 and 90 percent of middle schools having these programs. Participation in athletics at the middle school level has been shown to have a wide array of benefits for students: better physical health, improved academic achievement, and improved social and emotional well-being (Ocal, 2006). The Centers for Disease Control and Prevention (CDC) (2009a) reported that participation in sports helps build and maintain healthy bones, muscles, and joints; helps control weight, build lean muscle, and reduce fat; prevents or delays the development of high blood pressure and helps reduce blood pressure on some adolescents with hypertension; and may contribute to a physically healthy lifestyle that may continue into adulthood. DeBate, et al (2009) agreed that physical activity has also been found to be essential to good health – including weight control, improved cardiovascular fitness and muscular strength.

In a study conducted at Michigan State University, researchers found multiple ways in which the physical activity that results from participation in athletics benefits participants' physical health. "Physical activity leads to proficiency in neuromuscular skills that are the basis for successful participation in games, dances, sports, and leisure activities and is an important deterrent to coronary heart disease" (Seefeldt & Vogel, 1986, p. 14). One of the byproducts of participation in sports is increased physical

activity. According to Janz and Mahoney (1997), the physical activity that results from participation in sports is viewed as having a favorable influence on body composition. Regular activity is associated with a decrease in body fat and is considered an important factor in the regulation of body weight. In summary, participation in athletics for middle school students has a positive impact on their overall physical health.

Just as participation in athletics allows for better physical health, research also suggests that participants in athletics have shown higher levels of academic achievement. Interscholastic athletics are just one example of an extracurricular activity, which is any school-sponsored activity scheduled outside the school day. Extracurricular activities, including athletics, have been shown to have a positive influence on standardized test scores. In a 1999 study, researchers Cooper, Valentine, Nye, and Lindsey found that higher test scores and school grades were associated with less time watching television and more time in extracurricular activities, the more active a student was, the better the student's grades and test scores. Performance on standardized tests and good grades are not the only evidence that participation in athletics positively affects academic achievement. Participation in sports has also been shown to have a favorable impact on students' attitudes toward their academic careers. According to a 1991 study by Braddock, Royster, Winfield, and Hawkins, students who were involved in interscholastic sports were more likely to look forward to core curriculum classes. This study suggests that students who participate in sports have a better attitude about academics. Gerber (1996) examined the relationship between participation in extracurricular activities and achievement and found sports were the most popular activity chosen by students. Gerber's research included scores in science, mathematics,

and reading cognitive tests administered for his study. The results indicated increased sports participation had a positive relationship with academic achievement. As the research has indicated, participation in athletics has the potential to impact students' academic achievement positively.

Numerous researchers have conducted studies to suggest that participation in a sport has an array of benefits for students that go beyond academic success. Participation in structured extracurricular activities also provides important opportunities for social, emotional, and civic development during adolescence (Mahoney, Larson, Eccles, & Lord, 2005). Research suggests student participation in interscholastic athletics contributes to improved self-esteem and self-confidence (Malina & Cumming, 2003), making new friends and a sense of belonging (Weiss & Stuntz, 2004), and moral development, including concepts of fair play and sportsmanship (Bredemeier, Weiss, Shields, & Shewchuk, 1986). In addition, students develop socially by learning to appropriately relate to their peers. Athletics provide a forum to hone this skill, mainly because of the opportunities to learn real-life skills through competition. "When students engage in sports, they learn about taking turns with their teammates, sharing playing time, and valuing rules. This social competence allows students to succeed as their social arena expands" (Ewing, 2010, p. 1).

Time in structured activities is also related to better peer relationships and emotional adjustment at school, while unstructured leisure time is associated with poorer emotional adjustment and work habits (Posner & Vandell, 1994). In addition, the Centers for Disease Control and Prevention (2009a) not only highlighted the benefits of physical activity from a physical health perspective, but also on students' psychological well-

being. According to the CDC, physical activity appears to reduce depression and anxiety, improve mood, and enhance the ability to perform daily tasks, with such benefits enduring well into adulthood. Further, Marsh and Jackson (1986) reported that self-concept differentiated female athletes and non-athletes. The athletes possessed more qualities of leadership and social initiative, were more sociable, possessed a greater sense of self-worth, and had less self-doubt than did non-athletes. Regular physical activity is an effective, low-cost, low-risk behavior that not only has been shown to be effective in the promotion of mental health, but it may also be effective in treating mental illness. “Most individuals with mild to moderate mental health problems prefer to deal with them without the aid of professional help. Thus, personal coping skills, such as physical activity, seem to be ideally suited to the alleviation of mental stress” (Seefeldt & Vogel, 1986, p. 32). Overall, the research indicates that students who participate in sports have the opportunity to enhance their social skills and mental health.

In addition to the positive impact on physical health, academic achievement, and mental and social well-being, participation in athletics gives students other benefits—including a positive impact on students’ overall attitudes toward school. For example, sports participation for students in middle school has been shown to have a positive impact on students’ self-esteem (Malina & Cumming, 2003). Participation in extracurricular programs, including interscholastic sports, gives students the opportunity to avoid common pitfalls in their adolescent years. Jacquelynne Eccles and Bonnie Barber (1999), researchers from the University of Michigan and University of Arizona, respectively, have conducted research that outlines some of the pitfalls that sports participants tend to avoid. For example, skipping school is generally lower for students

who participate in extracurricular activities. In an article for the *Journal of Youth and Adolescence*, Dworkin, Larson, and Hansen (2003) reported that other benefits include learning how to manage one's time, how to set goals, and how to stay in control.

Participation in athletics can also provide the chance to connect with a positive adult role model. A coach can provide this type of connection. Dr. Sophia Jowett (2005) has done extensive research in the area of coach-athlete relationships. She reported that students with adult advocates in schools, in particular the adult advocate athletic participants are exposed to via a coach, have been shown to have a positive impact on the lives of students. "The coach-athlete relationship is recognized as the foundation of coaching and a major force in promoting the development of athletes' physical and psychosocial skills" (p. 412). Participation in athletics gives students numerous benefits toward their physical health, academic achievement, mental and social well-being, and their overall attitude toward school.

Statement of the Problem

"The middle school years are a time of transition. It is a time of great physical, sexual, emotional, and social development" (Lyons-Daniels, 1999, p. 1) and a time when students' habits of motivation, self-concept, level of achievement, and ability to relate socially emerge (Anderman & Maehr, 1994; Lyons- Daniels, 1999). Also, students often display signals in the middle school years that can lead to problems in high school, including dropping out of school. According to a 1996 study conducted by the Philadelphia Education Foundation, "a high percentage of dropouts send distress signals in the middle grades, long before they actually drop out of school" (Nield, Balfanz, & Herzog, p. 29). One of the signals students typically send is attending school less than 80

percent of the time during the academic year. One way to combat attendance problems and dropping out of school is the participation in interscholastic athletics. “The Silent Epidemic,” a study conducted by the Civic Enterprises research group in 2006, listed reasons students chose to drop out of school. The most common reason, cited by nearly 47 percent of dropouts surveyed, was being bored and disengaged from school (Bridgeland, DiIulio, & Morison, 2006). If students who drop out report feelings of boredom and disengagement as early as middle school, then a study about middle school athletics and its benefits toward students’ feelings of connectedness toward school is of value. Further, according to the California Interscholastic Federation (2007), students who participate in interscholastic sports during middle and high are more likely to have higher grade point averages, lower dropout rates, better attendance records, and fewer discipline issues. Middle school athletics is one potential way to combat this problem.

As the body of knowledge indicates, extensive research suggests that negative outcomes often result from a student’s feeling disengaged from the school environment. In addition, there is a substantial body of research that supports the idea that participation in athletics leads to improved physical health, academic performance, and social and emotional well being. Therefore, a study that further investigates the relationship between athletic activities and academic performance and students’ connectedness toward school is worthwhile.

Background and Conceptual Framework

The setting for the study is the Blue Valley School District (BVSD), USD 229, located in Overland Park, Kansas. BVSD is a large suburban district with nine middle schools. During the 2011-2012 school year, there were 1,636 eighth grade students, the

grade level this study will address. The middle schools include sixth grade students as well. The academic day convenes at 7:45 A.M., dismisses at 2:50 P.M., and is comprised of eight 45-minute periods, plus a 25-minute lunch period. Typically, a student is enrolled in six core subjects (math, reading, communication arts, social studies, science, and guided study) and two exploratory classes, to include physical education plus one of the student's choice. Sixth grade students may choose from four exploratory options: art, industrial technology, family and consumer science, or computer technology. Seventh and eighth grade students, however, have the further option of choosing from the above four plus Spanish, vocal music, band, or strings (Blue Valley Schools Middle School Program Planning and Curriculum Guide, 2011c).

In BVSD, interscholastic sports are available to both seventh and eighth grade students, with seventh grade students limited to track and field only. Eighth grade students may choose from football (boys only), volleyball (girls only), basketball, and track and field. Students may participate in a maximum of four sports during their middle school years (Blue Valley Middle School Athletics and Activities Handbook, 2011b).

Student success in BVSD can be defined in a variety of ways. For example, students in BVSD have consistently performed above the state and national averages on college entrance exams, especially the ACT. Over the last four years, students in BVSD taking the exam had a higher average composite score than the national average composite score. The following table, ACT Composite Scores: Blue Valley Average vs. the National Average, displays this information. In addition, the composite score for BVSD students taking the exam gradually increased in three of the last four years.

Table 1

*ACT Composite Scores**Blue Valley Average vs. the National Average*

	2008	2009	2010	2011
Blue Valley	24.4	24.3	25.0	24.8
National Average	21.1	21.1	21.0	21.1

Note. From *Blue Valley School District Data Warehouse*, by Blue Valley School District, 2011, Overland Park, KS.

The high level of student achievement in BVSD is due in large part to its commitment to the use of the most current research on successful schools, an example of which is its incorporation of Professional Learning Communities (PLCs) into all their schools. PLCs are defined by three big ideas: a focus on learning, building a collaborative culture, and a focus on results. Further, the PLC model has six essential characteristics: a shared mission, vision, values, and goals; collaborative teams focused on learning; collective inquiry; action orientation and experimentation; a commitment to continuous improvement; and results orientation (DuFour, Eaker, & DuFour, 2008). When the decision to convert BVSD's schools to the PLC model was made, the results in student achievement came soon after. In 2003, BVSD was reaching state standards in the areas of reading and math, with around 80 % of students scoring proficient or above on the Kansas State Reading and Math Assessments. In 2006, one year after the district switched to the PLC model, the number of students scoring proficient or above on the reading portion of the assessment rose to 94 % and 90 % on the math portion. Two years later, in 2008, 95.7 % of BVSD's students were scoring in the proficient range or above

in reading and 95 % were proficient or above in math. These increases are widely credited to the district's implementation of the PLC model (American Productivity and Quality Center, 2011).

In addition, BVSD has put into action the research of Marzano, author of more than 30 books and 150 articles on instruction, assessment, leadership, and school intervention and is the founder of the Marzano Research Laboratory in Englewood, Colorado. Marzano (2003) suggested there are several factors that determine student achievement, including: a consistent and viable curriculum, well-defined goals and effective feedback for both staff and students, a minimum standard for parental and community involvement, a safe and orderly environment, and a level of collegiality and professionalism among all participants. Likewise, Reeves (2005) maintained that highly effective schools demonstrate a focus on academic achievement, clear curriculum choices, frequent assessments of students' progress, an emphasis on non-fiction writing, and collaborative scoring of students' work.

BVSD has made the pursuit of the above goals central to its planning, an example of which is its use of the Measure of Academic Progress assessments. Blue Valley charts the development of kindergarten through eighth grade students using the MAP, a computerized adaptive assessment given in the fall and spring of each academic year. This assessment has been given each fall and spring in the district since 2005, aligning it with both national and Kansas state standards. (E. Parks, personal communication, 2011 June). Both the math and reading portions of the MAP assessment are leveled, meaning the difficulty of the assessment will either increase or decrease, depending on how the student performs. According to the Northwest Evaluation Association, if a student

answers the first few questions correctly, the assessment presents the student with a more difficult question. Conversely, if the student answers the question incorrectly, the assessment gives the student a less rigorous question. Each question on the assessment is assigned a difficulty value, and the assessment is then scored using this scale (based on a Rasch, or RIT, scale). The RIT scale measures grade level growth on a continuum of skills for each student from the fall to the spring of an academic year. The NWEA, located in Portland, Oregon, is the organization responsible for the development and scoring of the MAP and has placed all of its assessment items on the RIT scale according to their difficulty. Each increasing RIT is assigned a numeric value, or RIT score, that indicates a higher level of difficulty. For example, if a student has a RIT score of 190 on the assessment, this indicates the student is answering questions at a low level. If another student has a RIT score of 257 that means the student is answering questions at a very high level. RIT scores generally fall between 190 and 260 (Northwest Evaluation Association, 2011). Another way to understand the RIT is to think of the scoring like a yard stick. Each inch mark on the stick is like a RIT unit. (E. Parks, personal communication, 2011 June).

Table 2 displays mean RIT scores for eighth grade students in BVSD for the past four years, as compared with the mean RIT scores for the rest of the United States. As the table illustrates, BVSD's eighth grade mean RIT scores, over the last four years, have been consistently above the national average. Also, the average RIT score has increased each year from 2007 to 2010 in BVSD.

Table 2

*Measure of Academic Progress Mean RIT Scores – Eighth Grade**Blue Valley vs. The National Average*

	2008	2009	2010	2011
Blue Valley – Reading	232.7	234.5	234.6	230.6
National Average – Reading	221.2	221.2	221.2	219.0
Blue Valley – Math	247.7	248.7	246.9	243.6
National Average – Math	232.7	232.7	232.7	230.0

Note. From *Blue Valley School District Data Warehouse*, by Blue Valley School District, 2011, Overland Park, KS.

Significance

This study is significant because it contributes valuable insight for educational leaders. This insight can be used when making decisions for students that address problems that stem from students having poor attitudes toward school and low levels of academic achievement. As discussed above, research has been conducted that demonstrates the benefits of participation in athletics (Malina & Cumming, 2003; Weiss & Stuntz, 2004). However, at the same time, research has also been conducted that contradicts the body of research that outlines the benefits of athletic participation for students. For example, the body of research on the increased threat of injuries as well as an increased level of stress and anxiety for the participants is well-documented. McEwin (1994) discussed the physical side of competition and indicated that while interscholastic participation in the middle school has increased, so have adolescent sports injuries. Injuries occur during intense activities generated by participation in competitive sports. In regard to the increased levels of stress and anxiety, Hanson (1967) studied

physiological stress in adolescent boys participating in a baseball game. He monitored the heart rates of the players before, during, and after the game. The results demonstrated an increased heart rate in the dugout, in the field, while batting, and while sitting on the bench. Therefore, Hanson concluded that participation in youth sports increases the physiological stress level of youth. Because some contradictory evidence exists, this study may be useful in determining whether or not athletics has a positive impact on students' academic achievement and connectedness toward school. Also, contributing research on sports participation and a variable with limited research (student connectedness toward school) helps make this study significant as well.

Purpose Statement

The purpose of this study was to investigate the relationship between interscholastic athletics participation and two variables: academic achievement and students' connectedness toward school.

Delimitations

Lunenburg and Irby (2008) stated, "Delimitations are self-imposed boundaries set by the researcher on the purpose and scope of the study" (p. 134). Academic achievement, for the purposes of this study, was defined by a student's increase in his or her RIT score from the fall 2011 to the spring 2012 Measure of Academic Progress assessments. The study was conducted using the fall 2011 and spring 2012 Measure of Academic Progress and the RIT scores and interscholastic athletics participation information from eight Blue Valley middle schools. Also, the scores of students who were enrolled in one of the eight Blue Valley middle schools for both the fall and spring testing windows were used. Both portions of the MAP (math and reading) were used for

the study. Football, volleyball, girls' basketball, boys' basketball, and track and field at the eighth grade level in Blue Valley were the sports considered for the study. The following table displays the sports available to boys and girls at each grade level. An 'X' indicates the sport is available to the grade levels and genders at the top of the table.

Table 3

Athletics in the Blue Valley Middle Schools

	Seventh Grade	Eighth Grade	Boys	Girls
Football		X	X	
Basketball		X	X	X
Volleyball		X		X
Track and Field	X	X	X	X

Note. From *Blue Valley Middle School Athletics and Activities Handbook*, by Blue Valley School District, 2011, Overland Park, KS.

Assumptions

Assumptions are what a researcher takes for granted relative to a study (Roberts, 2004). First, the assumption was made that the district's electronic database, which contains all MAP scores, was accurate. Also, the records kept by each individual school on student participation in sports (number of participants in sports, number of non-participants in sports) were assumed to be accurate. Finally, the assumption was made that all students taking the Measure of Academic Progress gave their best effort on both the fall and spring assessments.

Research Questions

Two research questions guided the study:

1. What is the relationship between student participation in zero, one, two, or three interscholastic athletic programs in the Blue Valley middle schools and student growth in scores from the fall, 2011 to the spring, 2012 MAP assessments?
2. What is the relationship between student participation in interscholastic athletic programs in the Blue Valley middle schools and students' perceptions of connectedness toward school?

Definition of Terms

This section of the study lists terms used that do not have a common meaning or that may be easily misunderstood (Roberts, 2004). The following terms were referenced for this study.

Academic achievement. This is measured by the extent to which a person has “achieved” something, acquired certain information, or mastered certain skills – usually as a result of planned instruction or training. (Northwest Evaluation Association, 2011).

Academic growth. This is represented by the increase in a student's Rasch Unit (RIT) score (defined below) from the Fall Measure of Academic Progress test to the Spring Measure of Academic Progress test. (Northwest Evaluation Association, 2011).

Measure of Academic Progress assessments. Also called MAP, these are computer-adaptive tests that result in a RIT score. (Northwest Evaluation Association, 2011).

Positive school environment. Often called school climate, this is characterized by caring and supportive interpersonal relationships; opportunities to participate in school

activities and decision-making; and shared positive norms, goals, and values (Battistich and Horn, 2001; Wilson, 2004).

RIT score. This is “also called Rasch Unit, honoring George Rasch, the Danish mathematician who developed the underlying theory for this type of measurement. The RIT scale is a curriculum scale developed by the NWEA that uses the individual item difficulty values to estimate student achievement. Advantages to the RIT scale are that it can relate the numbers on the scale directly to the difficulty of items on the tests and it is equal interval. Equal interval means that the difference between scores is the same regardless of whether a student is at the top, bottom or middle of the RIT scale, and it has the same meaning regardless of grade level” (Northwest Evaluation Association, 2010, “Measures of Academic Progress”)

School connectedness. This is the belief by students that adults and peers in the school care about their learning as well as about them as individuals (CDC, 2009b).

Transescence. This is “the stage of development which begins prior to the onset of puberty and extends through the early stages of adolescence” (Eichhorn, 1966, p.3).

Overview of Methodology

Because this study relied on both quantitative and qualitative data, it was a mixed methods study. For the quantitative portion, this study compared the growth of eighth grade students in the Blue Valley School District who participated in interscholastic athletics with those who did not during the 2011-2012 school years. The research participants were selected using purposive sampling. The instrumentation used was the 2011-2012 Fall and Spring Measure of Academic Progress (MAP) assessments, in particular the RIT scores that measure student achievement on the assessment. For the

qualitative portion of the study, four focus groups with eight students in each group were selected using a purposive sample. These groups were comprised to assess if a difference existed in how connected athletes and non-athletes felt to their school, and if their participation in athletics had an influence on their perception of connectedness. The focus groups were mixed, meaning they were comprised of both athletic and non-athletic participants. To summarize, quantitative data (the use of MAP scores of Blue Valley eighth grade students) and qualitative data (the results of the focus groups to assess students' perceptions of connectedness toward school) were analyzed to address the research questions.

Summary

This chapter included an introduction to the study, the problem statement, and background information of the Blue Valley School District. The significance, purpose statement, delimitations, and assumptions were also provided. Definitions of terms were included and a brief overview of the study's methodology was shared. The remainder of the study is organized into four chapters, references, and appendices. Chapter two presents a review of the literature, including a theoretical framework on cognitive development, characteristics of early-adolescent learners and how these characteristics affected the history of middle-level education in the United States, the research on the benefits of participating in athletic programs, and research on students' connectedness toward school. Chapter three discusses the topics of research design, population and sample, sampling procedures, instrumentation, measurement, validity and reliability, data collection procedures, data analysis and hypothesis testing, and limitations related to this study. Chapter four presents all data collected and the study's results; based on the both

the quantitative and qualitative research done in the study. Chapter five includes a summary and the interpretation of the data, its relationship to the literature review, implications for action, and recommendations for future study.

CHAPTER TWO

REVIEW OF LITERATURE

Chapter two provides a rationale for studying the relationship between middle school athletic participation and its impact on academic achievement and school connectedness. This chapter presents the literature pertaining to middle school student participation in athletics and its impact on students. It discusses the literature which currently exists relating to student connectedness and which underlies the hypotheses developed and tested in subsequent chapters. Students participating in interscholastic athletics at the middle school level are more likely to have a higher level of physical health (United States Department of Health and Human Services, 1996), experience higher levels of academic achievement (Sallis, et al, 1999), and have a greater chance of having a positive connection with their school (Holloway, 2002). A theoretical framework on cognitive development, characteristics of early-adolescent learners and how these characteristics affected the history of middle-level education in the United States, the research on the benefits of participating in athletic programs, and research on students' connectedness toward school is provided. The review of the literature in these areas lays a foundation for the research reported in later chapters by providing a justification for the research questions, both in terms of the value of athletic participation and connectedness but also the importance of focusing on middle school students.

Cognitive Development: A Theoretical Framework

Of all the theories on cognitive development over the last century, two psychologists' works are more widely referenced than any other: Lev Vygotsky and Jean Piaget. Both offer explanations for the learning styles and abilities of young people and

inform the research questions investigated later in chapter three. Vygotsky's scaffolding theory is important for research on connectedness because scaffolding can only be successful if students are engaged with peers and educators. Piaget's research demonstrates that middle school is a critical period for intervention because it falls at the transition between the concrete operational and formal operational stages. If athletics can enhance connectedness during this important transitional phase, students may be able to use scaffolding to progress through Piaget's stages more quickly, and their academic achievement may improve.

Vygotsky's Zone of Proximal Development

Lev Vygotsky identified that human beings' cognitive development is dependent upon their environment, in particular their social and cultural interactions. Children learn customs, values, beliefs, and the language of their culture by interacting with others (Gumbiner, 2003). Vygotsky developed the zone of proximal development (ZPD), which he defined as "the distance between what children can do by themselves and the next learning that they can be helped to achieve with competent assistance" (Raymond, 2000, p.176). With ZPD, learning is a continuum that ranges from tasks a child can complete without any assistance from an adult to tasks that are too difficult for a child to accomplish, even with the help of an adult, with tasks a child cannot accomplish alone occupying the middle.

With the help of a knowledgeable peer or adult, a child can move across the zone of proximal development. Vygotsky described this process as "scaffolding." Vygotsky defined scaffolding as the "role of teachers and others in supporting the learner's development and providing support structures to get to that next stage or level"

(Raymond, 2000, p.176). Vygotsky's framework was based on the assertion that as a child's abilities increase, the support provided by the more knowledgeable peer or teacher is slowly taken away. The goal is for the learner to be able to complete the task or master the concepts independently (Chang, Sung, & Chen, 2002).

For scaffolding to succeed, it is reasonable to expect that students must feel a connection to the peers or adults who are helping them acquire skills and move across the continuum of learning. If this is true, increasing students' connectedness to school would be expected to improve the effectiveness of scaffolding. This, in turn, would be reflected in better achievement by students who have greater connectedness because of athletics or other student activities which building a connection between students and their schools. This hypothesis is tested in later chapters.

Piaget's Stages of Cognitive Development

Jean Piaget's theory of cognitive development identified stages children progress through as they grow older. The final transition, from the concrete operational to formal operation stage, occurs when most children are in middle school. The formal operational stage is the stage of development that allows complex reasoning necessary for academic success in high school and college. This means that ensuring a smooth transition between these stages is critical for later academic achievement, so focusing on improving connectedness to get the benefits of scaffolding is very important in early adolescence. Piaget's theory is described below because it supports a focus on middle school connectedness.

Piaget's research, like the research of Vygotsky, focused on the processes by which children come to acquire certain information. Based on observations of his own

children, Piaget's theories describe how children learn, beginning with the observation that all children were born intelligent, but that intelligence changes over time as children develop (Piaget, 1952). Piaget identified three main processes by which children learn: schema, assimilation, and accommodation. Piaget found that all children have mental frameworks, or schema, for observing and interpreting their experiences. (Gumbiner, 2003).

Schema, assimilation, and accommodation take place within four stages of cognitive development: sensorimotor, preoperational thinking, concrete operations, and formal operations (Piaget, 1952). During the first stage, from birth to two years, a child is in the sensorimotor stage of development. The baby learns about his or her surroundings by the five senses, such as sights and sounds, and by motor functions, such as crawling or walking (Gumbiner, 2003). From the time a child turns two years old through the time preschool is finished, Piaget noticed the way the child thinks began to change, and he called this stage preoperational thinking. During preoperational thinking, a child begins to represent the world with images and symbols, marking the beginning of symbolic logic, which serves as a basis for language development (Gumbiner, 2003). The next stage is what Piaget called concrete operations, which takes place during a child's elementary school years. During concrete operations, a child's learning is characterized by logical reasoning about concrete objects, and the child is also able to classify objects in hierarchies more systematically than he was previously able to do. The ability to add, subtract, and organize is developed during this stage (Gumbiner, 2003). A child during the concrete operational stage is able to perform more complex operations mentally, rather than just physically, as is common during the preoperational

stage. Piaget's final stage of cognitive development is called the formal operations stage. It represents a fully mature way of viewing the world and begins during adolescence. Adolescents in this stage perform logical operations and deductive reasoning. Where elementary-age children live in a world of concrete realities, adolescents dream and fantasize; they tend to argue and philosophize about hypothetical situations. During this stage, writing, and mathematical operations improve. During this final stage, adolescents learn to think abstractly (Gumbiner, 2003).

The Adolescent Learner

Vygotsky's research established that connectedness to peers and teachers is important for achievement. Piaget's demonstrated the importance of focusing on students of middle school age because this age is critical for ongoing academic success. Next, it is important to understand why early adolescence is often a time when students are at risk of disconnecting from school and their peers. Adolescence, is, therefore, an age when disconnecting is both more likely and particularly harmful, so interventions to improve students' connectedness are all the more important at this age.

Early adolescence is time characterized by vast hormonal and physical changes (Coleman & Hendry, 1990; Feldman & Elliott, 1990). This transition from childhood to adulthood is also characterized by dramatic changes in overall cognitive ability and function. Early adolescents exhibit a wide variety of intellectual development (California State Department of Education, 1987; Kellough & Kellough, 2008; Manning, 2002; Scales, 2003), metacognition, and independent thought (Kellough & Kellough, 2008). Early adolescents develop the capacity for abstract thought (Elkind, 1974; Flavell, 1963; Piaget, 1952, 1960), and these individuals typically progress from an understanding of

concrete thoughts and concepts to an understanding of the development and testing of hypotheses, an ability to analyze data, and an ability to think reflectively (Manning, 2002).

There are many factors that influence how adolescents learn. During adolescence, the development of a sense of individuality and a growing awareness of personal identity are common (Santrock, 1996). Johnson (1998) compiled a review of the prevailing research on adolescents and their learning, and her research led her to the conclusion that adolescents are an age group at risk.

“Indeed, adolescence itself is sometimes considered a risk factor because the life stage is associated with an increased probability of experiencing social and psychological difficulties (Irwin, 1987). Drug and alcohol abuse, depression, violence, pregnancy, sexually-transmitted disease, and school-related problems may place many adolescents at risk of not reaching their full potential (Ruff, 1993; Takanishi, 1993).” (Johnson, 1998, p.83).

The potential for at-risk behaviors, combined with the unique characteristics of adolescent students, makes the curriculum and instructional strategies at the middle school level all the more important. Educators have spent a great deal of time determining the most effective way to educate this very unique demographic. The National Middle School Association (NMSA) has made this research one of its central goals. Practitioners, parents, and others who work with young adolescents need to be aware of the physical, cognitive, and emotional changes that take place during the early adolescent years and use these changes as a guide for all educational decisions (Caskey & Anfara, 2007). Lipsitz (1984) conducted research on the effectiveness of middle schools.

Through the use of both observations and recommendations of educational experts, she detailed a list of characteristics she believed middle schools needed to have to effectively teach the adolescent learner. These middle schools had programs and curriculums tailored to the individual differences in the physical, cognitive, and social development of adolescents. The schools had a scheduled time that allowed for increased socialization with the peer group and gave adolescent students time to pursue their own interests. One of the schools Lipsitz observed had a program that allowed small groups of students and small groups of teachers to work together, giving the teachers the flexibility to take the time needed to meet each adolescent learner's instructional needs. Finally, all the middle schools Lipsitz observed had an advisory program in place that allowed for students to make contact with an adult in the building who was willing to listen and encourage the adolescent student (Lipsitz, 1984). Beyond the scope of the organization of an adolescent's school day was the research on how adolescents should be taught. Taylor and Reeves (1993) found that effective instruction at the middle school level should require adolescents to be active participants in their learning. Adolescents should be given the opportunity to share orally to express their thoughts and ideas (Taylor & Reeves, 1993).

Despite the research on how to effectively organize schools for adolescents and the research that existed on how to properly educate adolescents, the middle school in the United States remained a work-in-progress for much of the 20th century. The next section describes the history of middle schools in the United States, with a particular focus on how the evolution of middle schools has improved early adolescent education but left certain gaps remaining. In particular, gains from middle school approaches could

be enhanced by better use of extracurricular activities and athletics, which may be particularly successful at building the connectedness needed to improve young adolescent academic achievement.

The Evolution of Middle Schools

Before the ‘middle school’ became commonplace in America, there was the junior high school. At the beginning of the 20th century, the notion of ‘middle schooling’ was championed by G. Stanley Hall, a noted psychologist at the time who is credited with writing the first book on adolescents, called *Adolescence*. Hall (1904) argued that the developmental differences that existed between adolescence and childhood necessitated a change in the configuration of American schools. At the time, the majority of American schools were ‘8 – 4’ schools, meaning kindergarten through eighth grade were in one building, and the other building was reserved for the high school. As a result of these pedagogical changes, the first junior high school was established in Columbus, Ohio in 1904, and by the 1930s, the junior high school was commonplace in most American cities, with the configuration consisting a of kindergarten - sixth grade school, a seventh - ninth grade school, and a tenth - twelfth grade high school. Initially, the primary focus of these junior high schools was to focus on the unique characteristics of adolescents when making planning, curricular, and instructional decisions. However, the focus of these schools soon became to act as a bridge between the self-contained classrooms of elementary schools and departmentalized classrooms of the senior high school (Casas, 2010). The combination of junior high schools’ losing focus of their initial purpose (meeting the unique needs of

adolescents) and the theories of researchers like Lev Vygotsky and Jean Piaget led to the transition from the junior high school to the middle school.

The modern middle school movement began in the 1960s and 1970s when pedagogy in the United States was scrutinized and dramatic changes to the school structures were proposed. William Alexander, widely referred to as the father of the American middle school, recommended that (a) the ninth grade be moved to senior high and grades five and six be moved up to the middle level, (b) teacher education programs should focus on strategies for teaching the young adolescent, (c) flexible school curriculums that offered courses in both general and value education be available and (d) schools implement exploratory coursework for all students (Alexander & George, 1981). Alexander's proposal is most often credited with the beginning of the middle school movement (McEwin, 1992), and its influence began to spread. In 1966, Donald H. Eichhorn published *The Middle School* and coined the term "transescence," which is "the stage of development which begins prior to the onset of puberty and extends through the early stages of adolescence" (Eichhorn, 1966, p.3). This term was widely used in the 1960s to describe middle school students and their characteristics.

This represented a drastic change from the junior high configuration. Junior high schools were designed primarily as a preparatory institution for high school (Alexander, 1962). However, as researchers began to better understand the cognitive development of adolescents, including the work of Piaget, educators began to explore the possibility of changing the structure of how adolescents were taught. Junior high schools focused on departmentalization, which meant the instructional focus was not individualized to each student; students were simply grouped according to ability level (Alexander, 1962).

Teachers did not function as a team educating the students they shared. This led to the belief that junior high schools were not meeting their stated goal of acting as a transition from the elementary to the high school (Alexander, 1962). This inability to act as an effective transition from elementary to high school led several organizations, in particular the National Middle School Association (formed in 1973), to encourage the formation of middle schools, generally schools serving grades six through eight, that paid greater attention to the unique strengths and individual needs of young adolescents. The characteristics of adolescents are reflected in a desire for independence; a growth in the importance of the peer group; sexual, emotional, and social maturation; a search for values and norms; resentment of authority figures; ambivalence concerning dependence; emancipation from the home; fluctuation of emotions; concern about physical growth and appearance; and the development of self-concept (Eichorn, 1966).

These characteristics of adolescents served as a guide for the structure of the new schools. The schools shared some characteristics: an advisory program, interdisciplinary teaming, and adequate flexibility in scheduling to insure that at least one adult would be well-acquainted with each student. The notion of providing an advisory period has evolved over the 40-year history of American middle schools. Early on, teachers often took it upon themselves to serve as advisors for their students. Some schools also created opportunities outside the classroom, such as planned extracurricular and social activities, for teachers and students to develop more positive relationships (Thompson & Homestead, 2004).

The focus then turned from simply creating more middle schools (grades 6-8) to making such schools more effective. The Carnegie Council on Adolescent Development

(1989) produced a report entitled “Turning Points: Preparing American Youth for the 21st Century.” This report offered the eight principles for improving middle grades education:

“large middle grades schools need to be divided into smaller communities for learning; middle grades schools should teach a core of common knowledge to all students; middle grades schools should be organized to ensure success for all students; teachers and principals should have the major responsibility and power to make decisions about young adolescents’ schooling; middle grades schools should be staffed by teachers who are experts at teaching young adolescents; schools should promote good health, because the education and the health of adolescents are linked; families should be allied with school staff through mutual respect, trust, and communication; and schools and communities should be partners in educating young adolescents” (Carnegie Council for Educational Development, 1989, p. 8).

A follow-up report, “Turning Points 2000: Educating Adolescents in the 21st Century,” was published ten years later by educational researchers Jackson and Davis (2000) to extend new ideas from the eight principles outlined in the original “Turning Points.” In “Turning Points 2000”, the recommendations for successful middle schools went much deeper. The recommendations for successful middle schools in “Turning Points 2000” include:

teaching a curriculum grounded in rigorous, public academic standards for what students should know and be able to do, relevant to the concerns of adolescents and based on how students do best; using instructional methods designed to

prepare all students to achieve higher standards and become lifelong learners; staffing middle grades schools with professionals who are experts at teaching young adolescents, and engaging students in ongoing, targeted professional development opportunities; organizing relationships for learning to create a climate of intellectual development and a caring community of shared educational purpose; governing democratically, through direct or representative participation by all school staff members, the adults who know the students best; providing a safe and healthy school environment as part of improving academic performance and developing caring and ethical citizens; and involving parents and communities in supporting student learning and health development (NMSA, 1995).

According to the NMSA, characteristics of developmentally responsive middle schools include the following: “educators committed to young adolescents, a shared vision, high expectations for all, an adult advocate for every student, family and community partnerships, and a positive school climate” (NMSA, 1995, p. 18). Additionally, these middle schools must provide a curriculum that is “challenging, integrative, and exploratory; varied teaching and learning approaches; assessment and evaluation that promotes learning; flexible organization structures; programs and policies that foster health, wellness, and safety; and comprehensive guidance and support services” (NMSA, 1995, p. 18).

These changes were introduced as a concerted effort to make middle schools ideal for meeting the developmental needs of young adolescents. While the implementation of new grade configurations improved academic achievement in the middle grades (Lipsitz,

Jackson, Mizell & Austin, 1997), many educators began to question the efficacy of making changes in grade configuration alone. History, research, and experience suggest, however, that decisions regarding grade configurations were usually a matter of historical trends, community preferences, and conventional wisdom rather than the use of rigorous empirical research (National Forum to Accelerate Middle Grades Reform, 2008). To address the challenges facing the American middle school, the National Forum to Accelerate Middle Grades Reform was created. Its stated purpose was to bring middle-grades leaders together to collaborate on best practices at the middle level. The forum outlined three essential elements of effective middle schools: academic excellence, developmental responsiveness, and social equity (National Forum to Accelerate Middle Grades Reform, 2008).

The National Forum recommends that policy makers at the middle school level do the following to ensure a middle school is successful: focus their energy and target resources on improving these schools that are already serving young adolescents regardless of grade configuration; review and apply current research that suggests shifting students from one type of school to another may do little to impact student academic performance; and take steps that comprehensively address and incorporate proven strategies for school improvement, including setting high standards for all students, creating a personalized and caring learning environment, and providing students with the academic, social-emotional, health, and other services they need to succeed (National Forum to Accelerate Middle Grades Reform, 2008).

As the configuration of middle level schools changed over the last century in the United States, so did the way adolescents were educated. Developmentally responsive

middle schools must provide programs and policies that foster health and well-being for students (NMSA, 1995). Extracurricular programs in middle schools have been shown to provide these things for students. In particular, extracurricular programs, including athletics fill in gaps in middle school education to promote connectedness. This connectedness may be to peers or teachers, anyone who can help the student progress through Vygotsky's zone of proximal development.

Extracurricular Activities and Their Benefits

The transition was made from the junior high school model to the middle school model, and one of the characteristics of junior high schools that were kept in middle schools was the existence of an activity program for students. The reason for this was simple: one of the goals of these new middle schools was to focus more on the personal development of the adolescent students, and an activity program gave students the opportunity to be involved in the school (Alexander, 1962). The benefits of student participation in extracurricular activities while in middle school are well-documented, particularly the benefits in the areas of academic achievement and psychological outcomes. Participation in extracurricular activities by adolescents has been associated with higher levels of academic achievement, including a higher grade point average, higher educational aspirations, increased college attendance, and reduced absenteeism (Broh, 2002). This claim is supported with research. In a series of in-depth interviews conducted with adolescents, Hrudá and colleagues found that the responsibility, discipline, and dedication that was needed in the extracurricular activities carried over into students' academic lives, students were able to study more efficiently because of the time extracurricular participation involved, students maintained their grades so

participation in extracurricular activities could continue, and students shared that teachers and coaches they worked with in their participation helped provide them with guidance and help for the future (Hruda, Fredricks, Alfeld-Liro, & Eccles, 1998), essentially the scaffolding Vygotsky's theory envisions. Multiple research groups (Cooper, Valentine, Nye & Lindsay, 1999; Eccles & Barber, 1999; Marsh & Kleitman, 2002) have found that extracurricular activity participation is positively linked with academic outcomes, such as higher grades and test scores, a higher level of school engagement, and higher educational aspirations. Further research, however, is needed to test whether the higher achievement they have identified is because of better engagement, which would likely be due to better connectedness.

Extracurricular participation has an impact on psychological and behavioral outcomes for students. Barber, Eccles, & Stone identified a relation between extracurricular participation and higher levels of self-esteem and lower rates of depression in a longitudinal study measuring prosocial behavior in adolescents (Barber, Eccles, & Stone, 2003). Fredricks and Eccles conducted an extensive study to measure how extracurricular activities affect their academic and psychological adjustment (defined using grade point average and the results of a checklist given to parents of participants, respectively). Students in this study were found to have a higher grade point average when participating in extracurricular activities and were found to have higher self-esteem and a lower occurrence of depressive symptoms (Fredricks & Eccles, 2006). One of the many extracurricular activities available to adolescent students that have been shown to provide a benefit, particularly in the area of academic achievement, is athletics. This suggests that it is important to understand exactly why athletics improve

achievement. Based on Piaget and Vygotsky's research on cognitive development, improved scaffolding due to better connectedness is a plausible explanation.

The Impact of Athletic Participation on Adolescents

Students who are involved in athletics are more likely to stay in school and have good conduct and high academic achievement (Sallis, McKenzie, Kolody, Lewis, Marshall, & Rosengard, 1999). Camp (1990) examined the relationship between youth activities, including athletics, and academic achievement.

Controlling for the influence of gender, family background, typical use of time (including hours of homework per week, television viewing habits, and hours of paid employment), and the student's prior indicators of academic ability, including grade point average, the researcher found that academic achievement was enhanced by student participation in extracurricular activities such as athletics (Schley, 2002, p. 13).

These results also provide some support to the notion that students with academic difficulties should be encouraged to participate in extracurricular activities, including athletics, because of the academic benefits involved (Camp, 1990). Further, the research by Mahoney and Cairns suggests that extracurricular participation decreases the tendency to drop out (Mahoney & Cairns, 1997). These researchers conducted longitudinal assessments for 392 adolescents who were initially interviewed during 7th grade, and were followed up annually until 12th grade. They examined the relationship between extracurricular participation and dropping out of school, which they defined as the failure to complete the 11th grade. They also enlisted the help of middle school teachers of the students in the study, and gathered what they termed Interpersonal Competence Scale

ratings, which identified various configurations of boys and girls who differed in their academic competence. The results showed that the dropout rates among at-risk students were much lower for those students who had participated in extracurricular activities. Mahoney and Cairns concluded that extracurricular participation decreased the tendency to drop out because it gave at-risk students an opportunity to create a positive and voluntary connection to the educational institution (Mahoney & Cairns, 1997).

Kort-Butler and Hagewen conducted some of the most recent research on the potential positive effects of extracurricular participation and found that students' general well being increased when participating in some type of extracurricular activity (Kort-Butler & Hagewen, 2010). Fox and colleagues surveyed nearly 5,000 middle and high school students to study the association between the number of hours reported participating in team sports with academic outcomes for middle and high school students. Sports participation was found to have a positive impact on grade point average on the students involved, in particular middle school boys (Fox, 2008). Harrison and Narayan (2003) studied whether participation in school sports, exclusively or in combination with other non-athletic extracurricular activities, was associated with higher levels of psychosocial functioning and healthy behavior than participation in extracurricular activities alone or non-participation. They found, through the use of a survey administered to over 50,000 ninth grade students, that those who participated in sports had significantly higher odds of participating in exercise and having a healthy self-image and had significantly lower odds for emotional distress and suicidal behavior (Harrison & Narayan, 2003).

School Connectedness

Research on that connection to school, often provided by athletics, has grown substantially in the last decade, led by The Centers of Disease Control and Prevention's (CDC) Division of Adolescent and School Health, along with the Johnson Foundation. The CDC plays a leading role in understanding how psycho-social health intersects with academic achievement and the Johnson Foundation is a primary funder of research on the links between school health and achievement. These organizations convened experts from the education and health sectors that developed a consensus definition of school connectedness as the belief by students that adults and peers in the school care about their learning as well as about them as individuals (CDC, 2009b). While the first working definition of school connectedness focused on a student's perceived belonging and quality of relationship with peers and teachers at school, the current body of research on school connectedness is relatively new, but nonetheless provides evidence that connectedness to school can impact students' psychological and emotional well-being, level of academic achievement, and is related to positive behavior outcomes, specifically during adolescence.

Resnick and colleagues have reported that school connectedness was found to be a protective factor against substance abuse, school absenteeism, early sexual initiation, violence, and the risk of unintentional injury (e.g., not wearing seatbelts, drinking and driving) (Resnick, et al, 1997). In a different study, the same research team found a student's connection to his or her school was second only to a student's connection to his or her family as a protective factor against emotional distress, disordered eating, and

suicidal thoughts and attempts (Resnick, Harris, & Blum, 1993; Blum, McNeely, & Reinhart, 2002).

School connectedness has also been shown to have a relationship with depression in adolescents. Because depression harms academic achievement, this may be another mechanism for connectedness to improve academic achievement. Ross and colleagues studied the role school connectedness has as a protective factor against adolescent depression and concluded that school connectedness should be used as an intervention against depressive symptoms in adolescents (Ross, Shochet, & Bellair, 2010). Research from outside the United States comes to similar conclusions. Frydenberg and colleagues conducted research in Australia to determine the relationship between school connectedness and emotional well-being. In this study, adolescent students responded to a survey designed to measure their ability to cope as a measure of emotional well-being. Students who reported having strong coping skills were shown to have a greater sense of school connectedness (Frydenberg, Care, Freeman, & Chan, 2009). Ashley and colleagues further contributed to this body of research, examining middle school students' perceptions of wellness and their connection to school. This study revealed that students who self-reported high levels of wellness tended to have higher levels of school connectedness (Ashley, Ennis, & Owusu-Ansah, 2012). This suggests that connectedness and mental health have a complicated relationship, with mental health potentially being both a cause of connectedness and caused by it.

Multiple researcher teams have similarly found school connectedness to protect against antisocial behavior, including aggressive behavior and exposure to violent behavior (Brookmeyer, Fanti, & Henrich, 2006) and was positively associated with the

reduction of substance use (Wang, Matthew, Bellamy, & James, 2005), exposure to weapon violence (Henrich, Brookmeyer, & Shahar, 2005), the initiation of smoking (Dornbusch, Erickson, Laird, & Wong, 2001), and the prevention of dropping out of school (Miltich, Hunt, & Meyers, 2004). Whitlock (2006) conducted a survey with 8th, 10th, and 11th grade students to examine the relationship between school connectedness and four developmental supports: meaningful roles at school, safety, creative engagement, and academic engagement. Through the use of focus groups, Whitlock found that school connectedness is higher when students perceive two things to be true: their roles at school to be important and that a positive connection exists between adults in the building and students (Whitlock, 2006). McNeely and colleagues found that school connectedness is associated with a diminished involvement in a range of adolescent risk behaviors, such as underage smoking and drinking (McNeely, Nonemaker, & Blum, 2002). Dornbusch and colleagues found that a high level of school connectedness helped prevent youth from engaging in risky behaviors such as smoking and substance use (Dornbusch, et al, 2001). Hall-Lande and colleagues identified school connectedness as a deterrent to the symptoms of social isolation, such as depression, suicide attempts, and low self-esteem (Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer, 2007).

School connectedness also appears to have a relationship with bullying. Lower levels of school connectedness are associated with an increased risk of peer victimization. In a study of more than 900 Australian students from grades seven to twelve, it was found that bullied students had lower self-esteem and were less socially connected to their peers and teachers than students who did not report being bullied (Skues, Cunningham, &

Pokharel, 2005). In Alabama, a study was conducted to examine the relationship of bullying experiences to school connectedness among fifth through eighth grade students. It was found that strong school bonds were associated with reduced risk of both victimization and bullying behaviors (Young, 2004). In contrast, Eisenberg and colleagues studied the impact of bullying on school connectedness and academic achievement on students in grades seven to twelve. Survey data from this research indicates that while most students experience some form of bullying, those who experienced bullying more frequently felt considerably less connected to their school (Eisenberg, Neumark-Sztainer, & Perry, 2003).

Evidence exists that a lack of connectedness to school can have long term effects on students. Buhs and colleagues conducted a longitudinal study to examine the relationship between peer rejection in kindergarten and continued levels of low academic achievement and classroom participation in grades three to five. Early peer rejection was related to being excluded and abused by the peer group and being disengaged from school (Buhs, Ladd, & Herald, 2006). This research is important because it shows that early levels of low connectedness cause subsequent poor achievement, making it less likely that the associations found by other research were due to poor educational or social achievement causing students to be disconnected. This makes it more likely that encouraging athletic participation will improve connectedness.

While low connectedness poses obvious pitfalls for students, high connectedness has been found to provide benefits, suggesting that connectedness is a valuable target for educational interventions. Students who feel connected to school can benefit in a variety of ways. They are more likely to engage in healthy behaviors and succeed academically

when they feel connected to school (Rosenfeld, Richmond, & Bowen, 1998). These healthy behaviors can include school attendance (Rosenfeld, Richmond, & Bowen, 1998), staying in school longer (Battin-Pearson, et al, 2000) and higher grades and classroom test scores (Klem & Connell, 2004; Barber & Olsen, 1997).

The CDC reviewed research on connectedness and found students feel most connected when four criteria are in place: adult support, belonging to a positive peer group, commitment to education, and a positive school environment. For example, research by Blum and colleagues found that adolescents' beliefs about themselves and their abilities are shaped by the extent to which they perceive that the adults in their lives care about them and are involved in their lives (Blum, et al, 2002). In interscholastic sports, this supportive adult is present in the form of a coach. Mageau and Vallerand found when a coach exhibits supportive behaviors toward the students participating, these behaviors have a positive impact on the students' intrinsic and extrinsic motivation, including providing specific rules and limits within competition and avoiding controlling behaviors, such as demonstrating overt control over the students and making criticisms and controlling statements (Mageau & Vallerand, 2003). Both of these studies are consistent with Vygotsky's scaffolding approach to learning.

Students' experiences in athletics are determined in part by the adults in a school; their peer group is just as, if not more, influential, which is also consistent with Vygotsky. Research by Brown and colleagues found the influence of the peer group in the life of adolescents demonstrates that the importance of a peer group increases as adolescence begins. This trend continues until the influence of peers peaks in middle adolescence and begins a gradual decline into later adolescence (Brown, 1990; Collins &

Steinberg, 2006; Rubin, Bukowski, & Parker, 2006). Associating with a positive peer group can lead to greater levels of academic achievement (Ryan, 2001). Ryan examined the influence of a peer group on academic achievement in adolescents, and it was demonstrated that peer group context affects the development of young adolescents' achievement beliefs and behaviors. The Ryan study found, on average, student motivation decreased during the first year in middle school (Ryan, 2001). This is the time students should start to progress from the concrete operational stage to the formal operational stage, so disengagement during this period is particularly harmful.

Additional studies make the adolescent's selection of peer group critical in regard to school connectedness. Furlong and colleagues found if a student's peer group is supportive of pro-social behavior (e.g., participating in athletics), then the student typically reports a greater sense of connectedness to school (Furlong, Whipple, St. Jean, Simental, Soliz, & Punthuna, 2003). This sense of belonging to a peer group can be provided through athletics by simply being a member of a team. Harrison and Narayan (2003) studied the psychological and behavioral factors associated with adolescent participation in team sports. They found that life skill gains can be substantial as a result of participation in sports. The social interaction resulting from athletics provides students with an opportunity to associate and communicate effectively with their peers and solve conflict.

Schools that display a commitment to education and a positive school environment have been shown to have a powerful impact on how connected students feel with their school. Students who display a dedication to their own education have been shown to have higher levels of connectedness when they perceived the adults and peers in

their lives to believe school is important and those adults and peers act on those beliefs (Libbey, 2004).

A positive school environment, often called school climate, is characterized by caring and supportive interpersonal relationships; opportunities to participate in school activities and decision-making; and shared positive norms, goals, and values (Battistich and Horn, 2001; Wilson, 2004). Athletics provides students with an opportunity to be involved in the kinds of activities that help establish a positive school environment, which in turn leads to greater school connectedness.

Summary

Chapter two provides an overview of the research currently in existence that is relevant to this dissertation's research questions. It began with an overview of the research on the cognitive development of adolescents because that research both informs subsequent research on the importance of connectedness and establishes reasons why early adolescence is a critical period for establishing connectedness to improve educational attainment. Characteristics of adolescents and their learning styles, as well as a historical perspective of American middle schools were discussed to provide a deeper understanding of why middle school is an important period for connectedness. In addition, the academic benefits of extracurricular activities, including athletic participation, for adolescents were outlined, and research on school connectedness was reviewed and documented. Overall, the current literature supports the hypothesis that athletics are important for developing school connectedness (through a variety of mechanisms, including improved mental health, better social connections, and an improved school climate). The literature is also consistent with the hypothesis that

connectedness improves academic achievement by making scaffolding more effective. Further, the literature suggests that improving connectedness for young adolescents is particularly important because they are transitioning between developmental stages. Chapter three provides a detailed overview of the methodology used in this research. Chapter four includes all results of hypothesis testing, and chapter five details findings and recommendations for future study.

CHAPTER THREE

METHODS

This study was designed to determine the effect of middle school interscholastic athletic participation in the Blue Valley School District (BVSD) on students' growth on the Measure of Academic Progress (MAP), from fall, 2011, to spring, 2012. Further, the study was designed to examine the effect of athletic participation on students' perceptions of connectedness to their schools. This chapter includes the research design, population and sample, sampling procedures, instrumentation, measurement, validity and reliability, data collection procedures, data analysis and hypothesis tests, limitations, and a summary are detailed.

Research Design

This was a mixed methods study, including both quantitative and qualitative research. Quantitative research was conducted comparing students who did not participate in sports in eighth grade, and those who participated in one sport, two sports, and three sports. Qualitative research was conducted through the use of student focus groups to determine the effect of interscholastic athletic participation on students' perceptions of connectedness toward school. The focus groups consisted of eight students per group with each group consisting of both athletic participants and athletic non-participants.

Population and Sample

The population in this study was all eighth grade students in the United States during the 2011-2012 academic year. The sample and the subjects were different for the qualitative and quantitative portions of the study. The quantitative research in the study

included all eighth grade students in the Blue Valley School District (BVSD) during the 2011-2012 academic year and for the qualitative research, participants were selected based on whether or not they were athletic participants during the 2011-2012 academic year. Two of the district's middle schools were not included due to a conflict of interest from previous teaching and coaching assignments associated with the two omitted middle schools.

Sampling Procedures

Purposive sampling was used to identify the participants of this study. With purposive sampling, the researcher identifies the characteristics of a population of interest and tries to locate individuals who possess those characteristics (Johnson and Christensen, 2008). Eligibility for participation in both the quantitative and qualitative research of the study meant students must have been enrolled as eighth grade students in BVSD during the 2011-2012 academic year. Selection of participants for the quantitative portion of the study involved using all eighth grade students in BVSD during the 2011-2012 academic year. Selection of participants for the qualitative portion of the study involved selecting participants and non-participants from a subgroup of students who responded to the researcher's request for participation in a focus group from seven of the nine middle schools.

Instrumentation

The instrument used to measure the dependent variable was the Measure of Academic Progress (MAP), a computerized adaptive assessment, developed by the Northwest Evaluation Association (NWEA), with its headquarters in Portland, Oregon. The MAP was administered for the first time in 2000. The assessment is adjusted to each

student's instructional level. If a student answers the first few questions correctly, the assessment responds with more challenging questions. If a student answers the first few questions incorrectly, the assessment responds with less challenging questions. Each student's assessment experience is different, but appropriate and effective to assessing his or her understanding of a skill related to a specific state standard at that time (NWEA, 2011).

A portion of the test is dedicated to assessing each of the topics for a specific content area, in this case reading and math. Each portion of the MAP assessment is typically around 50 questions, with multiple versions of the assessment available. During the 2011-2012 academic year in BVSD, eighth grade students took the Reading Survey with Goals version, which is comprised of 42 questions. The math assessment consisted of two different versions, fall and spring. During the fall assessment window, eighth grade students took the Math Survey with Goals version, which is 52 questions in length. In the spring, students took the End of Course Algebra 1 version of the assessment. Although two different versions of the MAP were used for the math portion, growth was still measurable because all the tests, regardless of level, use the same RIT scale.

The RIT, or Rasch unit, is used to communicate each student's academic growth between test administrations. NWEA determined that the RIT score would be the measurement scale for MAP assessments (NWEA, 2011). A score is reported for a student anywhere along a continuum as a single number, such as a RIT of 220. The RIT composite is the student's average RIT in the goal areas for the reading portion and the average of the goal areas for the math portion of the assessment, respectively. The three goal areas for reading are comprehending text (informational and literary), print concepts,

vocabulary, and word analysis. The four goal areas for math are numbers and computation, algebra, geometry, and data (NWEA, 2011). The following table displays the RIT score ranges for each of the goal areas for the Reading Survey with Goals portion of the MAP.

Table 4

Rasch Unit (RIT) Score Ranges for the Reading Survey with Goals MAP Assessment

Goal Area	Range
Comprehending Text (Informational)	161-230+
Comprehending Text (Literary)	171-250+
Print Concepts, Vocabulary, Word Analysis	151-240+

Note. From *Blue Valley Middle School Athletics and Activities Handbook*, by Blue Valley School District, 2011, Overland Park, KS.

The lower number in the range indicates the lowest set of skills that a student can complete with accuracy and the higher number is the highest set of skills the student can complete with accuracy; the plus (+) indicates that if there were RIT scores/skills beyond the top number, the student would have continued up the RIT scale.

Table 5 displays the RIT score ranges for the goal areas for the math MAP assessment taken by eighth graders in BVSD. Students took the Math Survey with Goals version of the assessment, and took the End of Course Algebra 1 version in the spring of the same school year. Again, although two different assessments were used, growth was measurable because both assessments use the same RIT scale.

Table 5

Rasch Unit (RIT) Score Ranges for the Math MAP Assessment

Goal Area	Range
Algebra	171-260+
Data	181-260+
Geometry	161-270+
Numbers and Computation	161-270+

Note. From *Blue Valley Middle School Athletics and Activities Handbook*, by Blue Valley School District, 2011, Overland Park, KS.

The lower number in the range represents the lowest set of skills measured by the assessment, the higher number represents the highest set of skills measured by the assessment, and the plus (+) indicates that if there were skills measured beyond that number, the student would continue up the RIT scale.

Each student begins an assessment (both reading and math) at the RIT level they scored at the completion of the previous school year. If eighth grade students scored a RIT of 230 when tested in the spring of his or her seventh grade year, the fall assessment begins with questions at the 230 level. When students finish the assessment, their RIT is reported at their instructional level. The reading and math items, or questions, are aligned with the content standards from the state curriculum.

Participation in athletics was measured as the number of sports he or she participated in during their eighth grade year. Track and field and basketball were available to both boys and girls, with football available to boys and volleyball available

for girls. Students were identified in one of four groups: zero-sport participants, one-sport participants, two-sport participants, and three-sport participants.

The students' perceptions of connectedness toward school were measured by a focus group conducted by the researcher. The focus group was comprised of seven students, all eighth graders in BVSD during the 2011-2012 academic year. The group was conducted on Saturday, April 28, 2012, from 1:00 P.M. to 2:00 P.M. at the Blue Valley Branch of the Johnson County Library. The students' answers during the group were recorded by a digital recorder (audio only) and transcribed by a female colleague of the researcher.

A focus group script was used as an instrument to collect qualitative data in the study. The following focus group questions were used to ensure the same questions were asked of all the participants.

1. What do you like about school?
2. What do you dislike about school?
3. How well do you fit in at school?
4. How well do you get along with other students?
5. What allows you to feel connected to your school?
6. Are there adults in the building (teachers, administrators, etc.) that allow you to feel connected to school? If so, how do those adults make you feel connected?
7. Could having positive adult role models make you feel connected to school?
8. What kinds of things can schools do to help students feel connected to the school?
9. What would you change about school if you had the chance?
10. How connected do you feel to school?

Measurement.

The variable of academic growth among athletic participants and non-athletic participants was measured by the composite RIT scores for every eighth grade student in BVSD for both the reading and math portions of the assessment. Scores were categorized by their level of athletic participation. Eighth graders were able to participate in zero, one, two, or three sports. Student participation instances were aligned to the RIT score growth in math and reading.

The NWEA (2012) also provides educators with a prediction of average, expected, and typical growth for each student taking the assessment. Average growth is the average amount shown by a student's peers who started with the same RIT score, expected growth is the amount of growth a student is expected to have within an academic year, and typical growth is the amount of growth typical for most students with a similar RIT score.

The RIT Scale is a curriculum scale that uses individual item difficulty values to estimate student achievement (NWEA, 2011). In addition, the RIT scale is an equal interval scale, meaning that the difference between scores is the same regardless of whether a student is at the top, bottom, or middle of the RIT scale and it has the same meaning regardless of grade level. RIT score scales vary from reading to math. In reading, the RIT scale measures with relative accuracy up to about 245. The number is approximate because each goal area of the reading test has a different RIT scale. This represents the 93rd percentile of grade 10, and the 95th percentile at grade 8. If a student scores 245 we know that student scored high but may not be able to assess accurately how high he or she performed (NWEA, 2011). With this data, the researcher will determine if students participating in athletics in BVSD middle schools experienced more

grade level growth from the fall to the spring on the MAP assessment than those students who did not participate in athletics.

Eighth grade students were identified as athletic participants and non-athletic participants by cross-referencing athletic rosters obtained from the assistant principals of the Blue Valley middle schools with the names of students who had taken the MAP assessment. Focus group research was employed to gather student perceptions and attitudes toward school.

Validity and Reliability.

Validity is the degree to which an instrument measures what it purports to measure (Lunenberg and Irby, 2008). The NWEA does extensive research to maintain the continuing validity of the MAP assessment. According to the NWEA (2004), the validity of the MAP assessment is assured by carefully mapping existing content standards from a district or a state into a test blueprint. Items are selected for a specific test based on their match to the state standards as well as the difficulty level on which the test is being created. In addition, when the assessment is constructed, every effort is made within a goal area to select items that adapt each student's instructional level. According to the NWEA (2004), evidence of criterion validity can be expressed in the form of a Pearson correlation coefficient. The Pearson correlation coefficient answers the question, how well do the scores from this test that reference this (RIT) scale in this subject area (i.e., reading) correspond to the scores obtained from an established test that references some other scale in the same subject area? The reading and math portions are administered in close temporal proximity, roughly two to three weeks apart. The correlation coefficient can be as low as -1, which indicates a perfect negative relationship

(for every unit increase in one variable there is a unit decrease in the other variable), and as high as +1, which indicates a perfect positive relationship. Correlations between the MAP mathematics scores and the Kansas State Assessment scores for grades 3 – 8 ranged from .57 in grade 6 to .84 in grade 7. This resulted in a median correlation of .74. (Kingston, Wang, Broaddus, & Kramer, 2011).

The NWEA also conducts studies to establish reliability for their assessments. Reliability is the degree to which an instrument consistently measures that which it is designed to measure (Lunenburg and Irby, 2008). The NWEA (2004) has a similar definition: the reliability is essentially a set of indices of a test's consistency. The NWEA has established, among other types, test-retest reliability and internal consistency for their assessments.

Test-retest reliability is referred to as reliability over time and is established when the test yields the same results from one administration to the next and is stated in terms of a Pearson product-moment correlation coefficient (r). Traditionally, a span of two to three weeks is used to separate the two test administrations (NWEA, 2004). The following table contains the results of two examples of reliability correlation coefficients used by the NWEA to establish test-retest reliability. This table reflects data from the 2002 NWEA Norms Study, which used multiple administrations of the MAP (in this case between 40,000 and 50,000 administrations) to determine test-retest reliability of the assessment. The correlation coefficients for the reading and math portions of the test are .91 and .93, respectively, indicating strong evidence of a positive correlation and also strong evidence for the reliability of the test.

Table 6

NWEA Reliability Tests – NWEA Norms Study (2002) – Test-Retest Reliability

Test Portion	Sample Size	Correlation Coefficient
Reading	46,925	.91
Mathematics	46,425	.93

Adapted from: Reliability and Validity Estimates: NWEA Achievement Level Tests and the Measure of Academic Progress, by Northwest Evaluation Association, 2004, Lake Oswego, Oregon.

The second reliability reported by the NWEA is internal consistency (NWEA, 2004). This type of reliability involves administering the assessment only once to a group of students to determine whether or not the items measure the assessment's construct(s) in a consistent manner. Several methods are available to determine whether or not the assessment has internal consistency. One common method used by the NWEA is referred to as split-half reliability. In this method, the assessment is split into two parts, either randomly or systematically (e.g., all odd numbered items or all even numbered items). The correlation between the parts of the test is the internal consistency. A second method equivalent to using the split-half method is known as coefficient alpha or Cronbach's Alpha, which uses the split-half method for every possible way of splitting the items into two halves and then averaging the correlations (NWEA, 2004).

Two limiting features exist when using these two methods for determining internal consistency. Both depend on student responses to the test to determine internal consistency; thus their results are inherently dependent upon the sample. Another sample of students may well result in a different estimate of internal consistency. When tests are tailored to student achievement (as is the case with the MAP), traditional methods of

calculating internal consistency become extremely cumbersome and statistically inaccurate, since they assume all students take a test made up of the same set of items (NWEA, 2004).

The NWEA has established a method for determining internal consistency not subject to these limitations called the marginal reliability coefficient. This method makes use of two test characteristics: test information and the underlying scale (the RIT scale in the case of the MAP). Test information is a value that is the inverse of the measurement error of the test; the larger the measurement error, the less test information provided. The smaller the measurement error, more information is being provided. For any given test, the amount of information provided depends on where in the measurement range of the test the focus lies. The amount of information provided will always be at its maximum around the middle of the test and will be less as the focus moves toward the end of the test. Conversely, measurement error will always be minimal for the part of the underlying scale that is at the middle of the test and be greater as the focus lies on scale values further away from the middle. The marginal reliability coefficient is, in effect, the result of combining measurement error estimated at different points on the achievement scale into a single index (NWEA, 2004). NWEA uses this method to determine internal consistency, or how well the test measures what it is designed to measure in a consistent manner. The following table represents the marginal reliability coefficients for the reading and math portions of the MAP. The marginal reliability coefficients are .94 and .96, respectively, which indicate high correlations and strong evidence for reliability.

Table 7

*NWEA Reliability Tests – NWEA Norms Study (1999) – Marginal Reliability**Coefficients*

Portion	Sample Size	Correlation Coefficient
Reading	43,600	.94
Mathematics	43,093	.96

Note. From *Reliability and Validity Estimates: NWEA Achievement Level Tests and the Measure of Academic Progress*, by Northwest Evaluation Association, 2004, Lake Oswego, Oregon.

To establish construct validity for the focus group questions, the focus group script used by the researcher was presented to a middle school principal in BVSD, two guidance counselors, one classroom teacher, and one school psychologist. The researcher met with these individuals in a group setting and asked them the following questions:

- Are the focus group questions phrased in such a way that eighth grade students can clearly understand what is being asked?
- Do the focus group questions ask the students what the study seeks to measure, i.e., do the questions adequately measure a student's perceptions of connectedness toward their school?
- Are the focus group questions clear and concise for eighth graders?
- Are the focus group questions asked from a non-biased perspective?

The principal, guidance counselors, classroom teacher, and school psychologist all agreed that asking the questions exactly as written would be the most appropriate way to proceed. The principal was vocal in her opinion that the researcher should stay away from questions that could lead participants to a particular answer. For example, her

suggestion was not to ask ‘could positive adult role models make you feel more connected to school?’ because it implies that the participants should feel connected to school if positive adult role models were in place. In summary, the validity of the Measure of Academic Progress assessments is determined by its alignment with current state content standards. The validity of the questions used in the focus groups was established by having a meeting with a building principal, two guidance counselors, a school psychologist, and two classroom teachers. The reliability of the Measure of Academic Progress is determined by multiple administrations of the assessment to establish test - retest reliability, parallel forms reliability, and internal consistency.

Data Collection Procedures

Prior to conducting the study, the researcher gained the approval of the Baker University Institutional Review Board. An Institutional Review Board request (IRB) was submitted to Baker University for approval on November 11, 2011. The Baker University Institutional Review Board approved the study on November 22, 2011 (See Appendix B). To obtain data to address the variable of academic achievement and to seek permission to conduct the focus groups, the researcher completed and electronically submitted a request to conduct research to the Blue Valley School District’s Research Committee on December 2, 2011. This request was approved on January 5, 2012 (see Appendix A). Once permission from BVSD was obtained, the researcher was granted access to the fall, 2011 and spring, 2012 Measure of Academic Progress scores of all eighth grade students in BVSD. This information was provided to the researcher in the form of a Microsoft Excel spreadsheet.

To obtain data to address the variable of students' perceptions of connectedness toward school, the researcher distributed letters to each of the participating middle schools. These letters requested participation in a focus group conducted by the researcher (See Appendix C). Each school then distributed the letter to the parents of eighth graders at their school. The letters were distributed in hard copy by the office staffs at the five of the seven middle schools involved. Two of the schools mailed the letter to parents electronically. The researcher formally requested permission for this to be the procedure at all seven of the middle schools involved, but this request was denied. The schools had to volunteer this service; the researcher could not request it. Parents gave their permission by contacting the researcher by phone or by email and stated their preference of which focus group date worked best with their schedule. The focus groups were scheduled on four Saturday afternoons (April 21, 2012; April 28, 2012; May 5, 2012; and May 12, 2012) at the Blue Valley branch of the Johnson County Library. Parent responses were limited, so only one focus group was held, on Saturday, April 28, 2012. The group was comprised of seven eighth grade students and was held in a large conference room inside the building's front entrance. Once the focus group commenced, the participants were each given a color-coded index card. The colors were for the researcher to identify which students were athletic participants and which were not. The students with yellow, pink, and brown cards were athletic participants, and the students with red, blue, green, and purple cards were non-athletic participants. The students' answers were transcribed on a personal computer and recorded with the Audacity digital recording program on the researcher's personal computer (audio only). This was done to ensure the anonymity of the participants. An assistant to the researcher was enlisted to

assist with this process. Prior to the actual focus group session, the researcher, the assistant to the researcher, and eight colleagues of the researcher staged a practice focus group session to ensure the digital recorder worked properly and the transcription was as fluid as possible.

Data Analysis and Hypothesis Testing

This study employed both quantitative and qualitative methodology of data collection and analysis. The quantitative data were compiled and organized in a Microsoft Excel worksheet and imported into the latest version of the Statistical Package for the Social Sciences (SPSS) Version Faculty Pack.

The data was used to answer the research questions described in Chapter One.

1. What is the relationship between student participation in zero, one, two, or three interscholastic athletic programs in the Blue Valley middle schools and student growth in scores on the 2011-2012 Measure of Academic Progress?
2. What is the relationship between participation in interscholastic athletic programs in the Blue Valley middle schools and students' perceptions of connectedness toward school?

Two hypotheses were tested for statistically significant differences among MAP scores in reading and math. These address research question one.

H₁: Growth in Measure of Academic Progress RIT scores for the reading portion of the assessment is different among students who participate in zero, one, two, or three sports while in middle school.

H₂: Growth in Measure of Academic Progress RIT scores for the math portion of the assessment is different among students who participate in zero, one, two, or three sports while in middle school.

To test the each of the first two hypotheses, two one-factor ANOVAs were conducted for each hypothesis.

The third hypothesis involved qualitative data and was designed to address the second research question. Content analysis methods were used to analyze the qualitative data obtained from the student focus groups. Creswell (2009) suggested the following steps be taken to perform qualitative data analysis. They include collection of raw data (taken through the audio recording of students' answers during the focus groups), organizing data (transcription of the students' answers during the focus groups), reading through all data, coding the data by hand (to determine themes or categories of information, common words, similarities and differences in answers), interrelating the themes/descriptions derived from the data, and interpreting the meaning of those themes/descriptions. These steps were implemented to analyze the third hypothesis in the study:

H₃: Students who participate in middle school interscholastic athletics have a greater perception of overall connectedness to school.

Limitations

First, BVSD is a district with over 20,000 students. Replication of this study in a significantly smaller district might well yield different results. Further, the district is unique in two ways. First, the district is unique to other districts its size by offering an interscholastic sports program at the middle school level. Second, the high level of

academic achievement in BVSD may well limit the researcher's ability to distinguish between athletic participants and athletic non-participants.

Summary

This study was conducted to determine if athletic participation has an impact on academic growth as measure by the Measure of Academic Progress and if that participation has an impact on students' perceptions of connectedness toward school. This chapter included information about the methods used in the study. The research design, population and sample, sampling procedures, instrumentation, measurement, validity and reliability, data collection procedures, data analysis and hypothesis tests, limitations, and an overview of the study were included. Chapter four presents an overview of the study and the results of the hypothesis testing completed to address the research questions in the study. Chapter five presents findings and recommendations for future study.

CHAPTER FOUR

RESULTS

The purpose of this study was to examine the extent to which participation in middle school interscholastic athletics participation impacted student academic growth on the Measure of Academic Progress (MAP) Assessment in the Blue Valley School District during the 2011-2012 academic year. Further, this study examined students' perceptions of connectedness toward their school and determined if student participation in interscholastic athletics impacted those perceptions.

Hypothesis Testing

A one-factor analysis of variance (ANOVA) was conducted to test hypothesis one: Growth in Measure of Academic Progress RIT scores for the reading portion of the assessment is different among students who participate in zero, one, two, or three sports while in middle school. The categorical variable used to group the students' growth scores for reading was the number of sports (0, 1, 2, or 3). The results of the analysis indicated there was not a statistically significant difference between at least two of the four means ($F = .255$, $df = 3, 1619$, $p = .858$). See Table 8 for the means and standard deviations for this analysis. A follow up post hoc was not warranted.

Table 8

One-Factor ANOVA – Reading Portion of Measure of Academic Progress Assessment

Sports	<i>M</i>	<i>SD</i>	<i>N</i>
0	3.2390	7.56974	498
1	3.2368	7.31253	549
2	3.5579	6.72343	423
3	3.5752	6.33878	153

A one-factor analysis of variance (ANOVA) was conducted to test hypothesis two: Growth in Measure of Academic Progress RIT scores for the math portion of the assessment is different among students who participate in zero, one, two, or three sports while in middle school. The categorical variable used to group the students' growth scores for reading was the number of sports (0, 1, 2, or 3). The results of the analysis indicated there was not a statistically significant difference between at least two of the four means ($F = .480$, $df = 3, 1618$, $p = .696$). See Table 9 for the means and standard deviations for this analysis. A follow up post hoc was not warranted.

Table 9

One-Factor ANOVA – Math Portion of Measure of Academic Progress Assessment

Sports	<i>M</i>	<i>SD</i>	<i>N</i>
0	3.2209	6.29901	498
1	2.8412	6.55217	548
2	2.8676	5.98311	423
3	2.6863	5.84388	153

Additional Analyses

As was noted above, no statistically significant differences were found in MAP reading or math growth among students who participated in 0, 1, 2, or 3 sports. A closer look was warranted. Therefore, students were stratified according to their fall scores into three groups: high fall scores, medium fall scores, and lowest fall scores. Lowest fall scores ranged from 180-222 on the math portion of the MAP, medium fall scores ranged from 223-265, and high fall scores ranged from 266-307. A two factor (Sports x Starting Level) was conducted. The interaction effect was used to determine if students starting level interacted with sports participation to affect growth from fall to spring in math as the dependent variable. The results of the test indicated at least two means were significantly different ($F = 2.897$, $df = 6, 1610$, $p = .008$). A follow-up Fisher's Least Significant Difference (LSD) post hoc was conducted to determine which means were different for students with low starting scores in math, which were different for students with medium starting scores in math, and which were different for students with high starting scores. The LSD critical value for a difference to be significant at $\alpha = .05$ was calculated at 3.98. Growth differences based on sports participation for the students who

had high starting scores were not significant. Growth differences based on sports participation for the students who had medium starting scores were not significant. Three comparisons of growth differences based on sports participation for the students who had low starting scores were significant. Students who participated in 1 sport ($M = 8.11$) experienced more growth than students who participated in no sports ($M = 3.56$). Students who participated in 2 sports ($M = 7.95$) experienced more growth than students who participated in no sports ($M = 3.56$). Students who participated in 3 sports ($M = 8.89$) experienced more growth than students who participated in no sports ($M = 3.56$).

Students were stratified according to their fall scores into three groups: lowest fall scores, medium fall scores, and high fall scores. Growth differences based on sports participation for the students who had medium starting scores were not significant. Growth differences based on sports participation for the students who had high starting scores were not significant. Lowest fall scores ranged from 172-202 on the reading portion of the MAP, medium fall scores ranged from 203-232, and high fall scores ranged from 233-262. A two factor (Sports x Starting Level) was conducted. The interaction effect was used to determine if students starting level interacted with sports participation to affect growth from fall to spring in reading as the dependent variable. The results of the test indicated at least two means were significantly different ($F = 5.379$, $df = 5, 1611$, $p = .000$). A follow-up Fisher's Least Significant Difference (LSD) post hoc was conducted to determine which means were different for students with starting low scores in reading, which were different for students with medium starting scores in math, and which were different for students with high starting scores. The LSD critical value for a difference to be significant at $\alpha = .05$ was calculated at 4.19. Two comparisons of

growth differences based on sports participation for the students who had low starting scores were significant. Students who participated in 1 sport ($M = 2.71$) experienced less growth than students who participated in no sports ($M = 20.83$). Students who participated in 2 sports ($M = 17.2$) experienced more growth than students who participated in no sports ($M = 2.72$). However, it should be mentioned that only one student in the lowest fall scores category played 3 sports, so the sample size was insufficient to conduct an ANOVA or post hoc that included that category.

Qualitative Analysis

To obtain the qualitative data in the study, a focus group was held on April 28, 2012 at the Blue Valley Branch of the Johnson County Library in Overland Park, Kansas. The focus group lasted one hour and was comprised of seven eighth grade students participated. These students were in eighth grade during the 2011-2012 academic year in the Blue Valley School District. Of the seven participants, three were athletic participants and four were non-participants. The focus group allowed the researcher to measure students' perceptions of connectedness toward school, relative to their participation or non-participation in athletics. The following is a qualitative analysis for each of the 10 questions asked of the focus group participants. The participants' answers were recorded using the Audacity recording software and then transcribed by the researcher.

Question One: What do you like about school?

Student 5, an athletic participant, began the responses, by stating how many opportunities schools in Blue Valley provide. The student liked that there is a place for everyone; it doesn't matter if you're into sports or performing arts, there's something for

everyone. Student 1, a non-athletic participant, spoke next and agreed, but the student's answer referenced academics more than extracurricular activities, saying that the opportunity to both read the novel *To Kill a Mockingbird* and watch the movie was enjoyable. Student 4, a non-participant, answered next, and talked about enjoying the freedom offered in middle school, especially not having to walk in lines in the hallways. Student 6, a participant, agreed. He referenced the ability to pick their activities and elective classes in eighth grade. Student 3, a non-participant, had nice things to say about her teachers. She said the teachers would provide a challenge for students while staying positive with the students. Student 2, a non-participant, had the most stay during the discussion of the first question. The student stated that the prevention of bullying has taken a step forward recently, saying that if there was a problem a student was facing with bullying, the administration took care of it quickly. The student stated bullying had never been a problem personally but had friends who have experienced it. Student 7, a participant, was new to the district for eighth grade and said the curriculum was easier than previous years in other districts, and that made the transition to Blue Valley easier. The students' answers were similar; regardless of athletic participation for question one. When asked what they liked about school, only two of the participants referenced academics, while the rest of the participants referenced either extracurricular activities or feeling comfortable while at school.

Question Two: What do you dislike about school?

Student 2, a non-participant, began the discussion by stating that the district needs to do a thorough 'personality check' when hiring teachers. The student thinks that the district should be able to determine if a teacher will be strict or mean, because there are a

few teachers at Student 2's home school that are not well-liked by the students. Student 4, a non-participant, added to the discussion by saying that it was bothersome when teachers moved through material too quickly, while others don't teach the students anything and others don't appear to care about their jobs. Student 5, a participant, kept teachers as the focus of the discussion, saying that some teachers' lack of creativity in instruction and lesson planning was a problem, and even said more was learned when instructional techniques were different every day. Student 7, a participant, agreed, but was more succinct, saying some teachers just weren't very good and nothing was learned. Student 2, a non-participant, also agreed, but referenced the teachers' attitude in front of students can be passed onto a class, saying that if a teacher is in a bad mood, it can affect all students in the class. Students 5 and 6, both participants, stated that some teachers helped them learn and some simply did not. Student 5 even suggested students having a role in which new teachers are hired because students can provide the most accurate assessment of a teacher's effectiveness. Student 1, a non-participant, was quiet and only spoke when prompted by the researcher and said there was nothing about school that was unpleasant, and student 7, a participant, only had one complaint – the lack of a soccer team.

The students' answers did not vary much for question two. The answers were almost primarily centered on their displeasure with what they perceived as ineffective teaching, either in the form of poor and non-creative instruction or the inability or lack of desire to connect with students. It was clear that most of the participants, when asked, said that teachers had the ability to make them have an unpleasant experience at school.

Question Three: How well do you fit in at school?

Student 5, a participant, started the conversation by saying he feels like he has found a group of friends and fits in because of the activities he does. He also said he makes an attempt to be friends with everyone, but doesn't always feel connected with activities that are not interesting to him. Student 7, a participant, believed that students who were taller than their peers had an easier time fitting in than their shorter classmates. Student 4, a non-participant, took the conversation in a different direction, stating that she feels like she fits in, but it is the special needs students at her school that struggle with finding their place – and then reiterated the point that it is the teachers who are most responsible for students having a negative view of school. Student 2, a non-participant, stated that having a core group of friends dating back to the elementary school years has helped him feel like he fits in at school. Student 6, a participant, felt that her involvement in athletics has led to her to find a group of friends and meet new groups of people. Student 3, non-participant, stated that fitting in is not an issue at his school, having never experienced the feeling of not fitting in. Student 7, a participant, was new to BVSD in 2011-2012 and struggled with finding a place. He stated that he has made friends, but those friends already had established social groups of their own before he moved here, and that has made his transition difficult. Student 3, a non-participant, stated that social groups tend to change a lot, and Student 1, a non-participant, finished the conversation by stating that most of her friends are into arts and literature, and she enjoys doing art projects and reading, and she has been lucky because she has found friends who share her interests.

The students' answers varied. All of the students but one stated that fitting in at school was not a problem, with the one exception being a student who was new to BVSD in 2011-2012. Student 6, in particular, mentioned athletics having a primary role in her fitting in at school, which supports one of the study's hypotheses.

Question Four: How well do you get along with other students?

At this point, the group was much more conversational and appeared more comfortable than they were during the first three questions. Student 2, a non-participant, began the discussion, and stated the belief that most students will alter their behavior in order to get along with others, meaning they will talk how they talk and act how they act in order to create a positive environment at school. Student 3, a non-participant, stated that she likes to talk a lot and this results in her feeling like she gets along with everyone she meets. Student 7, a participant, felt that there were students he did not like and did not like him, but there was no bullying involved; they just avoid one another. Student 4, a non-participant, then recalled a story from her sixth grade year. She recalled having a group of friends that became too focused on being popular, and when she tried to distance herself from this group; those students now make life difficult for her at school (not picking her for group assignments, making her feel excluded, etc.). Student 5, a participant, stated that he makes an attempt to be friends with everyone, but feels that there are some people that are difficult and don't want to be his friend, so he ends up sticking with his original group. Student 6, a participant, then gave her opinion, stating that her group of friends had not changed since elementary school, and this made her experience at school easier. Student 1, a non-participant, agreed, saying that she prefers to stay around people who make her feel comfortable. The participants' answers did not

give the researcher any impression that athletic participation helped students get along with their peers more or less. The consensus was that long-lasting friendships helped students feel comfortable at school and some students are difficult to get along with.

Question Five: What makes you feel connected to school?

Student 5, a participant, answered first, saying he did not always feel connected with the school because of the people in it, mainly his peers who sometimes don't accept all his interests. He cited an example of enjoying performing in plays; some of his peers don't support his interest in this, and it makes him feel less connected to the school.

Student 2, a non-participant, stated that having friends around and being in the same place every day and having the same routine helped with the feeling of connectedness. She said knowing where everything is and being at school so often makes it feel almost like a second home. Student 4, a non-participant, said that she feels most connected when she is in classes she enjoys and spending time around her friends. Student 6, a participant, says participation in athletics and being in classes with friends, in particular physical education, led to a greater feeling of connectedness with the school. Student 3, a non-participant, said that being in eighth grade and being in middle school longer than the other students in the school led to greater feeling of connectedness for him.

The students were able to provide concrete examples of what made them feel connected to the school. Students 2 and 6 both cited interaction with peers as a reason for feeling connected, while student 3 cited experience and simply attending the school longer than other students as a reason for feeling connected. Student 6, a participant, cited athletic participation as a reason for feeling connected, supporting one of the study's hypotheses.

Question Six: Are there adults in the building (teachers, administrators, etc.) that make you feel connected to the school? If so, how do those adults make you feel connected?

Student 4, a non-participant, answered this question quickly and expressed the opinion that her previous principal was not connected with the students, but the school's new principal was connected, and gave an example through a story about the principal coming into her class to explain the sudden retirement of one of her teachers. She stated this action made her feel more connected to the school because the administrator took the time to make sure accurate information was given to the students about the teacher's departure. Student 5, a participant, said there were some teachers and in particular, the counselors, that made her feel safe and more connected to the school. She stated that not all teachers and counselors, only some, provide this connection for students. Student 6, a participant, answered next and teachers keeping the students informed about class work and the goings-on of the school are both factors in the students feeling connected to the school. The more teachers gave the students information, the more connected the students felt. Student 2, a non-participant, said that teachers are what make her feel connected to the school, in particular the teachers that take the time to compliment her and make her feel good. She stated that this is what helps her enjoy school and do her best. While not all of the participants gave answers during this question, the feedback was overwhelmingly in support of the notion that good teaching leads to greater student connectedness.

Question Seven: Could having positive adult role models make you feel connected to the school?

Student 7, a participant, answered first. He stated that teachers can affect how you feel about school, especially ones that are not nice to the students. Student 6, a participant, stated that teachers' attitudes can determine how connected the students feel, while student 3, a non-participant, believed connectedness was more affected by a student's peers than his teachers. Student 3 believed his peers are constantly searching for approval from one another and worry more about peer approval than approval from the teachers. Response was limited to question seven as well. While the athletic participants who answered cited teachers as factors for student connectedness, the non-athletic participant who answered felt that peer approval was a greater factor in a student feeling connected to school.

Question Eight: What kinds of things can schools do to help students feel connected to the school?

Student 6, a participant, said telling students what's going on in the school and giving an outline of the events taking place in the school could help students feel more connected. Student 4, a non-participant, had a similar answer, saying that schools should provide students with a time to simply talk about their feelings and what is going on in the school. Student 2, a non-participant, explained that students would feel more connected to the school if teachers took the time to mingle with the students on a more consistent basis. Student 3, a non-participant, reiterated the need for students to stay informed about what happens in school, while student 5, a participant, said that students need to have more of a voice in what happens in classrooms, so providing a time for all

students to convene to share ideas, like an assembly, could lead to positive change. The students all agreed that connectedness happens when students are informed about what is happening in the school and need to have a voice in policy changes when possible.

Question Nine: What would you change about school if you had the chance?

Of the ten questions the participants were asked, this one received the most feedback. The students appeared very eager to give their opinions on what needed to be changed about school. Student 4, a non-participant, began the discussion by saying too many class projects that involved coloring, and eighth graders were too old to be doing coloring projects. Student 6, a participant, agreed, sharing about a time when their class had to do a project that required drawing and coloring, and her opinion was that it was not enjoyable. Student 2, a non-participant, then changed the subject, saying that schools needed more comfortable seating for students in classrooms, such as chairs with cushions. While Student 2 expressed a desire for more comfortable seating, Student 7, a participant, felt that teachers at times assign busy work. When asked what was meant by busy work, the student explained the rampant use of worksheets in classrooms. Student 6, a participant, agreed. He stated that teachers preferred giving help after school, as opposed to in class. Student 2, a non-participant, perhaps the group's most vocal member, suggested a need for teachers to make their instruction more interactive, and cited an example of reviewing for an upcoming exam by using an online quiz game. Student 5, a participant, reiterated the group's desire for less worksheets and a slower pace in math class. Her experience was that much of the content was not reviewed in math, which led to students forgetting concepts learned at the beginning of the year. Student 7, a participant, felt that some of the rules eighth graders needed to adhere to

were dumb, such as the school's expectation that parents must pick them up from activities at the school. Students were not allowed to walk home. Student 4, a non-participant, then brought the conversation back to academics, expressing the observation that teachers need to collaborate more because when homework is assigned, it happens all at once, creating too much work for the students. Student 3, a non-participant, believed the student teachers were a problem at school, meaning there were three in one academic year, and that was too many. Student 1, a non-participant, shifted the focus to substitute teachers, stating that the substitute teachers do not provide the same quality of instruction as full-time staff. Student 7, a participant, also had a negative experience with an elderly substitute, saying that Spanish class was ineffective the day that substitute was in class. Student 2, a non-participant, kept the conversation's focus on substitute teachers, suggesting that other full-time staff should fill in when a teacher is gone, so the quality of instruction does not suffer. Student 5, a participant, ended the conversation by stating that substitutes simply need to be more qualified.

The researcher had no problem getting feedback for question nine. Students expressed a desire for more comfortable seating at first, but the conversation quickly turned to quality of teaching, and then to their displeasure with the quality of substitute teaching. Athletic and non-athletic participants gave the same feedback on question nine.

Question Ten: How well do you feel like you are connected to school?

Question ten was the most direct in terms of addressing the study's third hypothesis. Student 4, a non-participant, began by stating that school is overall a good place, but some things could change with the teachers and substitutes that make her experience at school a more positive one. Student 7, a participant, said that he did not

feel very connected to school. He expressed that he is not a naturally outgoing person, and he came from a tiny school, and now attends a school that has more than 600 students. He recalled that at his old school, he felt like he knew everyone, but this year, he doesn't have anyone that he felt comfortable calling his friend. Student 1, a non-participant, had a different view, stating very quickly that her experience at school has left her feeling very connected. She feels like knowing most everyone at school makes her feel more connected to the school. She (while looking directly at Student 7) expressed knowing everyone helps feeling connected, as if to offer solace to Student 7, who said he has had difficulty making friends. Student 6, a participant, agreed, said feeling connected was easy, but there were some things that needed changing, such as teachers and the way they learn in class. Student 2, a non-participant, rated his connectedness on a ten-point scale (without being asked to do so by the researcher) and gave his level of connectedness a 7.5. He said he feels connected to school but wants students to do a better job getting along with each other. Student 3, a participant, who only talked when prompted by the researcher, said she feels connected. Student 5, a participant, finished the discussion by saying he felt pretty connected because most staff tried to do their best for students, even if it was not what the students prefer in terms of instruction. He stated that teachers who do not seem to care really can affect the mood of the students as a whole, and that teachers who seem like they care and takes the time to connect with the students can make those students feel better about school. Athletic and non-athletic participants agreed with each other on question ten, with the exception of student 7, a participant, saying that he has had a difficult time both adjusting to new surroundings and making friends.

Summary

This chapter contained an introduction to the results of the study. Review and analysis of the two research questions followed. Results from this study, tested through one-factor ANOVA, revealed no statistically significant relationships for each of the research questions. First, a statistically significant relationship did not exist between athletic participation and growth on either portion (reading or math) of the Measure of Academic Progress Assessment. Additional analyses, in which students were categorized by fall level of achievement, were conducted. Two way ANOVAs revealed that participation in sports did make a difference for students who started out scoring at the lowest fall scores. On the math portion of the fall MAP, students who participated in 1 sport experienced more growth than students who participated in no sports. Students who participated in 2 sports experienced more growth than students who participated in no sports. Students who participated in 3 sports experienced more growth than students who participated in no sports. On the reading portion of the fall MAP, students who participated in 1 sport experienced less growth than students who participated in no sports. Students who participated in 2 sports experienced more growth than students who participated in no sports. Only one student who in the lowest fall scores category played 3 sports, so the sample size was insufficient to conduct an ANOVA or post hoc that included that category. At the conclusion of the focus groups, and based on the participating students' answers, it was clear that athletic participation did not have a relationship with connectedness toward school.

Chapter five presents a summary of the study, an overview of the problem, and a review of the research questions and methodology, as well as the major findings of the

study. A discussion relates the findings to the literature and recommends implications for action. Chapter five concludes with recommendations for future research in this area.

CHAPTER FIVE

INTERPRETATION AND RECOMMENDATIONS

This study examined the effect of interscholastic sports participation on the academic growth of eighth grade students during the 2011-2012 academic year. Academic growth; as measured by the Measure of Academic Progress assessment. Further, the study examined the effect of interscholastic sports participation on eighth grade students' perceptions of connectedness toward their school through the utilization of student focus groups. This was measured through the use of a student focus group. In chapter four, the findings of the study were presented. This chapter provides a summary of the findings, and recommendations for future research related to interscholastic sports participation and its effect on academic growth and student connectedness.

Study Summary

The following section provides a summary of the current study. An overview of the problem, the purpose of the study and research questions, and all of the study's major findings are provided.

Overview of the Problem

Vygotsky's research established that connectedness to peers and teachers are important for achievement. Piaget's demonstrated that focusing on students of middle school age is important because this age is critical for ongoing academic success. The middle school years are a time when students' habits of motivation and academic achievement begin to emerge (Anderson & Maehr, 1999). Students often display signals in the middle school years that can lead to problems in high school, including dropping out of school. Research by the Nield, Balfanz, and Herzog (1996) and Bridgeland,

DiIulio, & Morison (2006) have supported this claim: “A high percentage of dropouts send distress signals in the middle grades, long before they actually drop out of school” (Nield, Balfanz, & Herzog, p. 29). One way to combat attendance problems and dropping out of school is the participation in interscholastic athletics. If students who drop out report feelings of boredom and disengagement as early as middle school, then a study about middle school athletics and its benefits toward students’ feelings of connectedness toward school is of value. Further, according to the California Interscholastic Federation (2007), students who participate in interscholastic sports during middle and high are more likely to have higher grade point averages, lower dropout rates, better attendance records, and fewer discipline issues. Middle school athletics is one potential way to combat this problem.

Purpose Statement and Research Questions

The purpose of this study was to investigate the relationship between interscholastic athletics and two variables: academic achievement and students’ perceptions of connectedness toward school. To investigate this relationship, two research questions guided the study. The first question investigated the relationship between student participation in zero, one, two, or three interscholastic athletic programs in the Blue Valley middle schools and student growth in scores from the fall, 2011 to the spring, 2012 MAP assessments. The second question investigated the relationship between student participation in interscholastic athletic programs in the Blue Valley middle schools and students’ perceptions of connectedness toward school.

Review of the Methodology

This was a mixed methods study. The quantitative research involved a comparison of the growth of eighth grade students in the Blue Valley School District who participated in zero, one, two, or three interscholastic athletics with those who did not during the 2011-2012 school year. The research participants were selected using purposive sampling. The instrumentation was the 2011-2012 fall and spring Measure of Academic Progress Assessments. The RIT scores measure student achievement on the assessment and were used to chart students' growth. The qualitative research employed a focus group comprised of seven eighth grade students to measure these students' perceptions of connectedness toward school relative to their participation (or non-participation) in middle school athletics.

Major Findings

A statistically significant relationship did not exist between athletic participation and growth on either portion (reading or math) of the Measure of Academic Progress Assessment. However, additional analyses, for which students were categorized by fall level of achievement, were conducted. Through this quantitative research, it was revealed that participation in sports did make a difference for students who started out scoring at the lowest fall scores achievement level. On the math portion of the fall MAP, students who participated in one sport experienced more growth than students who participated in no sports. Students who participated in two sports experienced more growth than students who participated in one sport. Students who participated in three sports experienced more growth than students who participated in zero sports. On the reading portion of the fall MAP, students who participated in one sport experienced less

growth than students who did not participate in sports. Students who participated in two sports experienced more growth than students who did not participate in sports. The findings of this study were two-fold: First, when a one-factor ANOVA was conducted to measure academic growth relative to level of sports participation (zero, one, two, or three sports), no statistically significant relationship was found. However, additional analyses were conducted to determine if a relationship between the level of athletic participation and achievement level on the fall portion of the MAP assessment existed. Results indicated that students who scored in lowest fall level of achievement experienced significant growth as measured on both the reading and math portions of the Measure of Academic Progress assessments as a result of interscholastic sports participation.

Findings Related to the Literature

The findings contradict the relevant literature discussed in chapter two. The findings related to the literature are described in the same order as the research questions and hypothesis testing in chapter four. First, the effect of participation in athletics on academic achievement is explained. Second, the effect of participation on student connectedness is explained.

The study's first research question was designed to examine the relationship between interscholastic athletic participation and academic achievement in the Blue Valley School District. The results of this quantitative analysis provided evidence that interscholastic athletics participation did not have a relationship with academic growth (as measured by the 2011-2012 Measure of Academic Progress assessments). This research was conducted using the scores of over 1,600 eighth grade students over the 2011-2012 academic year. This contradicts the findings of Broh (2002), who found that

participation in extracurricular activities has been associated with higher levels of academic achievement. However, it should be noted that Broh's study focused on grade point average, whereas the current study used an assessment designed to measure academic growth over the course of a school year. Multiple research groups (Cooper, Valentine, Nye, & Lindsay, 1999; Eccles & Barber, 1999; Marsh & Kleitman, 2002) have found that extracurricular participation is positively linked with academic outcomes, such as higher grades and test scores.

The current study did reveal, however, that participation in sports did make a difference for students who started out scoring at the lowest fall scores achievement level on both the reading and math portions of the assessment. In a series of in-depth interviews with early adolescents, Hruda and colleagues found that the responsibility, discipline, and dedication that were needed for extracurricular participation carried over into students' academic lives. Students were able to study more efficiently because of the time extracurricular participation involved. Students maintained their grades so participation in extracurricular activities could continue (Hruda, Fredricks, Alfeld-Liro, & Eccles, 1998). This is consistent with one aspect of the current study's quantitative research but contradicts another. In the first analysis of variance in chapter four, when the researcher measured academic growth only related to level of athletic participation, a statistically significant relationship was not found. In this way, the current study's findings contradict Hruda and colleagues' study. However, when further research was conducted, the researcher divided the students into three groups based on fall RIT scores. It was found that students in the lowest fall level achievement group benefitted the most from athletic participation. This finding supports previous research by Hruda,

Fredricks, Alfeld-Liro, and Eccles (1998), which found extracurricular activities to increase academic achievement for students who were struggling academically. The study also supported the research of Camp (1990). Camp studied the relationship between extracurricular activity participation and academic achievement and found that academic achievement was positively influenced by extracurricular activity, particularly for students with academic difficulties. Camp's research is supported by the findings of the current study. The students in the current study who scores the lowest fall level achievement group showed the most gained from the fall 2011 to spring 2012 MAP assessment for both portions of the assessment (reading and math).

The second research question was designed to measure students' perceptions of connectedness toward school relative to their participation (or non-participation) in middle school athletics. A qualitative study to explore students' connectedness toward school was conducted through focus group research. It should be noted that only seven students volunteered as participants in the qualitative portion of the study. This fact may well have influenced the findings in this research. The students' answers led the researcher to believe that connectedness toward school was most directly impacted by positive adult role models and quality teachers in their schools. This finding is in agreement with Libbey's research. Libbey (2004) found that schools that display a commitment to education and a positive school environment have been shown to have a powerful impact on how connected students feel toward their school. Students who display a dedication to their own education have been shown to have higher levels of connectedness when they perceived the adults and peers in their lives to believe school is important and those adults and peers act on those beliefs. This small number of

participants may well have affected the results. Further, Hruda and colleagues' research also reported that the students surveyed shared that teachers and coaches they worked with in their participation helped provide them with guidance and help for the future (Hruda, Fredricks, Alfeld-Liro, & Eccles, 1998).

Conclusions

The following section details conclusions made from the current study.

Implications for action, recommendations for future research, and concluding remarks are provided.

Implications for Action

The findings of this study were two-fold: First, when quantitative analysis was conducted to measure academic growth relative to level of sports participation (zero, one, two, or three sports), no statistically significant relationship was found. However, further analysis was conducted to determine if a relationship between the level of athletic participation and achievement level on the fall portion of the MAP assessment existed. When the researcher looked at each fall level of achievement (low, medium, or high), there were differences in growth among students participating in athletics. Results indicated that students who scored in the lowest fall level of achievement experienced significant growth as measured on both the reading and math portions of the Measure of Academic Progress assessments as a result of interscholastic sports participation. Further, based on the results of this study, school systems searching for strategies to increase the level of school connectedness experienced by their students should focus their efforts on hiring and training quality teaching staff to help create a positive culture in their schools. This claim is supported by previous research (Hruda, Fredricks, Alfeld-

Liro, & Eccles, 1998). This creates the need for school systems to have a quality screening process for new teachers. Further, it creates the need for a quality professional development program to properly implement an induction program focusing on how those new teachers can contribute to the positive culture in schools.

Recommendations for Future Research

Several recommendations have been developed to further analyze the effect of interscholastic athletic participation on middle school students. The first recommendation is to use a longitudinal design to expand the length of the study. The future study should follow the same cohort of students (first studied as sixth graders) for the remainder of their middle school years (through eighth grade) to examine the effect of participation on achievement tests or grade point average at the high school level. An additional study could follow the same cohort of students as they make the transition from high school to college or into their careers. This could help determine whether or not participation in athletics had an impact on their level of success in the years following graduation from high school. The second recommendation is to enhance or change the qualitative component to the current study. A researcher could use a different method of qualitative research (a series of interviews, for example) to determine the effect of interscholastic athletic participation on students' perceptions of connectedness toward school. A different method, such as a survey, could be used to increase the number of participants in the qualitative portion of the study. A different qualitative approach could involve interviewing students in a one-on-one setting to determine their perceptions of connectedness toward school. This same process could be used with parents, teachers, administrators, and coaches to determine their perceptions of their students'

connectedness toward school as a result of participating in athletic programs. The third recommendation would be to expand the study to include additional districts that are also using an interscholastic athletics program at the middle school level. Including more school districts would help to expand the generalizability of the study. Finally, conducting this study in a district with a more diverse population might well yield different results. In 2011-2012, the Blue Valley School District reported that 81.1 percent of all students in Blue Valley reported their ethnic background as White/Caucasian, 10.2 percent of all Blue Valley students were of Asian/Pacific Islander descent, while 3.7 percent of students were of African-American descent, 0.6 percent of students were of American Indian descent, and 4.4 percent were of Hispanic descent (Blue Valley School District, 2011a). Conducting the current study in a district with different demographic characteristics could either support or contradict the findings of the current study. In addition, chapter one documented the high level of academic achievement that currently existed in the Blue Valley School District. This was demonstrated by Blue Valley students' composite ACT scores compared to the national average. If this study were conducted in a district with composite ACT scores below the national average, different findings may exist.

Concluding Remarks

This study examined the effect of interscholastic athletic participation on the academic growth of eighth grade students as measured by the fall, 2011 and spring, 2012 Measure of Academic Progress assessments. Data was analyzed to determine if athletic participation had a significant impact on the students' connection toward school. Study results provided evidence that no statistically significant relationships existed for each of

the research questions. First, a statistically significant relationship did not exist between athletic participation and growth on either portion (reading or math) of the Measure of Academic Progress Assessment. However, additional analyses, for which students were categorized by fall level of achievement, were conducted. This study revealed that participation in sports did make a difference for students scoring at the lowest fall scores achievement level. The results from the mathematics portion of the MAP assessment indicated students who participated in one sport experienced more growth than students who did not participate. Students who participated in two sports experienced more growth than students who did not participate. Students who participated in three sports experienced more growth than students who participated in no sports. The results from the reading portion of the MAP assessment indicated students who participated in one sport experienced less growth than students who did not participate. Students who participated in two sports experienced more growth than students who participated in no sports. At the conclusion of the focus groups, it was clear that athletic participation did not have a relationship with connectedness toward school by the seven students who participated in this study.

Providing early adolescents with the highest level of academic success and perception of connectedness before completing their K-12 schooling is critical. The research (both in the literature and the current study) supports the idea that early adolescence is an age where students may become disconnected from school and begin experience a decrease in academic success. School systems, such as the Blue Valley School District, must continue to identify strategies that will help students to improve their levels academic achievement and improve their perceptions of connectedness

toward their school. The identification of effective strategies for helping students reach their highest levels of achievement are crucial for school districts to ensure they meet their stated goal of providing a quality education for the young people who attend their schools.

REFERENCES

- Alexander, W. M. (1964). The junior high school: A changing view. *NASSP Bulletin*, 48, 15-24.
- Alexander, W. M. & George, P. S. (1981). *The exemplary middle school*. New York, NY: Holt, Rinehart, and Winston.
- American Productivity and Quality Center. (2011). *Evaluating Professional Learning Communities*. Retrieved September 10, 2011 at <http://www.apqceducation.org/component/content/article/35-todays-highlights/52-evaluating-plcs.html>
- Anderman, E. M., & Maehr, M. L. (1994). Motivation and schooling in the middle grades. *Review of Educational Research*, 64, 287-309.
- Ashley, K. M., Ennis, L. S., & Owusu-Ansah, A. (2012). An exploration of middle school students' perceptions of personal adolescent wellness and their connectedness to school. *International Journal of Social Sciences and Education*, 2(1), 74-89.
- Barber, B. K. & Olsen, J. A. (1997). Socialization in context: connection, regulation, and autonomy in the family, school, and neighborhood, and with peers. *Journal of Adolescent Research*, 12(2), 287-315.
- Battin-Pearson, S., Newcomb, M. D., Abbott, R. D., Hill, K. G., Catalano, R. F., & Hawkins, J. D. (2000). Predictors of early high school dropout: a test of five theories. *Journal of Educational Psychology*, 92(3), 568-582.

- Battistich, V. & Horn, A. (2001). The relationship between students' sense of their school as a community and their involvement in problem behaviors. *American Journal of Public Health, 87*(12).
- Blue Valley School District. (2011a). *General Info: Blue Valley Schools*. Overland Park, KS. Available at <http://www.bluevalleyk12.org/education/dept/dept.php?sectionid=157>
- Blue Valley School District. (2011b). *Middle school athletics and activities handbook*. Overland Park, KS: Blue Valley School District.
- Blue Valley School District. (2011c). *Middle school planning and curriculum guide*. Overland Park, KS: Blue Valley School District.
- Blum, R. W., McNeely, C., Rinehart, P. M. (2002). *Improving the odds: the untapped power of schools to improve the health of teens*. Minneapolis, MN: University of Minnesota, Center for Adolescent Health and Development.
- Braddock, J., Royster, D., Winfield, L., & Hawkins, R. (1991). Bouncing back: sports and academic resilience among African-American males. *Education and Urban Society, 24*, 113-131.
- Bredemeier, B., Weiss, M. R., Shields, D. L., Shewchuk, R. M. (1986). Promoting growth in a summer sports camp: The implementation of theoretically grounded instructional strategies. *Journal of Moral Education, 15*, 212-220.
- Bridgeland, J., DiJulio, J. and Morison, K. B. (2006). *The silent epidemic: Perspectives of high school dropouts*. Washington, DC: Civic Enterprises, LLC.
- Broh, B. A. (2002). Linking extracurricular programming to academic achievement: Who benefits and why? *Sociology of Education, 75*, 69-96.

- Brookmeyer, K. A., Fanti, K. A., & Henrich, C. C. (2006). Schools, parents, and youth violence: A multilevel, ecological analysis. *Journal of Clinical Child and Adolescent Psychology*, 35, 504-514.
- Brown, B. B. (1990). *Peer groups and peer culture*. In S. S. Feldman & G. R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 171-196). Cambridge, MA: Harvard University Press.
- Buhs, E. S., Ladd, G. W., & Herald, S. L. (2006). Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children's classroom engagement and achievement. *Journal of Educational Psychology*, 98, 1-13.
- Byrnes, V. & Ruby, A. (2007). Comparing Achievement between K-8 and Middle Schools: A Large-Scale Empirical Study. *American Journal of Education*, 114, 101-135.
- California Interscholastic Federation (2010). *Benefits of Sports Participation*. Retrieved January 11, 2010 from <http://www.cifstate.org>
- California State Department of Education. (1987). *Caught in the middle: Educational reform for young adolescents in California public schools*. Sacramento, CA: Author.
- Camp, W.G. (1990). Participation in student activities and achievement: A covariance structural analysis. *Journal of Educational Research*, 83(5), 272-279.
- Carnegie Council on Adolescent Development. (1989). *Turning Points: Preparing American youth for the 21st century*. Washington, DC: Author.

- Carnegie Council on Adolescent Development. (1995). *Great transitions: Preparing adolescents for a new century*. Washington, DC: Author.
- Casas, M. (2010). *Enhancing student learning in the middle school*. New York: Routledge/Taylor & Francis.
- Caskey, M. M. & Anfara, V. A., Jr. (2007). *Research summary: Young adolescents' developmental characteristics*. Retrieved December 2, 2011 from <http://www.nmsa.org/Research/ResearchSummaries/DevelopmentalCharacterstics>
- Centers for Disease Control and Prevention. (2009a). *The benefits of physical activity*. Retrieved February 9, 2010, from <http://www.cdc.gov/youthcampaign/pressroom/article/physical.htm>
- Centers for Disease Control and Prevention (2009b). *School Connectedness: Strategies for Increasing Protective Factors Among Youth*. Atlanta, GA: United States Department of Health and Human Services.
- Chang, K., Chen, I., & Sung, Y. (2002). The effect of concept mapping to enhance text comprehension and summarization. *The Journal of Experimental Education* 71(1), 5-23.
- Coleman, J. C. & Hendry, L. (1990). *The nature of adolescence* (2nd ed.). Florence, KY: Taylor & Frances/Routledge.
- Collins, W. A. & Steinberg, L. (2006). Adolescent development in interpersonal context. In W. Damon & N. Eisenberg (Eds.) *Handbook of Child Psychology: Socioemotional processes* (pp. 1003-1067). New York: Wiley.

- Cooper, H., Valentine, J. C., Nye, B., & Lindsay, J. J. (1999). Relationships between five after-school activities and achievement. *Journal of Educational Psychology, 91*, 369-378.
- Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles, CA, Sage Publishing Company.
- DeBate, R., McDermott, R., Baldwin, J., Bryant, C., Courtney, A., Hogeboom, D., Nickelson, J., Phillips, L., & Alfonso, M. (2009). Factors associated with tweens' intentions to sustain participation in an innovative community-based physical activity intervention. *American Journal of Health Education, 40*(3), 130-138.
- Dornbusch, S. M., Erickson, K. G., Laird, J., & Wong, C. A. (2001). The relation of family and school attachment to adolescent deviance in diverse groups and communities. *Journal of Adolescent Research, 16*, 396-422.
- DuFour, R., DuFour, R., & Eaker, R. (2008). *Revisiting professional learning communities at work: New insights for improving schools*. Bloomington, IN, Solution Tree.
- Dworkin, J. B., Larson, R., & Hansen, D. (2003). Adolescents' accounts of growth experiences in youth activities. *Journal of Youth and Adolescence, 32*(1), 17-26.
- Eccles, J. S. & Barber, B. L. (1999). Student council, volunteering, basketball, or marching band: What kind of extracurricular involvement matters? *Journal of Adolescent Research, 14*, 10-43.
- Eccles, J.S., Barber, B.L., Stone, M., & Hunt, J. (2003). Extracurricular activities and adolescent development. *Journal of Social Issues, 59*(4), 865-889.

- Eichhorn, D. H. (1966). *The middle school*. New York, NY: The Center for Applied Research in Education.
- Eisenberg, M. E., Neumark-Sztainer, D. & Perry, C. L. (2003). Peer harassment, school connectedness, and academic achievement. *The Journal of School Health*, 73(8), 311-316.
- Elkind, D. (1974). *Children and adolescents: Interpretive essay on Jean Piaget*. New York: Oxford University Press.
- Ewing, M. (2010). *Promoting social and moral development through sports*. Institute for the Study of Youth Sports, East Lansing, Michigan, 1-4.
- Feldman, S. S. & Elliott, G. R. (1990). *At the threshold: The developing adolescent*. Cambridge, MA: Harvard University Press.
- Flavell, J.H. (1963). *The developmental psychology of Jean Piaget*. Princeton, NJ: Van Nostrand Reinhold.
- Fredricks, J. A. & Eccles, J. S. (2006). Is extracurricular participation associated with beneficial outcomes? Concurrent and longitudinal relations. *Developmental Psychology*, 42(4), 698-713.
- Frydenberg, E., Care, E., Freeman, E., & Chan, E. (2009). Interrelationships between coping, school connectedness, and wellbeing. *Australian Journal of Education*, 53(3), 261-276.
- Furlong, M. J., Whipple, A. D., St. Jean, G., Simental, J., Soliz, A., & Punthuna, S. (2003). Multiple contexts of social engagement: moving toward a unifying framework for educational research and practice. *California School Psychologist*, 8, 99-113.

- George, P. S., Stevenson, C., Thomason, J., & Beane, J. (1992). *The middle school and beyond*. Alexandria, VA: Association for Supervision and Curriculum Development, 1-12.
- Gerber, S. G. (1996). Extracurricular activities and academic achievement. *Journal of Research and Development, 30*, 41-50.
- Gumbiner, J. (2003). *Adolescent assessment*. Hoboken, NJ: John Wiley & Sons, Inc.
- Hall, G. S. (1904). *Adolescence: Its psychology and its relations to physiology, anthropology, sociology, sex, crime, religion, and education. Volume 1*. New York, NY: J. Appleton.
- Hall-Lande, J. A., Eisenberg, M. E., Christenson, S. L., & Neumark-Sztainer, D. (2007). Social isolation, psychological health, and protective factors in adolescence. *Adolescence, 42*(166), 265-281.
- Hanson, D. L. (1967). Cardiac response to participation in little league baseball competition as determined by telemetry. *Research Quarterly, 38*, 384-388.
- Harrison, P. & Narayan, G. (2003). Differences in behavior, psychological factors, and environmental factors associated with participation in school sports and other activities in adolescence. *Journal of School Health, 73*, 113
- Holloway, J. (2002). Extracurricular activities and student motivation. *Educational Leadership, 60*(1), 80-81.
- Hruda, L. Z., Fredricks, J. A., Alfeld-Liro, C., & Eccles, J. (1998). *The relationship between extracurricular participation and adolescent development*. San Francisco, CA: American Psychological Association.

- Irwin, C. E. (1987). *Adolescent social behavior and health*. In W. Damon (Ed.), *New directions for childhood development*. San Francisco, CA: Jossey-Bass.
- Jackson, A. W. & Davis, G. A. (2000). *Turning points 2000: Educating adolescents in the 21st century*. New York, NY: Teachers College Press.
- Janz, K. F. & Mahoney, L. T. (1997). Three-year follow-up of changes in aerobic fitness during puberty: The Muscatine study. *Research Quarterly for Exercise and Sports*, 68, 1-9.
- Johnson, B. & Christensen, L. (2008). *Educational research: Qualitative, quantitative, and mixed approaches: Third Edition*. Thousand Oaks, CA: Sage Publications.
- Johnson, G. M. (1998). Middle schools: Reducing transescent risk. *Teacher Education Quarterly*, 81-95.
- Jowett, S. (2005). The coach-athlete partnership. *The Psychologist*, 18, 412-415.
- Kellough, R. D. & Kellough, N. G. (2008). *Teaching young adolescents: Methods and resources for middle grades teaching* (5th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
- Kingston, N., Wang, W., Broaddus, A., & Kramer, L. (2011). *Kansas Interim Assessment validity evidence: Based on the relationship between interim and summative assessment scores*. Lawrence, KS: Center for Educational Testing and Evaluation.
- Klem, A. M. & Connell, J. P. (2004). Relationships matter: linking teacher support to student engagement and achievement. *Journal of School Health*, 74(7), 262-273.

- Kort-Butler, L. & Hagewen, K. (2010). School-based extracurricular activity involvement and adolescent self-esteem: A growth-curve analysis. *Journal of Youth Adolescence*, 40, 568-581.
- Libbey, H. P. (2004). Measuring student relationships to school: attachment, bonding, connectedness, and engagement. *Journal of School Health*, 74(7), 274-283.
- Lipsitz, J. (1984). *Successful schools for young adolescents*. New Brunswick, NJ: Transaction.
- Lipsitz, J., Jackson, A. W., Mizell, M. H., & Austin, M. L. (1997). Speaking With One Voice: A Manifesto for Middle Grades Reform. *Phi Delta Kappan*, 78(7), 533-540.
- Lyons-Daniels, P. (1999). *Interscholastic sports and the middle school: A case study*. (Doctoral dissertation). Retrieved from Virginia Polytechnic Institute Library.
- Lunenburg, F. C., & Irby, B. J. (2008). *Writing a successful thesis or dissertation: Tips and strategies for students in the social and behavioral sciences*. Thousand Oaks, CA: Corwin Press.
- Mageau, G. & Vallerand, R. (2003). The coach-athlete relationship: A motivational model. *Journal of Sports Sciences*, 21, 883-904.
- Mahoney, J. L., & Cairns, R. B. (1997). Do extracurricular activities protect against early school dropout? *Developmental Psychology*, 33(2), 241-253.
- Mahoney, J. L., Larson, R., Eccles, J. S., & Lord, H. (2005). *Organized activities as developmental contexts for children and adolescents*. Mahwah, NJ: Erlbaum.
- Malina, R. M., & Cumming, S. P. (2003). *Current status and issues in sports*. Monterey, CA: Coaches Choice.

- Manning, M. L. (2002). *Developmentally appropriate middle schools* (2nd ed.). Olney, MD: Association for Childhood Education International.
- Marsh, H.W. & Jackson, S. (1986). Multi-dimensional self-concept, masculinity and femininity as a function of women involvement in athletics. *Sex Roles*, 15.
- Marsh, H. W. & Kleitman, S. (2002). Extracurricular school activities: The good, the bad, and the nonlinear. *Harvard Educational Review*, 72, 464-514.
- Marzano, R. (2003). *What works in schools: Translating research into action*. Alexandria, VA: Association for Supervision and Curriculum Development.
- McEwin, C.K. (1992). William M. Alexander: Father of the American middle school. *Middle School Journal*, 23(5), 33-38.
- McEwin, C.K. (1994). Interscholastic sports and young adolescents. *Transescence*, 22(1), 22-26.
- McNeely, C. A., Nonemaker, J. M., & Blum, R. W. (2002). Promoting school connectedness: Evidence from the National Longitudinal Study of Adolescent Health. *Journal of School Health*, 72(4), 138-146.
- Miltich, A. P., Hunt, M. H., & Meyers, J. (2004). Dropout and violence needs assessment: A follow-up study. *California School Psychologist*, 9, 135-144.
- National Forum to Accelerate Middle-Grades Reform (2008). *Policy statement on grade configuration*. Retrieved June 10, 2011, from <http://www.mgforum.org>

National Middle School Association (2010). *Co-curricular physical activity and sports programs for middle school students: A position statement by The National Association for Sport and Physical Education's (NASPE) Middle and Secondary School Physical Education Council (MASSPEC)*. Retrieved February 9, 2010, from <http://www.nmsa.org/AboutNMSA/PositionStatements/SportsPrograms/tabid/292/Default.asp>

National Middle School Association. (1995). *This we believe: Developmentally responsive middle schools*. Columbus, OH: National Middle School Association.

Neild, R., Balfanz, & R. Herzog, L. (2007). An Early Warning System. *Educational Leadership*, 65(2), 28-33.

Northwest Evaluation Association. (2004). *Reliability and validity estimates: NWEA achievement level tests and the Measure of Academic Progress*. Retrieved March 3, 2012 from http://images.pcmac.org/Uploads/Jacksonville117/Jacksonville117/Sites/DocumentsCategories/Documents/Reliability_and_VValidity_Estimates.pdf

Northwest Evaluation Association. (2011). *Measure of academic progress: Overview*. Retrieved January 5, 2011, from <http://www.nwea.org/assessments/map.asp>

Northwest Evaluation Association. (2012). *Typical vs. expected vs. average growth*. Retrieved April 7, 2012 from <http://www.nwea.org/support/article/529>

Piaget, J. (1952). *The origins of intelligence in children*. New York, NY: International University Press.

Piaget, J. (1960). *The child's conception of the world*. Atlantic Highlands, NJ: Humanities Press.

- Posner, J. K. & Vandell, D. L. (1994). Low-income children's after-school care: Are there beneficial effects of after-school programs? *Child Development*, 65, 440-456.
- Posner, J. K. & Vandell, D. L. (1999). After-school activities and the development of low-income suburban children: A longitudinal study. *Developmental Psychology*, 35, 868-879.
- Raymond, E. (2000). *Cognitive Characteristics. Learners with Mild Disabilities* (pp. 169-201). Needham Heights, MA: Allyn & Bacon, A Pearson Education Company.
- Reeves, D. (2005). *Accountability in action: A blueprint for learning organizations*. Englewood, CO: Advanced Learning Press.
- Resnick, M., Bearman, P., & Blum, R. (1997). Protecting adolescents from harm. *Journal of the American Medical Association*, 278(10), 823-832.
- Resnick, M., Harris, L., Blum, R. (1993). The impact of caring and connectedness on adolescent health and well-being. *Journal of Pediatrics and Child Health*, 29(1).
- Roberts, C. (2004). *The dissertation journey: A practical and comprehensive guide to planning, writing, and defending your dissertation*. Thousand Oaks, CA: Corwin Press.
- Rosenfeld, L. B., Richman, J. M., & Bowen, G. L. (1998). Low social support among at-risk adolescents. *Social Work in Education*, 20, 245-260.
- Ross, A. G., Shochet, I. M., & Bellair, R. (2010). The role of social skills and school connectedness in preadolescent depressive symptoms. *Journal of Clinical Child & Adolescent Psychology*, 39(2), 269-275.

- Rubin, K. H., Bukowski, W., & Parker, J. (2006). *Peer interactions, relationships, and groups*. In N. Eisenberg (Ed.) *Handbook of Child Psychology* (6th ed): Social, emotional, and personality development. (pp.571-645). New York: Wiley.
- Ruff, T. P. (1993). Middle school students at risk: What do we do with the most vulnerable children in American education? *Middle School Journal*, 24, 10-12.
- Ryan, A. M. (2001). The peer group as a context for the development of young adolescent motivation and achievement. *Child Development*, 72(4), 1135-1150.
- Sallis, J. F., McKenzie, T. L., Kolody, B., Lewis, M., Marshall, S., & Rosengard, P. (1999). Effects of health-related physical education on academic achievement: project SPARK. *Research Quarterly for Exercise and Sport*, 70(2).
- Santrock, J. (1996). *Adolescence: An introduction* (6th Ed.) Madison, WI: Brown and Benchmark.
- Scales, P. C. (2003). *Characteristics of young adolescents*. In *National Middle School Association, This we believe: Successful schools for young adolescents* (pp. 43-51). Westerville, OH: National Middle School Association.
- Schley, V. (2002). *The effects of athletic participation on academic achievement and social status*. Unpublished master's thesis, University of Wisconsin-Stout, Menomonie, WI.
- Seefeldt, V. & Vogel, P. (1986). *The value of physical activity*. East Lansing, MI: Michigan State University.
- Skues, J. L., Cunningham, E. G., & Pokharel, T. (2005). The influence of bullying behaviors on sense of school connectedness, motivation, and self-esteem. *Australian Journal of Guidance & Counseling*, 15, 17-26.

- Takanishi, R. (1993). *Adolescence in the 1990s: Risk and opportunity*. New York: Teachers College Press.
- Taylor, R. & Reeves, J. (1993). More is better: Raising expectations for students at risk. *Middle School Journal*, 24, 13-18.
- Thompson, K. F. & Homestead, E. R. (2004). Middle school organization through the 1970s, 1980s, and 1990s. *Middle School Journal*, 35(3), 1-7.
- United States Department of Health and Human Services. (1996). Physical activity and health: A report of the surgeon general. Atlanta, GA: United States Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- Wang, M. Q., Matthew, R. F., Bellamy, N., & James, S. (2005). A structural model of substance use pathways among minority youth. *American Journal of Health Behavior*, 29, 531-541.
- Weiss, M. R. & Stuntz, C. P. (2004). *A little friendly competition: Peer relationships and psychosocial development in youth sports and physical activity contexts*. Morgantown, WV: Fitness Information Technology, Inc.
- Whitlock, J. (2006). Youth perceptions of life at school: Contextual correlates of school connectedness in adolescence. *Applied Developmental Science*, 10(1), 13-29.
- Wilkinson-Lee, A. M., Zhang, Q., Nuno, V. L., & Wilhelm, M. S. (2009). Adolescent emotional distress: The role of family obligations and school connectedness. *Journal of Youth Adolescence*, 40, 221-230.

Wilson, D. (2004). The interface of school climate and school connectedness and relationships with aggression and victimization. *Journal of School Health*, 74(7), 293-299.

Young, D.H. (2004). Does school connectedness predict bullying? An analysis of perceptions among public middle school students. (Doctoral dissertation, ProQuest Information & Learning). Dissertation Abstracts International Section.

Appendix A: PERMISSION TO CONDUCT RESEARCH

Request to Conduct Research in the Blue Valley Schools

Date Submitted: December 2, 2011

Principle Investigator:

Andrew Taylor
13161 Hadley St. Apt. 2427
Overland Park, KS 66213
913.707.4620
ataylor@bluevalleyk12.org

Major Advisor:

Dr. Dennis King
Baker University
913.491.4432
dking@bakeru.edu

Purpose of Research:

The purpose of this study is to examine eighth grade students' participation in middle school interscholastic athletics and its relation to the percentile growth on the Measure of Academic Progress assessments in the Blue Valley School District. Further, the purpose is to determine whether participation in sports leads to a greater perception of connectedness toward school.

Blue Valley Staff Consulted/Affected by Research:

Elizabeth Parks, director of assessment and research, has been contacted regarding this study. The study will affect the middle schools' building administrators. Part of the research will involve the use of focus group (see description below), and middle school administrators will be given a copy of the script to help determine how appropriate the questions are to ask middle school students. Based on their feedback, the focus group questions could change. Also, since the study involves middle school athletics participation, the nine middle school assistant principals will need to be contacted to obtain rosters for the middle school athletics.

What data are to be collected and how?

First, participants' scores from the fall, 2011 and spring, 2012 Measure of Academic Progress assessments will be used to measure students' academic growth over the course of the 2011-12 academic year. The RIT scores of all students will be divided into five categories: zero-sport participants, one-sport participants, two-sport participants, three-sport participants, and four-sport participants. This was done because students can participate in a maximum of four sports while in middle school in Blue Valley. At that point, the researcher will be able to see if athletic participation while in middle school has an impact on growth from the fall to the spring of the students' eighth grade year. The

scores will be entered into the Statistical Package for the Social Sciences (SPSS) Version Faculty Pack. Further, selected participants will be asked to take part in a focus group. Potential participants will be contacted through the U.S. Postal Service. Letters requesting students' participation will be sent to a randomly selected 400 parents/guardians of eighth grade students in the Blue Valley School District. These letters will request the students' participation in one of the focus groups. Parent permission will be sought (see copy of letter to be sent to parents and permission form attached) The researcher will hold four focus groups on four Saturday mornings, ideally in April or May of 2012. Each group will be comprised of ten students (five athletic participants and five non-athletic participants). See the attached script for the focus group. In addition, the researcher will be accompanied by a female educator from the Lee's Summit School District to record the participants' responses. The female educator is present not only to help with the transcription of the participants' answers, but to ensure all students feel comfortable during the focus group experience.

How much time will each subject be involved in any treatment and in data collection?

The only time demanded of the subjects is if they choose to be involved in the focus groups. The focus group portion of the study is about 2 hours on a Saturday morning.

When and where will the research activities and/or data collection take place?

The focus groups, with the permission and availability of the Blue Valley School District, could be conducted in the Blue Valley School District Education Center. Ideally, the focus groups should be conducted in April or May of 2012.

Approved:

Signature: 

Date: 1/5/2012

Appendix B: BAKER IRB APPROVAL



November 22, 2011

Andrew Taylor
13161 Hadley St. Apt 2427
Overland Park, KS 66213

Dear Mr. Taylor:

The Baker University IRB has reviewed your research project application (E-0121-1114-1122-G) and approved this project under Expedited Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

The Baker University IRB requires that your consent form must include the date of approval and expiration date (one year from today). Please be aware of the following:

1. At designated intervals (usually annually) until the project is completed, a Project Status Report must be returned to the IRB.
2. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
3. Notify the OIR about any new investigators not named in original application.
4. Any injury to a subject because of the research procedure must be reported to the IRB Chair or representative immediately.
5. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity. If you use a signed consent form, provide a copy of the consent form to subjects at the time of consent.
6. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.

Please inform Office of Institutional Research (OIR) or myself when this project is terminated. As noted above, you must also provide OIR with an annual status report and receive approval for maintaining your status. If your project receives funding which requests an annual update approval, you must request this from the IRB one month prior to the annual update. Thanks for your cooperation. If you have any questions, please contact me.

Sincerely,

Carolyn Doolittle, EdD
Chair, Baker University IRB

APPENDIX C: LETTER SENT TO PARENTS

Dear Parents,

I am requesting permission for your child to participate in a doctoral research study. I am currently a seventh grade teacher and coach at Aubry Bend Middle School in Overland Park, Kansas and a doctoral student at Baker University. This research will be part of a study on school connectedness.

Your child's participation is strictly voluntary. The students will not be identified in the study in any way. In addition, there will be no record of what their answers were in the study. A number will be assigned to each participant to ensure the anonymity of their responses, and at no point in the study will the students' names be used. For their participation, each participant will receive a \$5.00 gift card to Barnes and Noble Bookstore.

The focus groups will be held at the Blue Valley branch of the Johnson County Library, 9000 W. 151st St., Overland Park, Kansas, 66221. The dates of the focus groups will be April 21, 2012, April 28, 2012, May 5, 2012, and May 12, 2012. You may pick the date that works the best with your schedule. The focus groups will be held from 1 P.M to 2 P.M. on those days.

With your permission, your child will participate in a focus group with seven other eighth grade students in the Blue Valley School District. As part of the group, your child will be asked questions to determine how connected they felt to school and how their feelings of connectedness influenced their academic experience while in middle school. Conversations during the focus groups will be recorded with a tape-recorder (audio only) and transcribed to document the participants' answers. In addition to myself (the researcher), another educator, Dr. Corey Porter, a special education director in the Raytown School District, will be present to help with the recording of students' conversations.

If you would like to give your permission for your child to participate in this study or have any questions related to your child's participation in this study, **please contact me at 913.707.4620 or email me at ataylor@bluevalleyk12.org.**

Sincerely,

Andrew Taylor, Researcher