STUDENT INVOLVEMENT IN CO-CURRICULAR ACTIVITIES AND SUCCESS ON THE KANSAS MATHEMATICS AND READING ASSESSMENTS

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Abstract

The purpose of the study was to determine whether students who are involved in co-curricular activities perform better on state assessments than students who do not participate in co-curricular activities. A review of literature showed co-curricular involvement was linked to higher GPA, better school attendance, and lower frequency of discipline. Although previous studies looked at different standardized assessments, this study used scores from the Kansas Mathematics and Reading Assessments as a means of comparison.

For this study, the researcher examined co-curricular participation and test scores during the 2006-2007 school year from the Olathe School District, located in Olathe, Kansas. Four research hypotheses were proposed to explore the influence of co-curricular participation on 4 assessments (8^{th} Grade Mathematics, 8^{th} Grade Reading, 10^{th} Grade Mathematics, and 11^{th} Grade Reading). The data on co-curricular activity involvement and the Kansas Assessment results were collected from the Olathe School District's student data base. Student co-curricular activity involvement was tagged in the computer system by the district's data operators, and the assessment information was downloaded from the state of Kansas assessment program database. At the 8^{th} grade level, there were a total of 1,807 students with 1,500 who participated in at least one co-curricular activity. The 10^{th} grade included a total of 1,912 students with 1,256 who participated in at least one co-curricular activity. At the 11^{th} grade, there were 1,795 total students with 1,201 students who participated in at least one co-curricular activity. A t test for independent means was performed to determine if co-curricular involvement influenced student achievement as measured by the designated Kansas State Assessment.

The results of this study indicated co-curricular activities had a positive effect on all four assessments studied. For the 8th Grade Mathematics Assessment, the t-test yielded a value of 10.99, followed by a medium effect size (0.63). A t-test for the 8th Grade Reading Assessment yielded a value of 10.85, followed by a medium effect size (0.58). Results from the 10th Grade Mathematics Assessment yielded a t-value of 14.10. It also had a medium effect size (0.66). The final t-test for the 11th Grade Reading Assessment yielded a t-test of 13.12, followed by a medium effect size (0.59).

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Introduction

Introduction

Since the passage of the *No Child Left Behind* (NCLB) legislation, education in the United States has undergone a change in focus and appearance. As a result, additional accountability procedures have been created to ensure *all* students meet certain proficiency standards. Because the accountability tests carry rewards and penalties, schools have been in a hurried frenzy to raise each assessment score, including those in identifiable subgroups.

The pressure the NCLB act created has raised the focus on basic academics. In the hopes of raising assessment scores, students are given additional academic support to make up for core subject deficiencies. These additional offerings and requirements compete for student time and opportunities to participate in other co-curricular activities. For instance, an extra reading session or math class requires additional time during the school day, and this time is taken at the expense of a music class or other co-curricular activity. These often result in lost co-curricular opportunities for students.

Schools need money to pay for additional math and reading support programs. Consequently, schools drain some of the money to run these support programs from other resources, such as co-curricular activities. The loss of revenue further reduces and restricts co-curricular involvement by all students. According to the 32nd Annual Phi Delta Kappa Gallup Poll regarding the Public's Attitude Toward School, 46% of public school parents believe co-curricular activities are as important as core subjects (20). In

turn, decreasing these co-curricular opportunities seems to devalue the importance that nearly half of American public school parents place on co-curricular activities.

Over the past 20 years, research has confirmed the positive effects co-curricular activities have on student achievement and other social aspects. The National Federation of State High School Associations cites a number of case studies that show "students who compete in high school activity programs make higher grades and have better attendance" (NFHS 2002). One study, conducted by Dr. John S. Miller at the University of Idaho, contends that co-curricular activities help students to develop leadership and conflict management skills (105). Although these studies lend support to the positive aspects of co-curricular activities, little empirical research exists measuring the correlation between involvement in co-curricular activities and success on mandated assessments, such as the Kansas Mathematics and Reading Assessments. In his research, Miller recommends that future study be done in the area of student achievement and co-curricular activities that centers on "standardized testing measures" (111).

Background to this Study

School districts across the United States are involved in a struggle between academic remediation and student involvement in co-curricular activities, as described above. Each district faces similar, yet different, circumstances depending on their community and its demographics. The setting for this study was the Olathe School District USD #233, located in Olathe, Kansas.

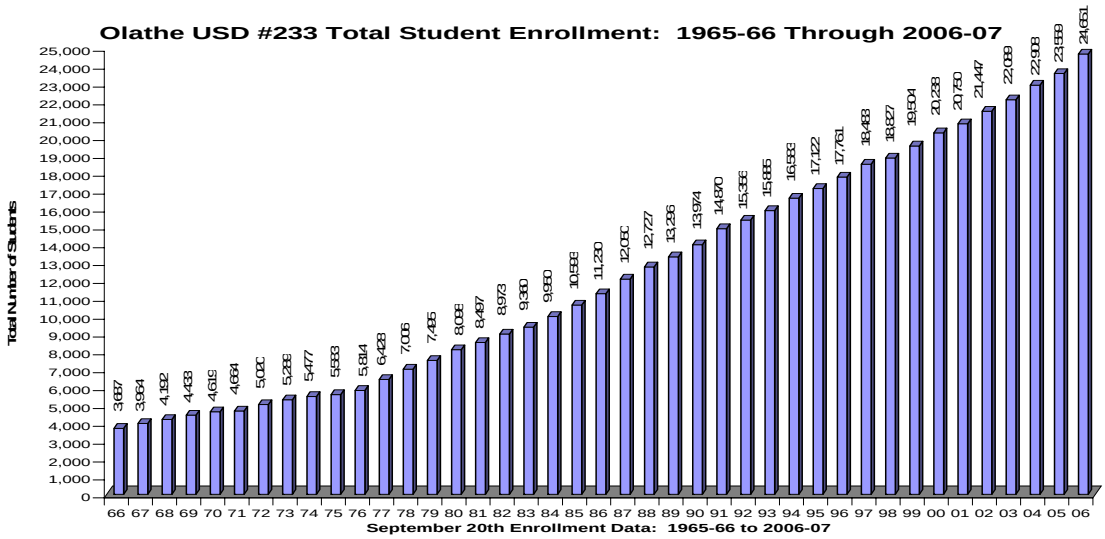
The Olathe School District has witnessed significant growth in the past 25 years. In 1965, five smaller districts (Countryside School District #103, Meadowlane School

District #108, Mount Zion School District #105, Olathe School District #16, and Pleasant View School District #96) unified to create what is known today as the Olathe Unified School District #233 (Olathe School District website). From an initial enrollment of 3,687 students in 1965, the district grew to 24,651 students in 2006. To illustrate this change, Table 1 shows the district growth from 1965-2006.

In Table 1, from 2000-2004, the Olathe School District grew by 2,670 students, an increase of nearly 12%. By comparison, the growth rate for the nation's schools as a whole for the same period was 5% (NCES 2). The trend continued, as the school district continued growing at an annual rate of 780 students per year from 2002-2006. To accommodate for this expansion, the Olathe School District was forced to build a number of new schools. Currently, the district manages 32 elementary schools, 8 junior high schools, and 4 high schools, as well as various support buildings (Olathe School District website).

Table 1

Olathe USD #233 Total Student Enrollment (Headcount)



Source of Graph: Olathe School District, 2007

Student Participation

Even with the increasing school population, student involvement in co-curricular activities remains a focus for the Olathe School District. Tables 2 and 3 show the different co-curricular activities offered and tagged at the junior high and high school levels in the Olathe School District. (*Tagged* refers to identifiers placed in the district's computer system to indicate student involvement in specific co-curricular activities for each individual.) Table 2 is a listing of junior high co-curricular activities, and Table 3 is a listing of high school co-curricular activities. At both the junior high and high school levels, students are encouraged to get involved in co-curricular activities. Because of the District's efforts, opportunities are available in a number of disciplines, including athletics, music, academic clubs, and leadership clubs. Participation numbers for each of the activities for the 2006-2007 school year are available in the Appendix (Tables 21 and 22).

Table 2

Junior High Co-Curricular Activities Offered to Students in Olathe USD #233

Level	**Activity**
Junior High	*Athletics*: Basketball, Football, High School Sports (available to 9th grade), Volleyball, and Track *Activities*: Band, Cheerleading, Clubs (Art Club, Battle of the Books, Community Service Groups, Creative Writing, Fitness & Wellness, KAYS, Leadership Organization, Library Council, Mathcounts, Pep Club, Problem Solving, Science Olympiad, Technology), Debate, Drama, Drill Team, Newspaper, Orchestra, Student Council, Vocal Music, and Yearbook

Source of information: Olathe District Website, 2006

Table 3

High School Co-Curricular Activities Offered to Students in Olathe USD #233

Level	**Activity**
High School	*Athletics*: Baseball, Basketball, Bowling, Cross Country, Football, Golf, Gymnastics, Soccer, Softball, Swimming & Diving, Tennis, Track, Volleyball, and Wrestling *Activities*: Academic Decathlon, Band, Business Men & Women, Cheerleading, Culinary Arts, Debate, Drill Team, Fashion Club, Foreign Language Clubs, Forensics, Future Teachers, Journalism, Kansas Association for Youth, National Honor Society, Orchestra, Scholars Bowl, Science Olympiad, SASH, Speakers Bureau, Student Ambassadors, Student Council, Student Development, Student Naturalists, Technology, Theatre Productions, Vocal Music, and Yearbook

Source of information: Olathe District Website, 2006

Table 4 shows the number of Olathe students in grades 7 to 12 who participated in co-curricular activities during the 2006–2007 school year. Grade 7 shows the highest percentage rate of participation, while Grade 12 shows the lowest percentage rate. Interestingly, the trend for student co-curricular participation declines from Grade 7 through Grade 12, with the largest drop in participation occurring during the switch from junior high to high school (between grades 9 and 10). Overall, 74% of all students were involved in at least one co-curricular activity, as indicated in Table 4.

Table 4

Co-curricular Participation by Grade Level for the 2006-2007 School Year

	Involvement in 1 or more Co-Curricular Activity (number of students and percent)		No Co-curricular Activity Involvement (number of students and percent)		TOTALS
Grade 7	1,570	84%	297	16%	1,867
Grade 8	1,500	83%	307	17%	1,807
Grade 9	1,525	82%	332	18%	1,857
Grade 10	1,256	66%	656	34%	1,912
Grade 11	1,201	67%	594	33%	1,795
Grade 12	1,008	63%	586	37%	1,594
TOTALS	8,060	74%	2,772	26%	10,832

Source of Information: Olathe District Schools, 2007

Table 5 shows participation in co-curricular activities for grades 7 to 12 by gender. Females have the highest percentage of participation at 80%, while males participate at 69%. The gap between female and male participation is even more notable because male students out number females in every grade from 7 to 12.

Table 5

Co-curricular Participation by Gender at Grades 7 to 12 for the 2006-2007 School Year

	Involvement in 1 or more Co-Curricular Activity		No Co-curricular Activity Involvement		TOTALS
MALE	3,853	69%	1,706	31%	5,559
FEMALE	4,207	80%	1,066	20%	5,273
TOTALS	8,060	74%	2,772	26%	10,832

Source of Information: Olathe District Schools, 2007

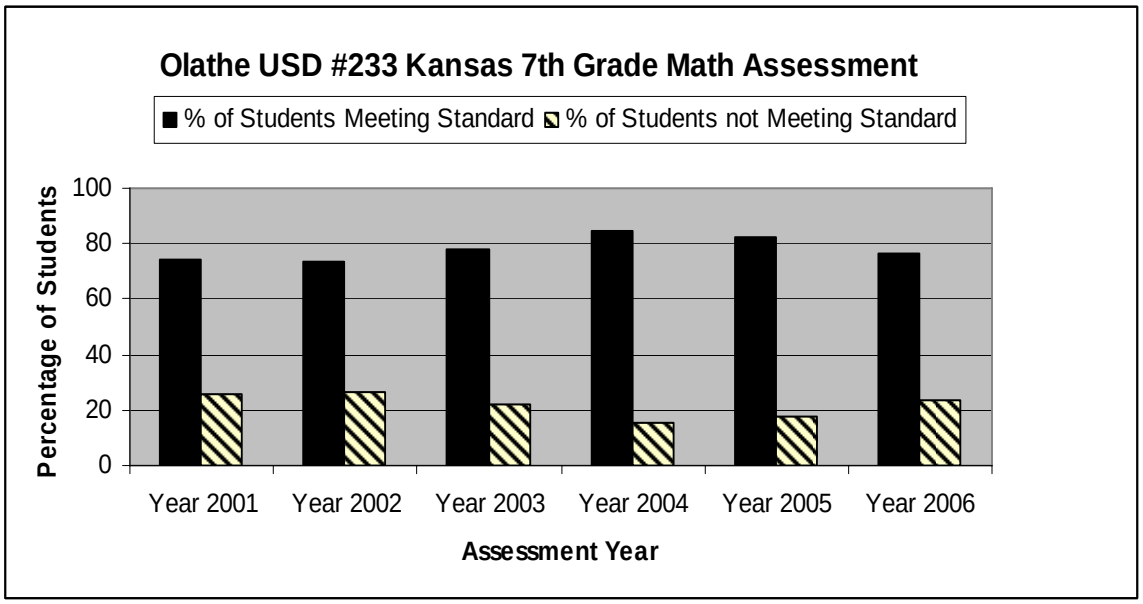
Academics

Along with encouragement to participate in co-curricular activities, Olathe schools encourage academic excellence. Olathe is a highly educated community with 92% of the population age 25 and over possessing at least a high school degree (City of Olathe website). In addition, 40% of the population age 25 and over possesses a bachelor's degree or higher (City of Olathe website). These percentages compare favorably to national percentages of 84.6% for completion of a high school degree and 27.2% for possession of a bachelor's degree or higher (US Census Bureau 3). A goal of the Olathe School District is to provide students in this educated populous with a strong academic foundation to become productive citizens. This strong academic foundation is seen in student performance on Kansas state assessments. The data depicted in Table 6 shows Olathe School District results for all 7th grade students on the Kansas Mathematics

Assessment from 2001-2006. The target goal for the Olathe School District, just as it is with all school districts in the United States, is to have as many students as possible meeting the 'standard level' on the state assessment. The 'standard level' is the score set by the state of Kansas for each of the assessments. It varies by assessment and by grade level. As Table 6 indicates, 7th grade students showed steady improvement from 2001-2005. The high point occurred in 2004 when 84% of students were meeting standard. In 2006, there was a slight decline in the scores; believed to be attributed to a change in assessments by the state of Kansas. However, state wide averages for those who met standard on the 7th grade Kansas Mathematics Assessment increased from 65% in 2004 to 70% in 2006 (KSDE).

Table 6

Olathe USD #233 Kansas 7th Grade Math Assessment

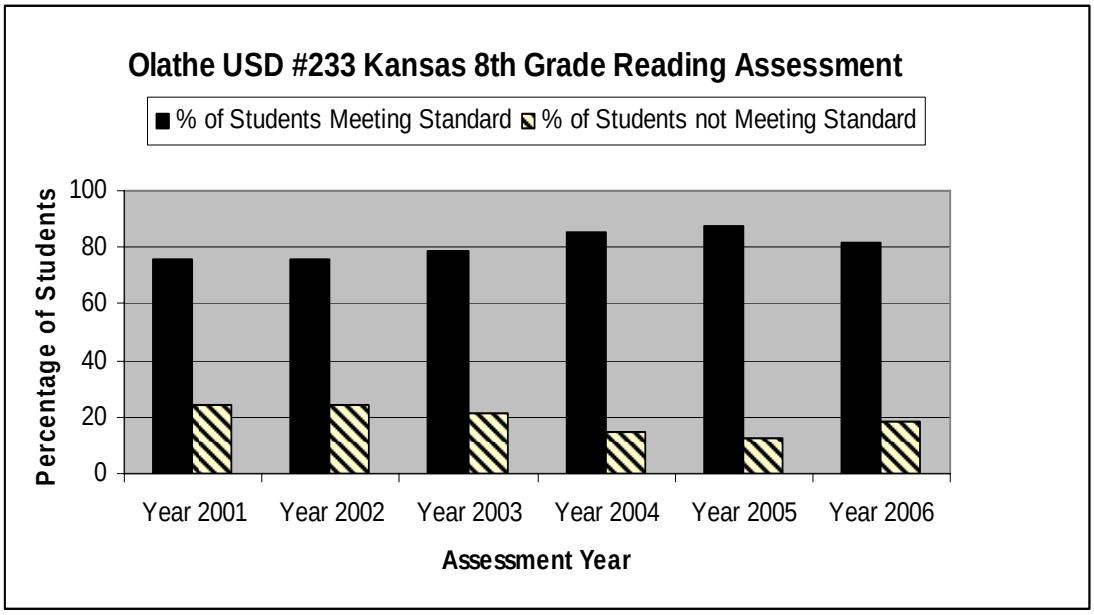


Source of information: CETE website, 2007

The data exhibited in Table 7 provides school district results for all students on the Kansas 8th Grade Reading Assessment. Similar to the scores found on the Kansas Math Assessment, a steady increase in scores was seen from 2001-2005. Scores remained stagnant during the 2001-2002 school year, rising to a high of 88% in 2005, followed by a decline in 2006. Again, the changes in Kansas assessments in 2006 may have caused the decline. Unlike the math assessment, which changed only slightly in 2006, the reading assessment changed considerably in 2006. From 2001 to 2005, the test consisted of a reading passage followed by a series of "yes" and "no" questions. In 2006, reading questions were structured in a multiple-choice format, with four possible answers.

Table 7

Olathe USD #233 Kansas 8th Grade Reading Assessment

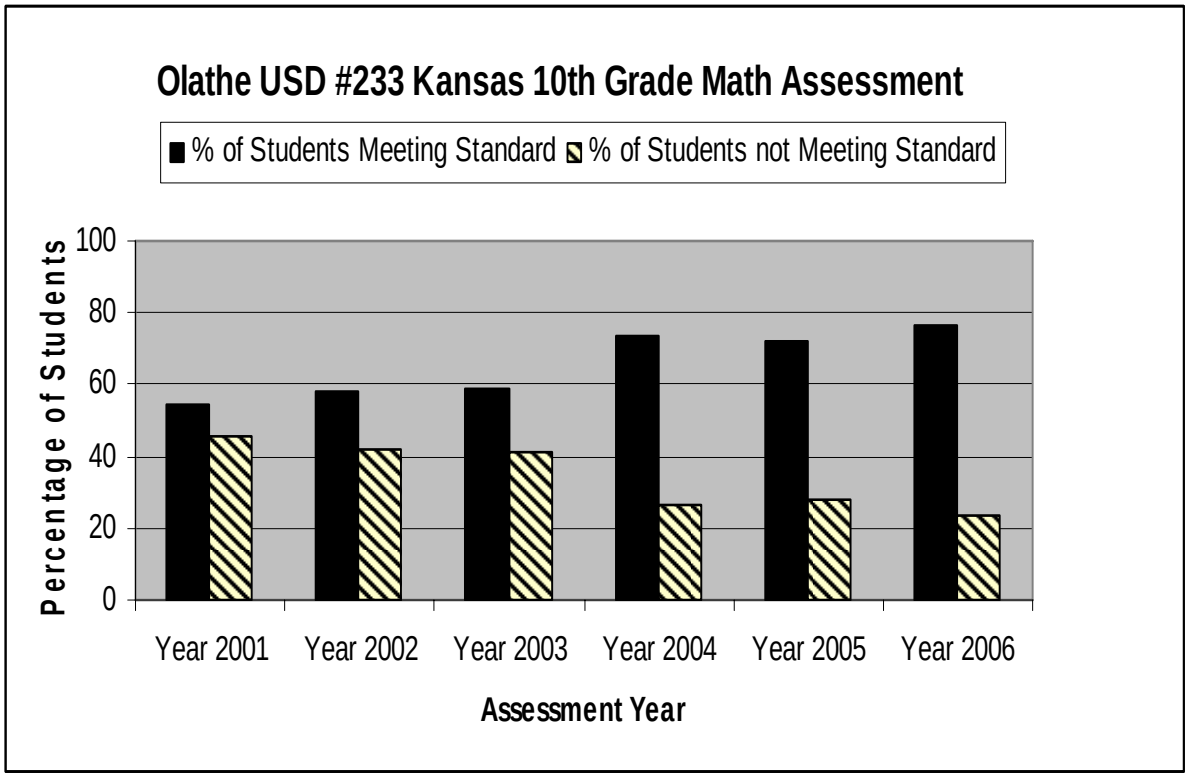


Source of information: CETE website, 2007

Another example of the strength of the Olathe School District academics is seen in the 2006 Kansas Mathematics Assessment results for 10th grade students. Table 8 shows 58% of Olathe 10th grade students meeting the Kansas standard in 2002 compared to 77% of students meeting standard in 2006, gradually increasing from 2001-2006. In fact, the percentage of Olathe students not meeting standard from 2001-2006 decreased by nearly half, from 42% to 23% respectively. In 2006, the percentage of Olathe students who met standard on the 10th grade math assessment is comparable to the percentage of Olathe students who met standard on the 7th grade math assessment.

Table 8

Olathe USD #233 Kansas 10th Grade Math Assessment

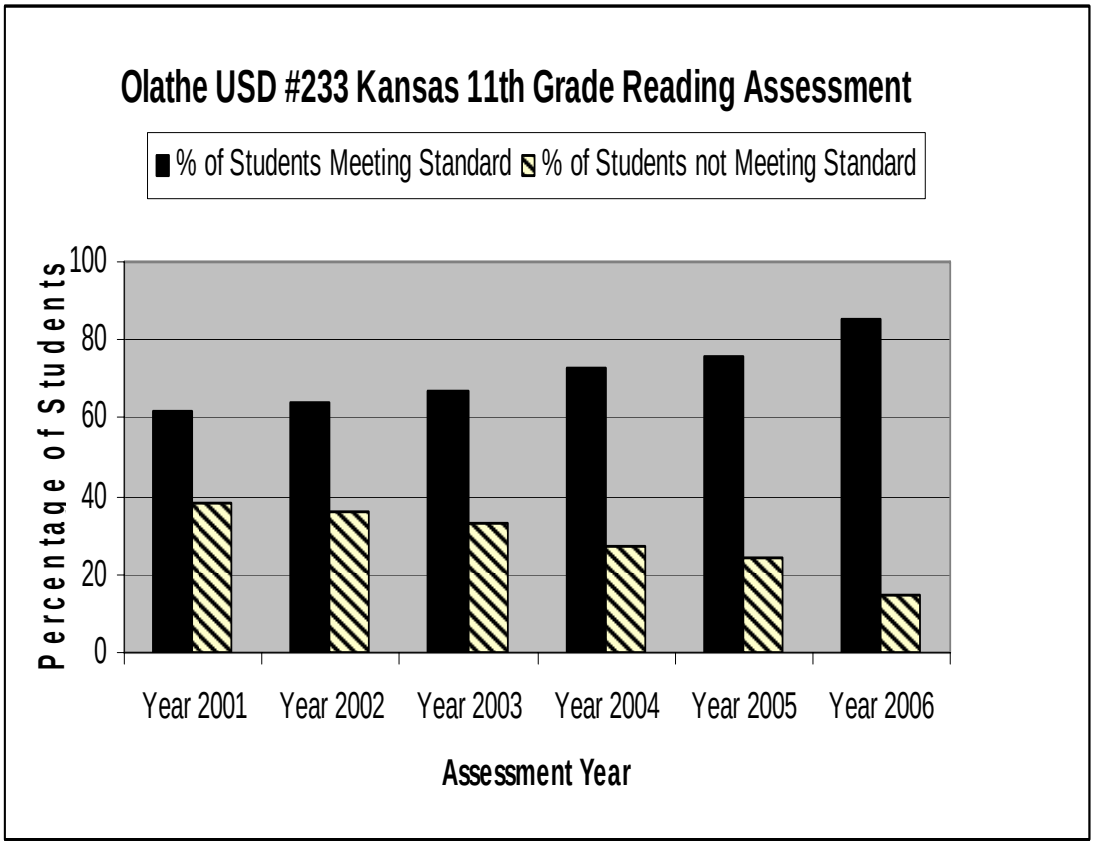


Source of information: CETE website, 2007

Data in Table 9 shows Olathe School District results for all 11th grade students on the Kansas Reading Assessment. The percentage of students who met standard in 11th grade reading increased from over 60% in 2001 to a high of 85% meeting standard in 2006. From 2001-2006, this was an increase of over 20% for Olathe 11th grade students meeting standard. The percentage of students who met standard in Kansas for 2006 was 77% (KSDE).

Table 9

Olathe USD #233 Kansas 11th Grade Reading Assessment



Source of information: CETE website. 2007

In 2005, due to mandates associated with the NCLB act, the state of Kansas changed the frequency of assessment testing in both reading and math. Beginning with the 2006 assessment year, students in grades 3 through 8 are tested every year in reading and math. Testing requirements for students at the high school level remained the same. Students are tested once for math in grade 10 and once in reading during grade 11.

Purpose of the Study

The purpose of this study is to examine how student involvement in co-curricular activities impacts performance on the Kansas Mathematics and Reading Assessments. This study was limited to the evaluation of student test scores and co-curricular involvement during the 2006-2007 school year. The study was further limited to 8th, 10th, and 11th grade Olathe students because these grade levels are assessed by the state of Kansas. The study was delimited since all the collected data is confined to the Olathe School District located in Olathe, Kansas. This limitation may limit the ability to generalize the findings beyond the Olathe School District.

Overview of Methodology

The data collected for this study occurred during the 2006-2007 school year. All Olathe students in the 8th, 10th, and 11th grades were included in this study. Both the data on co-curricular activity involvement and the Kansas Assessment results were collected from the Olathe School District's student data base. Student co-curricular activity involvement was tagged in the computer system by the district's data operators, and the

assessment information was downloaded from the state of Kansas assessment program database.

Once the data were collected, a t-test for independent means was computed for each grade level (grades 8, 10, and 11). The computed t-test value was then analyzed to determine the influence co-curricular involvement had on student assessment results.

Research Questions

A number of studies have been completed citing the positive effects that co-curricular activities have on student achievement. Previous researchers used grade point average (GPA) and school attendance as student achievement indicators. Instead, this study focused on the relationship between students' involvement in co-curricular activities and their performance on the Kansas Mathematics and Reading Assessments. The research question investigated was:

> Does student involvement in co-curricular activities relate to better score performance on state assessments?

Research Hypotheses

The following hypotheses were investigated in this study:

H1: Students involved in co-curricular activities at the 8th grade level perform better on the Kansas Mathematics Assessment than 8th grade students not involved in co-curricular activities at the 0.05 level of significance.

H2: Students involved in co-curricular activities at the 8th grade level perform better on the Kansas Reading Assessment than 8th grade students not involved in co-curricular activities at the 0.05 level of significance.

H3: Students involved in co-curricular activities at the 10th grade level perform better on the Kansas Mathematics Assessment than 10th grade students not involved in co-curricular activities at the 0.05 level of significance.

H4: Students involved in co-curricular activities at the 11th grade level perform better on the Kansas Reading Assessment than 11th grade students not involved in co-curricular activities at the 0.05 level of significance.

Significance of the Study

This study has the potential to provide information to school district officials about the relationship between students' involvement in co-curricular activities and overall student success on the Kansas Mathematics and Reading Assessments. As a result of the findings, the study could guide future research investigating the impact co-curricular activities have on student performance on state and national assessments. Furthermore, this study can provide a point of reflection for decisions concerning student involvement in co-curricular activities or enrollment in remedial support programs.

Assumptions

The following assumptions were made in conducting this research study:

- All Olathe junior high schools and high schools coded and tagged student co-curricular activity involvement in a consistent manner.

- All Olathe junior high schools and high schools administered the Kansas Mathematics and Reading Assessments consistently and during the same timeframe as determined by the School District.

Definition of Key Terms

Activity Involvement: Students are deemed to be *involved* in school activities if they take part in one or more of the co-curricular activities offered by their school (as defined in Table 2 and 3).

Activity Non-Involvement: Students are *non-involved* if they do not take part in at least one co-curricular activity (as defined in Table 2 and 3) during the course of the school year.

Activity Tags: Activity tags are identifiers in the School District operating system for the purpose of indicating which co-curricular activities students are involved.

Co-curricular: Co-curricular is defined in Webster's Third New International Dictionary as "outside of but complementing the regular curriculum" (437). Co-curricular activities for the Olathe School District are listed in Tables 2 and 3.

Meeting Standard: "By the 2013-2014 school year, NCLB requires that all children will be at the proficient level on state testing" (Heath 1). *Meeting Standard* is the term used in the State of Kansas as a substitute for the federal term *proficient* (KSDE 1). *Meeting standard* indicates student progress on state-adopted curriculum standards in the assessed areas of math and reading.

No Child Left Behind (NCLB): Federal education legislation signed into law on January 8, 2002. The law is up for reauthorization in 2007. This law requires states to

assess students every year in math and reading in grades 3 through 8 and once in high school. All students are expected to be at the proficient level in both math and reading by 2014. NCLB is the accountability legislation used to ensure that schools meet the educational needs of all student groups.

Chapter 2

Review of Literature

Introduction

Debate concerning the presence of co-curricular activities in public schools has taken place for over 100 years, with heightened debate occurring the past 25 years. As Gholson indicated, "Extracurricular activities for public school students were not generally accepted by educational leaders prior to 1900" (Camp 273). The debate centers on what is considered the true purpose of public schools. Is the purpose of school to teach only the basics of reading, writing and arithmetic, or is the purpose to mold the whole child and to support a student's mental, physical, and social well-being? Proponents of co-curricular activities believe co-curricular activities "have played a critical role in civic and social education in the American high school for more than 60 years" (Kleese 1). Opponents argue these same activities have "detracted time and effort from academics and negatively impacted achievement and investment in school" (Lewis 11). With the added focus on academics as a result of No Child Left Behind (NCLB), schools are being forced to take an additional look at what services they deliver and how they deliver these services to students. The demands of NCLB, along with ever increasing budget constraints, have even caused school districts to look hard at eliminating co-curricular activities to save academic programs. This has created a controversy which continues to fuel the debate on the purpose of co-curricular activities in schools.

The purpose of this review of literature is to explore past research conducted on the effects of co-curricular activities on student achievement. The review of literature will focus on the following sections:

1. Purpose of Co-curricular Activities
2. Statistics of Participation Related to Co-curricular Activities
3. Costs Related to Co-curricular Activities
4. Community Views of Co-curricular Activities
5. Areas of Previous Study Between Co-curricular Activities and Student Achievement:
    a. Grade Point Average
    b. Attendance
    c. At-risk Students and Dropouts
    d. Standardized Testing
    e. Discipline
6. Recommendations Provided by Previous Studies

Purpose of Co-Curricular Activities

Debate surrounding co-curricular activities' place in schools should begin with their purpose. Everything done in public schools requires justification for why we do it. Different viewpoints related to the purpose of co-curricular activities, from proponents and critics, have been shared in previous literature.

In *Student Activities: The Third Curriculum,* Edward J. Kleese looked specifically at the purpose of co-curricular activities. One viewpoint Kleese conveyed was "student

activities offer young people a place to try out their academic skills in an eclectic, community-like environment" (1). He also felt co-curricular activities were meant to challenge students to actively learn and solve problems "that involve the real possibility of success or failure" (1). This "possibility of success or failure" is free from the pressures of grades associated with classroom experiences. Kleese further stated, "Co-curricular activities that 'represent a rich array of opportunities and experiences' may be one of the reasons many students stay in school, and/or find personal meaning for this time in their lives" (9). Students must feel a purpose for attending school. Whether the purpose is truly academic or is co-curricular related, this mattered little to Kleese.

Other authors shared a similar viewpoint. Eric Freitag applied the concept of attachment theory to support co-curricular activities in schools. He claimed "students who participate in school-related activities have an enhanced attachment to and investment in their schools…" (17) Student investment in school, from this researcher's perspective, is a key component to overall school success. Charla Lewis in her doctoral work at Texas A&M University summarized the viewpoints of Kleese and Freitag eloquently. She indicated "participation in extracurricular activities is a useful and acutely appropriate vehicle for children to gain valuable academic and social experiences, as well as related strategies for overall healthy psycho-social development" (2). Although co-curricular activities are meant to support the academic purpose of schools, these same activities provide positive reinforcements for the social and emotional aspects of schooling.

Critics of co-curricular activities claim schools need to focus their time and energy on academics. They believe co-curricular pursuits merely serve as a distraction to

the academic role of schooling. This is commonly referred to as the "zero-sum theory", attributed to Coleman in the 1960s (Buoye 11). The theory states there is only a finite amount of time for schools and students so academics and co-curricular activities are in competition with each other for students' time (Buoye 11). In the current society, there is more competition for student time than ever before. Application of the zero-sum theory would indicate many students do not have the time necessary to complete academic work due to other time demands. In his research, Coleman did recognize a social benefit associated with co-curricular participation, but he felt schools were placing too much emphasis on them (Kilrea 24). Because of this social emphasis, Coleman argued co-curricular activities work against the academic mission of schools (Kilrea 24). In schools today, there is a fine line between their academic and social mission. Kilrea suggests co-curricular activities strive to support both aspects.

Statistics of Participation Related to Co-Curricular Activities

While vigorous debate continues about the impact of co-curricular activities on student development, the fact remains there are a large number of students who choose to continue participating in a wide range of activities. This researcher believes so much focus is placed on the impact of co-curricular activities on student achievement because of the increasing level of student involvement in these programs over the course of the past 15 years. According to the National Federation of State High School Associations (NFHS) and the National Center for Educational Statistics (NCES), the number of students participating in co-curricular activities supports this belief. NFHS data for the 2005-2006 school year showed 7,159,904 students participated in school athletic

programs during the 2005-2006 school year, which is 53% of the total American high school population (Howard 1). It is important to note however, Howard's study did not include student participation in music programs and other activities – only athletics. This marked the 17th consecutive year in which participation increased (Howard 1). Numbers from the National Center for Educational Statistics support the NFHS numbers. NCES data showed from 1990 to 2002 there was an increase of students participating in sports from 52.2% in 1990 to 54.8 % in 2002 (NCES 138).

Participation numbers related to student involvement in various activities and clubs can also be found through the National Center for Educational Statistics (NCES). The NCES' information is based on the National Education Longitudinal Study of 1988 (NELS: 88/90) and information from *A Profile of the American High School Sophomore in 2002,* authored by Steven J. Ingels. The study tracked different school-sponsored, co-curricular activities, including academic clubs, sports, cheerleading and drill team, hobby clubs, music (band, orchestra, and choir), and vocational clubs for high school sophomores (NCES 138). In 2002, the NCES found sophomores participating in non-athletic categories at the following percentages: 8.4% in academic clubs, 8.1% in cheerleading and drill team, 8.1% in hobby clubs, 21.5% in music, and 8.3% in vocational clubs (NCES 138). In 2002, intramural participation was also tracked and showed a participation of 33% (NCES 143). These percentages are based on a sophomore population in the United States of 3,675,312 (NCES 34).

Cost Related to Co-Curricular Activities

Although the number of students participating in co-curricular activities has been well established, the cost associated with providing school activities remains another variable in the debate. Money used to pay for co-curricular activities can come from state and local taxes, as well as other revenue sources like user fees and fundraising efforts of parent groups and booster clubs. The cost effect of co-curricular activities on budgets of school districts can be summarized using data from the National Center for Educational Statistics (NCES) and information from the National Federation of State High Schools (NFHS).

In the most current report (2005-2006), the National Center for Educational Statistics reported 5.15 billion dollars was spent on public education in the United States (NCES 26). Of that amount, the National Federation of State High Schools stated "co-curricular programs made up only one to three percent of the overall education budget in a school" (7). Earlier research done by Kleese placed the percentage of money spent on co-curricular activities between 1 and 2 percent (50).

Many people still wonder whether it should be the responsibility of the district patrons to pay the bill for co-curricular activities even though it represents such a small percentage of the overall dollars spent on public education. In order to offset some of the costs associated with co-curricular activities, many schools and school districts have turned to alternate revenue sources. One option has been to institute user fees for students participating in these activities (Pepe 9). Fees are either set at a flat rate or students are charged per activity of participation. These fees place the financial responsibilities of participation back on the participants and their families.

Another alternative source of school revenue to support co-curricular activities comes from fundraising associated with parent groups and booster clubs. In his research, Zach D. Rozelle documented these sources as "nontraditional revenue". Rozelle cited a booster club in a Washington school district raised $82,000 from a "dessert" fundraiser (16). Rozelle looked at a study completed in Tennessee which reported funds raised by parent booster clubs to range from $5,000 to $100,000, with an average of $25,000 per school studied (16). Similar to Rozelle's research, Anna Marie Corral cited a band director who stated 50% of his budget was raised through his booster club, with the remaining 50% coming from user fees (55). The principal, at the same school, stated that booster club funds made up as much as 75% of a total program budget (Corral 55). Support from parent groups and booster clubs has become a critical element in the financial support of various co-curricular activities.

Community Views of Co-Curricular Activities

Community views regarding co-curricular activities have been well represented in previous research. Different surveys have been conducted to gain input from various community members on the topic. Through different surveys, input on the perceived value of co-curricular activities has been gathered from many supporters and opponents.

The 32nd Annual Phi Delta Kappa Gallup Poll of the Public's Attitudes Toward Public Schools (2000) found 46% of public school parents believed co-curricular activities were as important as core academic subjects (20). In *Student Activities: The Third Curriculum,* Kleese cited public support for co-curricular activities from the 1986 Gallup Poll. The first question in the poll related to co-curricular activities like music,

sports, and school newspaper which read "How important are these to a young person's education- very important, fairly important, not too important, or not at all important?" (22) To this question, 39% of the public responded co-curricular activities were very important, and 41% responded they were fairly important (22). This indicates 80% of those surveyed believed there is importance in these co-curricular activities with only 20% believing these activities are not important. The same poll asked for Americans' opinions on eliminating co-curricular activities in response to budgetary concerns. To this question, 62% responded they were opposed to eliminating co-curricular activities (24). As was stated in the previous section, co-curricular activities make up only a small percentage of the overall school district budget so elimination of these activities would result in minimal savings.

The results of these polls reflect a public supportive of co-curricular activities. Many people believe co-curricular activities "provide students opportunities to broaden learning experiences outside of the traditional curriculum and are seen as positive contributors to the overall development of the student" (Kilrea 5). Many people take this one step further by focusing on character and motivation. They contend the school's mission is "development of the whole child and as such, co-curricular activities help students build character and gain motivation that can be utilized in life beyond the school setting" (Branch 1). With the change in American households over the last 20 years, this focus on character development has become more and more important. Besides character development and providing an opportunity to build on studies during the day, co-curricular activities also give students the opportunity to "develop relationships with

caring adults" (Douglas 2). Educators often refer to 'experiential learning'. Co-curricular activities offer an authentic environment for this experiential learning.

Students and principals in high schools across the country feel just as strongly about co-curricular activities. In 1985, the National Federation of State High School Associations sponsored a survey of high school principals and students. The survey was funded by the Lilly Endowment in Indianapolis and was conducted in all 50 states by Indiana University. Combined survey results, from principals and students, indicated the following:

- 95% said, "participation in activities teaches valuable lessons to students that cannot be learned in a regular class routine" (4).
- 99% said, "participation in activities promotes citizenship" (4).
- 72% said, "there is strong support for school activity programs from parents and the community at large" (4).

Students and school administrators believed co-curricular activities were valuable to the school experience, and they felt communities supported these activities.

Despite what appears to be overwhelming support for co-curricular activities, there are still opponents who criticize the place of these activities in schools. Critics believe the sheer number of co-curricular activities and the demands they place on public schooling have expanded to unmanageable levels (Camp 272). VanDuyne stated many opponents believe time spent participating in co-curricular activities detracts from academic pursuits (1). Others specifically believe, "identification with an extracurricular activity may displace identification with the school or that, at some point, too many extracurricular activities may leave too little time to pursue academic activities such as

homework" (Branch 22). As previously mentioned, Coleman in his 1960s research described a "zero-sum" proposition- the notion time spent participating in co-curricular activities detracted from academic pursuits. Coleman found it to be a "paradox" in which "participation in these activities is generally associated with positive academic outcomes" (Buoye 11).

Further criticism of co-curricular activities confronts the social aspects of schooling. In her research, Charla Lewis cited various sources questioning the effect co-curricular activities have on a student's social standing. Research, as early as the 1960s, has shown co-curricular activities cause students to place more social significance on activities than academics (Lewis 11). Lewis further stated co-curricular activities place a higher "social status" on students when they are actively participating as opposed to being strictly academically oriented (11). Inevitably, Lewis believed this causes a distraction in academic pursuits, as described in the previous paragraph, because students strive to become the 'popular' student through participation in co-curricular activities rather than focusing on academic pursuits (Lewis 11). In many schools, this social focus on co-curricular participants has been countered by offering a wider range of activities to encourage involvement by more students. The intended result is decreased social importance placed on co-curricular involvement since more students are involved.

In addition, some criticize the research conducted to demonstrate the positive effects of co-curricular activities. For the most part, there exists a lack of longitudinal data and research, which causes critics to doubt the true benefits of co-curricular activities. Freitag argued lack of data fuels the 'chicken and egg' argument-- "Which came first- the competent child who chose extracurricular activities or the extracurricular

activities that helped create the competent child?" (46) Without longitudinal data, it is impossible to provide a legitimate answer to Freitag's 'chicken and egg' argument.

Areas of Previous Study

To better understand the purpose and background of the current study, it is important to analyze research completed on co-curricular activities in the past. Some of the early research related to the effects of co-curricular activities on student achievement has looked at student grade point average (GPA). As time passed, further research on the effects of co-curricular activities surfaced in related areas such as attendance, drop-outs, and discipline. Previous research in these areas has been completed by a variety of researchers, many independent but some associated with state athletic associations. Although debate concerning co-curricular activities continues, past research investigating co-curricular activities has produced clear results related to student achievement.

Grade Point Average

A number of studies have looked at the relationship between students who participated in co-curricular activities and their Grade Point Average (GPA). A student's GPA is meant to serve as a measure of academic success. Most of the studies conducted to date showed a positive connection between GPA and participation in co-curricular activities.

In their publication, *The Case for High School Activities*, the National Federation of State High School Associations cited a number of studies done in this area. One study completed by the North Carolina High School Athletic Association and researcher Roger

L. Whitley (1993-94 school year) found a significant difference in GPA between athletes and non-athletes. A follow-up study was conducted two years later and included data from high schools across the state of North Carolina. Over the 3 year period (1993-1996), athletes had an average GPA of 2.86, while non-athletes had an average GPA of 1.96 (Whitley 225).

The Colorado High School Activities Association and the Colorado Department of Education conducted a similar study in 1992. It examined students who participated in "some form of interscholastic activity" (NFHS 5). The results from the study were equally as strong when compared to the North Carolina study. "Of the students surveyed, the average participant's GPA was 2.96 (on a 4.0 scale), compared to 2.35 for the non-participant" (NFHS 5).

Independent researchers with no association to state high school athletic associations have completed similar studies. These studies have shown similar results. The Denver Area School Superintendent's Council conducted a study of 1,500 students and found "the average grade point of student athletes was 2.67 as compared to an average grade point average of 2.12 for nonparticipating students" (Neish 2). In an article by G. Milhoces in *USA Today*, a U.S Department of Education report "indicated that students who participate in extracurricular activities, mainly sports, are three times more likely to have a GPA of 3.0 or better" (1).

Jason Luther Branch conducted a study of high school students in 13 Tennessee high schools for his doctoral work at the University of Southern Mississippi. In his study of 1,100 students, Branch divided students into three groups: athletic participants, non-athletic participants, and non-participants (39). Branch reported a mean GPA of 2.88

for all students, 3.22 for non-athletic participants and 3.02 for athletic participants (44). This compared to a non-participant mean GPA of only 2.72 (45). Summarizing Branch's findings, both categories of co-curricular activities received higher GPAs than the non-participant group, but non-athletic participants had a GPA of 0.20 higher than those participating in athletics.

Dr. Kevin J. McCarthy completed a study similar to that of Branch but with a larger sample. In his work at the University of Colorado, McCarthy gathered data from 19,543 students at high schools in Colorado. His study initially reported data by co-curricular participant versus non-participant. McCarthy reported participants had an average GPA of 3.09 and non-participants had an average GPA of 2.43 (412). This compared to an average GPA for all students of 2.72 (McCarthy 412). McCarthy followed up this initial data by comparing the GPA of athletic participants versus non-athletic participants organized by ethnicity. He found, except for Asian-Pacific Islanders, all ethnicities (Native American, Black, Hispanic, and White) had a higher average GPA for athletic participants when compared to non-athletic participants (McCarthy 416).

Another area of research looked at the differences in GPA with students who are either 'in-season' or 'out-of-season.' 'In-season' refers to the part of the school year when students are actively participating in a particular sport, while 'out-of-season' is the rest of the school year beyond a particular sport season. Silliker and Quirk examined the effect of extracurricular participation on a group of high school students who played a particular sport and "found that the grade point averages for boys and girls were higher during the season, rather than during the off-season" (Stencel 13). Many studies

attributed this 'in-season' effect on GPA to mandatory grade standards established by most schools for students participating in any co-curricular activity.

Another related area of research looked at multiple sport athletes versus single sport athletes. I.R. Rebella conducted a study and found "multiple sport athletes had the highest grade point averages of all students" (Stencel 15). In fact, the Iowa High School Athletic Association reported "those who participate in one sport average 2.61 and those active in two sports average 2.82" (Coaches Quarterly 23).

Many conclusions have been drawn from the research related to co-curricular activities and grade point average. "All the cited research suggests that extracurricular activities provide all students--including at-risk and gifted students-- an academic safety net" (Holloway 88). In 1986, Haensley, Lupkowski, and Edlind confirmed the research citing a relationship between grades and participation, and "suggested that this relationship existed because participation increased students' academic motivation and sense of involvement" (qtd. in Kilrea 35). Motivation is an important ingredient to keep at-risk students in school. Faced with the challenge of providing at-risk students this motivation, many schools are willing to explore all avenues to keep at-risk students from becoming dropouts. One avenue to motivate students is through involvement in co-curricular activities.

Attendance

Research studying the effect of co-curricular participation on school attendance and have shown equally clear results. The study conducted by Whitley in North Carolina examining GPA also examined attendance. Whitley found over a 180-day school year,

non-athletic participants "missed twice as many days per year, as the athlete group" (225). Specifically, from 1994–1996, non-athletic participants were absent from school an average of 12.57 days per school year, while athletes missed an average number of 6.62 days per school year (226).

A study conducted by the North Dakota High School Association (NDHSA) investigated the attendance of athletes, as well as students participating in other co-curricular activities. The NDHSA study stated "participants missed an average of 4.9 days of school (including .7 for activities), while non-participants missed 10.8 days per year" (Coaches' Quarterly 23). The ".7 for activities" refers to the accumulated amount of missed school time required to participate in certain co-curricular activities for travel and competition. The Colorado study (previously cited on page 28) corroborated the results from North Carolina and North Dakota. The Colorado study reported participants missed school an average of 3.59 days a year, while non-participants missed 5.92 days (NFHS 5). These results clearly show a connection between activity participation and school attendance. In fact, R. McNeal believed "the extra-curricular activity or interscholastic athletic program was the only reason that some students attend school" (qtd. in Stencel 13).

In addition to his work on GPA cited in the previous section, Dr. Kevin J. McCarthy studied student attendance. McCarthy reported all students missed an average of 15.1 days (413). Activity participants had an average of 9.5 days missed, and non-participants were absent an average of 19.4 days (413). Similar to the data on GPA, McCarthy followed up his initial attendance data by comparing the attendance of athletic participants versus non-athletic participants organized by ethnicity. In all ethnicities,

except Native American (sample size too small), athletic participants had better attendance than non-athletic participants (McCarthy 417). In summation, the research tends to show school attendance of co-curricular participants tended to be higher than the attendance of non-participants.

At-Risk Students and Dropouts

Additional research has been conducted investigating the effects of co-curricular participation on at-risk students and students in danger of dropping out of school. The research showed co-curricular activities can play a key role in keeping at-risk students in school increasing the probability school will become a meaningful experience.

The research related to school drop-outs is clear. Students who are not involved in co-curricular activities as compared to participants were 57% more likely to drop out of school before reaching their senior year (NFHS 3). Specifically looking at athletics, Whitley's study (using data from the North Carolina High School Athletic Association) found athletes have a 0.7% drop-out rate as compared to an 8.98% rate for non-athletes (228). Another study conducted by the National Federation of State High School Associations involved 14 school districts across 7 regions of the United States. The study reported 96% of dropouts did not participate in activity programs (Coaches Quarterly 23). In addition to athletic participants, performing arts participants were "1.2 times less likely to dropout of school early" compared to non-participants (Lewis 35).

Herbert W. Marsh and Sabrina Kleitman found student participation in co-curricular activities can develop a connection to school, which they refer to as the "identification/commitment model" (471). They claimed co-curricular activities can

"enhance school identification, involvement, and commitment in a way that enhances more narrowly defined academic outcomes as well as the non-academic outcomes" (471). This does not mean co-curricular participation is a magic bullet, but Mahoney and Cairns described it as a "protective factor that decreases the risk of school drop outs" (qtd. in Freitag 16).

Kleese found co-curricular activities can also decrease the alienation at-risk students often experience (14). As a result schools should focus on helping students who feel alienated and not a part of the school culture. Decreasing student alienation is "particularly important for students who belong to ethnic minorities, students with disabilities, and students at risk of dropping out of school" (Lewis 10). One specific study looking at ethnicity was completed by VanDuyne. His research supported the claim made by Lewis, when VanDuyne found participation in co-curricular activities was equally beneficial for different ethnic groups (27).

Standardized Testing

Standardized testing is another component often used to measure student achievement. Like GPA and attendance, research regarding the effects of co-curricular activities on standardized test scores has been prolific. Data is available from national standardized tests as well as assessments used at the state level.

Research results from standardized testing companies such as the American College Testing Service (ACT) and the College Entrance Examination Board's Scholastic Aptitude Test (SAT) are just as clear as those related to grade point average and attendance. Researchers Holland and Andre cited a study conducted in three high schools

located in Maryland and Pennsylvania. Holland and Andre reported athletes "received higher ACT and SAT scores than the non-athletes…" (qtd. in Branch 19)

Publishers of the ACT and SAT tests conducted research on the effect of co-curricular activities on students after high school. The ACT research looked at student self-satisfaction and participation in community activities two years after graduation. The researchers discovered "achievement in school activities" was the "one yardstick" that could be used as a predictor of future success (NFHS 7). SAT also completed research related to future career success. They stated students who participated in co-curricular activities "were found to be most likely to succeed at their chosen profession and make creative contributions to their community" (NFHS 7).

Researchers, Howard T. Everson and Roger E. Millsap, studied the effect co-curricular activities had on SAT scores. Everson and Millsap found "compelling evidence from the SAT that participating in extracurricular activities provides all students—including students from disadvantaged backgrounds, minorities, and those with otherwise less-than-distinguished academic achievement in high school—a measurable and meaningful gain in college admission test scores" (170). They concluded reasoning skills assessed on the SAT were developed not only in the classroom but during co-curricular activities (Everson 170).

The results found by ACT and SAT were supported by other research studying the effects of participation in co-curricular activities on standardized test scores. In 1998, Timothy B. Kilrea researched the connection between student participation and performance on the ACT. His study showed co-curricular participation had a positive relationship to academic achievement, as measured by the ACT (Kilrea 68). He further

asserted “the relationship is greater for academic activities than for non-academic activities” (Kilrea 68). Kilrea defined non-academic clubs to be those in the categories of “service organizations, student government, athletics, career organizations, hobby clubs, and fine arts clubs” (8). In other words, while students who participate in both academic and non-academic activities do better on ACT and SAT tests, those involved in academic co-curricular activities showed higher test scores.

One researcher, Dennis W. VanDuyne, looked at student results on a state standardized assessment, the Indiana Student Test of Educational Progress (ISTEP). He looked at a group of 10th grade students and attempted to control variables such as cognitive ability, socioeconomic status, and ethnicity. He concluded “engagement in extracurricular activities is positively associated with higher achievement” as it relates to the ISTEP (VanDuyne 86).

Stephens and Scaben experienced similar results when they examined California Achievement Test (CAT) scores for 8th grade students at a middle school in Omaha, Nebraska. They reported athletes scored at the 64th percentile, while non-athletes scored at the 48th percentile (37). These results from Stephens and Scaben, as well as those shared by VanDuyne in the previous paragraph, are particularly relevant to this study since their measure of student achievement involved state assessments.

Discipline

Research supports the notion co-curricular activities result in decreased discipline. Jackson and Kauffman conducted research in 1996 and found students who participated in co-curricular activities had a higher grade point average and a cleaner discipline record

(qtd. in Stencel 20). Holt Zaugg conducted similar research on athletes at a school in Canada. His study found of those students sent to the office, the athlete group had 6% fewer occurrences than non-athletic participants (Zaugg 70). Freitag reasoned co-curricular activities provided "a developmental environment where youth are supported, held accountable for their responsibilities and expectations, and are motivated to stay out of trouble to ensure their continued participation" (24).

The data examined by Roger Whitley from North Carolina showed an even greater difference. In his study, Whitley found the average rate of students referred for disciplinary action was 30.51% for athletes (226). For non-athletes, the percentage was 40.29 (Whitley 226).

In his research at Rutgers, Michael Corbett cited previous studies related to discipline or as he termed it "misbehavior". Corbett noted in his review of literature there were conflicting views as to whether co-curricular participation had any effect on student misbehavior. Research from Marsh and Kleitman found there was no relationship between athletic participation and avoidance of discipline issues (Corbett 24). Another study completed by Hollingsworth which included 756 students at seven Ohio high schools found students who participated in more co-curricular activities misbehaved less (Corbett 26).

Corbett followed up the studies cited with his own findings. Data from Corbett's study were sampled from the National Educational Longitudinal Study of 1988 (NELS: 88) and the follow-up in 1990. From his sample, Corbett found athletic participants and non-athletic participants "were all found to misbehave less often than their less active peers" (90). This supported the findings of Whitley and Hollingsworth.

Recommendations Provided by Previous Study

One component of good research is to leave recommendations for future study on the topic. As a result, this researcher's hypothesis and research design model addresses some of the following recommendations left by other researchers.

1. Feldman and Matjasko recommended future research pay particular attention to how co-curricular activities are categorized since "not all extracurricular activities share the same characteristics" (194). In the past, many studies have strictly compared the results of athletes versus non-athletes.
2. Researchers, including Branch (67) and VanDuyne (89), have made recommendations to investigate co-curricular activities from multiple grade levels. Minimal research to date has been conducted from a multi-level perspective. Most of the previous research focused on the high school level. Branch specifically recommended future study at the middle school level "to determine if there are benefits to systems maintaining or beginning extracurricular programs for students of that age group" (67).
3. VanDuyne recommended future studies be conducted from a "larger, multi-school" perspective to include larger samples (89). Many of the studies completed (other than the National Education Longitudinal Study) often utilized small, single-school studies.

In the current study, all of these recommendations have been incorporated into the research design. To comply with the first recommendation, this study will focus not just on athletes and non-athletes but will instead include all co-curricular participants. This study will also include students at the middle level (eighth grade) as well as students from

a multi-school perspective (twelve different schools) to incorporate recommendations two and three.

Summary

Over the course of the past 25 years, numerous studies have been conducted on the positive gains a student experiences as a result of participating in co-curricular activities. Because schools are so closely tied to their communities and because it takes a significant amount of tax money to support schools, it seems everyone has a viewpoint on whether or not co-curricular activities serve a purpose in school. Viewpoints from supporters and opponents of co-curricular activities have been presented in this chapter. Statistics concerning costs related to co-curricular activities and the number of students who participate in these activities have also been covered.

Previous research on the relationship between co-curricular activities and academics covered a wide range of topics and variables. Some of the basic research looked specifically at grade point average and school attendance. From those, the topics expanded to include standardized tests such as the ACT and SAT and drop-outs. Regardless of the area being analyzed, the research suggests co-curricular activities play an important role in the lives of school students.

Chapter 3

Methods

Introduction

The purpose of this study was to examine the relationship between students' participation in co-curricular activities and academic success, as measured on the Kansas Mathematics and Reading Assessments. Beginning with the 2006-2007 school year, the Olathe School District (USD #233) began the extensive process of tracking all co-curricular activities students participated in throughout grades 5-12. The complete listing of activities was previously shared in Tables 2 and 3 of Chapter 1. Through the work of the District's data operators, students received tags in the District's AS400 data system for the different activities in which they participated. Data for this study, including student activity participation and Kansas Assessment results, were downloaded from this same AS400 system.

As detailed at the end of Chapter 2, this study set out to follow some of the recommendations made by previous researchers in this area. This study examined participation in co-curricular activities from a multiple-activity perspective, not looking just at athletics and the fine arts, but also included various club activities. In addition, this study examined the relationship between co-curricular activity participation and success on the Kansas Mathematics and Reading Assessments at multiple grade levels.

Kansas Assessments

The Kansas Mathematics and Reading Assessments are the standardized measure for academic achievement in this study. As mentioned in Chapter 1, the Kansas Assessments were redesigned for the 2006 assessment year. The creation of the assessments was contracted by the state of Kansas with the Center for Educational Testing and Evaluation (CETE), based at the University of Kansas. School districts in Kansas had the choice to administer the assessments either by computer or by the traditional variety of pencil and paper. Computerized assessments were used in the Olathe School District. The reliability and validity for each of the assessments used in this study are given in Table 10. Each measure is provided as a range due to multiple test copies.

Table 10

Reliability and Validity for Kansas Assessments

Assessment	Reliability (α)	Validity (r)
KS 8th Grade Mathematics (5 forms)	.94-.95	.83-.89
KS 8th Grade Reading (4 forms)	.92-.94	.79-.87
KS 10th Grade Mathematics (5 forms)	.94-.95	.76-.86
KS 11th Grade Reading (5 forms)	.92-.93	.74-.88

Source of Information: Kansas Technical Manual, 2006

The Kansas Mathematics Assessment is administered in grades 3-8 and at the 10th grade. The assessment format consists of multiple choice questions (4 choices) administered in three test sessions (2 sessions with a calculator and 1 session without a calculator). Twelve to fifteen indicators are assessed per grade level, with four to eight questions per indicator. Indicators are pre-determined concepts (mathematics and reading) adopted by the Kansas Board of Education to be assessed. Indicators for mathematics are organized into four categories: number and computation, algebra, geometry, and data. Within each of these categories, specific indicators are addressed. Indicators in each area are as follows:

- Number and computation: number sense, estimation, and computation
- Algebra: patterns, variables, linear relationships, and functions
- Geometry: figures, measurement/estimation, and transformations
- Data: probability and statistics

The Kansas Reading Assessment is administered in grades 3-8 and at the 11th grade. The reading assessment consists of reading passages followed by a series of multiple choice questions (4 choices) administered in three, 45-minute test sessions. Sixteen indicators are assessed per grade level, with four to eight questions per indicator. The indicators for reading are divided into two categories, reading and literature. The reading section includes questions related to comprehension of a variety of text (narrative, expository, technical, and persuasive) along with vocabulary questions. The literature section assesses skills related to literary concepts and the significance of literature.

The Olathe School District administered the assessments used in this study to students during March and April of 2007. Students took the assessments in a computerized format. Final scores were reported by the State of Kansas in July, 2007. The score range for each assessment was from 0-100, with 100 being the maximum score possible. Table 11 shows the cut scores (the minimum scores necessary to meet state standard) on each assessment.

Table 11

Cut Scores to Meet Standard on Assessments in 2007

Grade	Subject	Cut Score to Meet Standard (% correct)
8th	Mathematics	58
8th	Reading	64
10th	Mathematics	50
11th	Reading	68

Source of Information: Kansas Technical Manual, 2006

Research Design

One of the challenges previous researchers and this researcher faced was the dilemma of how to organize co-curricular activities into groups. Many previous studies simply examined athletics. This study included a wide range of co-curricular activities. These activities were previously shared in Tables 2 and 3 of Chapter 1. For the purposes

of this study, students at the junior high and high school levels were grouped into two categories:

1. Involvement in 1 or more co-curricular activity
2. No involvement in any co-curricular activity

Tables 2 and 3 in Chapter 1 show the activities offered at the junior high and high school levels and tagged by the school district. A breakdown of the number of participants for individual co-curricular activities is included in tables 21 and 22 of the appendix (Pages 76 and 77).

Research Question and Hypotheses

This study examined the following research question:

Do students involved in co-curricular activities perform better on state assessments?

The research hypotheses proposed for this study (as listed in Chapter 1) were:

H1: Students involved in co-curricular activities at the 8th grade level perform better on the Kansas Mathematics Assessment than 8th grade students not involved in co-curricular activities at the 0.05 level of significance.

H2: Students involved in co-curricular activities at the 8th grade level perform better on the Kansas Reading Assessment than 8th grade students not involved in co-curricular activities at the 0.05 level of significance.

H3: Students involved in co-curricular activities at the 10th grade level perform better on the Kansas Mathematics Assessment than 10th grade students not involved in co-curricular activities at the 0.05 level of significance.

H4: Students involved in co-curricular activities at the 11th grade level perform better on the Kansas Reading Assessment than 11th grade students not involved in co-curricular activities at the 0.05 level of significance.

Site Description

This study took place in the Olathe Unified School District #233, located in Olathe, Kansas. Of the 6 school districts in the county, Olathe is the second largest district with a population of more than 25,000 students. The school district offers a comprehensive educational program for students in grades K to 12. The school district consists of 32 elementary schools, 8 junior highs, and 4 high schools. All 8th, 10th, and 11th grade students from each of the junior highs and high schools (who took the regular Kansas assessments) had an equal opportunity to be included as a study participant.

Subjects, Population, & Sample

The Olathe School District started tracking students in co-curricular activities during the 2006-2007 school year. These tags and Kansas Assessment scores were downloaded from the student data system by the school district's technology department.

The overall number of Olathe students participating in co-curricular activities in grades 7 to 12 is impressive. Table 12 (duplicated from Chapter 1) shows the

co-curricular participation by grade level for the 2006-2007 school year. The students in each grade level are categorized in 1 of 2 groups: involvement in 1 or more co-curricular activity or no co-curricular activity involvement.

Table 12

Co-curricular Participation by Grade Level for the 2006-2007 School Year

	Involvement in 1 or more Co-Curricular Activity (number of students and percent)		No Co-curricular Activity Involvement (number of students and percent)		TOTALS
Grade 7	1,570	84%	297	16%	1,867
Grade 8	1,500	83%	307	17%	1,807
Grade 9	1,525	82%	332	18%	1,857
Grade 10	1,256	66%	656	34%	1,912
Grade 11	1,201	67%	594	33%	1,795
Grade 12	1,008	63%	586	37%	1,594
TOTALS	8,060	74%	2,772	26%	10,832

Source of Information: Olathe District Schools, 2007

For the purposes of this study, participants were limited to students in the 8th, 10th, and 11th grades. This selection was made for a couple of reasons. First, the Kansas Math and Reading Assessments are administered at these three grade levels. In addition, the 8th-grade year is the first year that Olathe School District students have the opportunity to participate in a wide spectrum of activities, including athletics, cheerleading,

dance/drill team, newspaper, and yearbook. All students in 8th, 10th, and 11th grades who participated in the regular Kansas Assessments were included.

Research Variables

Based on the research question and hypotheses proposed for this study, the one group included students who did not participate in co-curricular activities. The other group included students who did participate in one or more co-curricular activities. The dependent variable was the students' scores on the Kansas Mathematics and Reading Assessments. The independent variable was the student involvement or non-involvement in co-curricular activities.

Data Collection and Statistical Analysis

Prior to collecting data on any research subjects, permission was obtained from the following sources:

1. The Baker University Instructional Research Board: Approval of this research proposal (P-0026-0207-0221-G) was given (See Appendix A for copy of approval).
2. Olathe Unified School District #233: Approval was obtained through the office of Mrs. Barbara Russell, Research Project Facilitator for the District (See Appendix B for copy of approval).

Once permission was obtained from both sources, the Kansas Assessment data was downloaded from the Olathe School District data system. To ensure participant confidentially, the school district technology department removed any identifying

information (name, address, phone numbers, etc.) from the data sheets before transferring the information. The data reported included co-curricular tags and Kansas Mathematics and/or Reading scores. All the data was organized by grade level: 8th, 10th, and 11th.

SPSS software was used to compute central tendencies (mean and standard deviation) at each grade level. A t-test for independent means was then used to analyze the data for each grade level assessment. The t-test was chosen because this study compares 2 independent groups (co-curricular participants versus non-participants), and subjects were only assessed once for each grade level. For each assessment, an obtained t value will be computed. The obtained value is "the value that results from application of a statistical test" -- in this case a t-test of independent means (Salkind 386). This can be compared to the critical value, which is the value "necessary for rejection of the null hypothesis" (Salkind 383). To determine the critical value for a t-test of independent means, the degrees of freedom are determined through the sum of the sample sizes minus 2 (Salkind 166). Using Table B.2 of Salkind's book, *Statistics for People Who Hate Statistics*, the critical value is identified according to the degrees of freedom for a "one-tailed test" (359). The level of significance was set at 0.05 in this study.

Summary

This chapter focused on the methods used to carry out this research study. Key aspects included the research design, hypotheses, population, and sample. Additional items explained in this chapter were the research variables, data collection, methodology, and statistical analysis.

This study examined the key research question related to student involvement in co-curricular activities and success on the Kansas Mathematics and Reading Assessments. Information was pulled from the District AS400 data system. This information included assessment scores and activity involvement. The data were analyzed using t-tests for independent means. Chapter 4 discusses the results of this study.

Chapter Four

Findings of the Study

Introduction

The purpose of the study was to determine whether students who are involved in co-curricular activities perform better on state assessments than students who do not participate in co-curricular activities. To analyze the 4 hypotheses presented in Chapter 1 and 3, this study used data from 4 assessments (8^{th} Grade Mathematics, 8^{th} Grade Reading, 10^{th} Grade Mathematics, and 11^{th} Grade Reading), one for each hypothesis. Once the descriptive statistical measures (mean and standard deviation) were computed, t-tests for independent means were figured for each hypothesis. The t-tests were followed by computation of effect sizes, if the t-tests were determined to be significant. All Olathe School District students participating in the 8^{th}, 10^{th}, 11^{th} Grade Kansas Assessments were participants in this study.

The Data

The results from this study are presented in 4 sections. The 4 sections are aligned with the 4 hypotheses discussed in Chapters 1 and 3. The sections begin with a presentation of the results for participants and non-participants on the different grade level assessments, including their sample size, mean, and standard deviation. The computed *t*-test values are shown, followed by the effect size (if appropriate for significance).

8th Grade Mathematics Results

The first hypothesis, found in Chapters 1 and 3, stated the following:

Students involved in co-curricular activities at the 8th grade level perform better on the Kansas Mathematics Assessment than 8th grade students not involved in co-curricular activities at the 0.05 level of significance.

Table 13 on the next page shows the data used to investigate this hypothesis. At the 8th grade level, 1,725 students in the Olathe School District took the Kansas Mathematics Assessment during the 2006-2007 school year. Of those 1,725 students, 1,445 participated in at least 1 co-curricular activity during the school year, and 280 students did not participate in any activity. Table 13 shows participants in co-curricular activities had a mean assessment score of 73.25, and non-participants had a mean score of 59.91. The difference in means between the two groups was 13.34. The range for the participant group was 21-100, and the non-participant range of scores was 20-100. The standard deviation (the average amount of variability in a set of scores) was 17.29 for participants and 24.21 for non-participants. The difference in means between the groups (13.34) appeared to indicate involvement in co-curricular activities had an influence on student achievement, as measured by the Kansas 8th Grade Mathematics Assessment.

Table 13

8th Grade Mathematics: Mean, Standard Deviation, and Range

	N	Mean	Standard Deviation	Range
Participants	1445	73.25	17.29	21-100
Non-Participants	280	59.91	24.21	20-100

To prove the difference was significant and involvement in co-curricular activities positively influenced student achievement (as measured by the Kansas 8th Grade Assessment), a t-test for independent means was computed. Table 14 (below) displays the computed, obtained value (10.99) for the 8th Grade Mathematics Assessment. This computation had a large enough sample size to consider the degrees of freedom (Df) to be 'infinity' by Salkind (359). Table B.2 of Salkind's book, *Statistics for People Who Hate Statistics*, shows the critical value for this computation was 1.645 (359). In comparison, the obtained value of 10.99 was greater than the critical value of 1.645. This resulted in rejection of the null hypothesis and acceptance of the first research hypothesis for this study. Thus, the difference in groups was determined to be significant, and co-curricular activities influenced student achievement, as measured by the 8th Grade Mathematics Assessment.

Table 14

8th Grade Mathematics: Degrees of Freedom, T-Value, and Effect Size

Df	T-Value	Effect Size (Cohen's d)
Infinity	10.99	0.63

Because the data demonstrated a difference between the participant and non-participant groups, it was necessary to determine how much effect co-curricular activities had on the 8th Grade Mathematics Assessment. The effect size (Cohen's d) for this hypothesis was computed to be 0.63. The effect size is defined as "the measure of magnitude for a particular outcome" (Salkind 384). According to Table 25 on page 80 of the Appendix, a value of 0.63 is considered a "medium effect size". By using the same table, an effect size value of 0.63 yields a percentile standing of 73 and a percentage of non-overlap of 38.2%. A percentile standing of 73 indicates the mean of the participant group is at the 73rd percentile of the non-participant group. A percentage of non-overlap of 38.2% indicates 38.2% of the participant and non-participant groups do not overlap. The effect of co-curricular activities on the 8th Grade Mathematics Assessment was significant.

8th Grade Reading Results

The second hypothesis, found in Chapters 1 and 3, stated the following:

Students involved in co-curricular activities at the 8th grade level perform better on the Kansas Reading Assessment than 8th grade students not involved in co-curricular activities at the 0.05 level of significance.

Table 15 shows the results of participants and non-participants on the 8th Grade Kansas Reading Assessment for the Olathe School District. The sample sizes for the 8th grade reading results were the same as those of the 8th grade Mathematics Assessment with

1,445 participants and 280 non-participants. The mean assessment score for participants was 79.93, while non-participants had a mean score of 67.72. The difference in means between the 2 groups was 12.21, which is not as large as the difference found on the 8th Grade Mathematics Assessment. The range for participant scores was 22-100, and non-participants had a range of 19-100. The standard deviation for participants was 15.14, and the standard deviation for non-participants was 25.45. The difference in means between the 2 groups (12.21) appeared to indicate co-curricular activities had an influence on student achievement as measured by the Kansas 8th Grade Reading Assessment.

Table 15

8th Grade Reading: Mean, Standard Deviation, and Range

	N	Mean	Standard Deviation	Range
Participants	1445	79.93	15.14	22-100
Non-Participants	280	67.72	25.45	19-100

To prove this hypothesis, a t-test for independent means was computed. Table 16 on the following page shows this result. The computed, obtained value for the 8th Grade Reading t-test was 10.85. The sample size for this computation was the same as the sample size for 8th Grade Mathematics, so the degrees of freedom (Df) are considered to be 'infinity' by Salkind (359). Since the degrees of freedom remain the same (due to sample size) the critical value of 1.645 will stay the same throughout. In comparison, the obtained value of 10.85 was greater than the critical value of 1.645. This resulted in rejection of the null hypothesis and acceptance of the second research hypothesis for this

study. The difference in groups was determined to be significant, and co-curricular activities influenced student achievement, as measured by the 8th Grade Reading Assessment.

Table 16

8th Grade Reading: Degrees of Freedom, T-Value, and Effect Size

Df	T-Value	Effect Size (Cohen's d)
Infinity	10.85	0.58

Because the data demonstrated a difference between the participant and non-participant groups, it was necessary to determine how much effect co-curricular activities had on the 8th Grade Reading Assessment. The effect size (Cohen's d) for this hypothesis was computed to be 0.58. According to Table 25 on page 80 of the Appendix, a value of 0.58 is considered a "medium effect size". By using the same table, an effect size value of 0.58 yields a percentile standing of nearly 73 and a percentage of non-overlap of 38.2%. This indicates the mean of the participant group is at the 73rd percentile of the non-participant group. A percentage of non-overlap of 38.2% indicates 38.2% of participant and non-participant groups do not overlap. The effect of co-curricular activities on the 8th Grade Reading Assessment was significant.

10th Grade Mathematics Results

The third hypothesis, found in Chapters 1 and 3, stated the following:

Students involved in co-curricular activities at the 10th grade level perform better on the Kansas Mathematics Assessment than 10th grade students not involved in co-curricular activities at the 0.05 level of significance.

Table 17 shows data used to investigate this hypothesis. At the 10th grade level, 1,870 students took the Kansas Mathematics assessment during the 2006-2007 school year. Of the 1,870 students, 1,229 participated in at least 1 co-curricular activity, and 641 students did not participate in any activity. Table 17 shows participants had a mean assessment score of 70.59, while non-participants had a mean score of 57.02. The difference in means between the two groups was 13.57. The range of scores for participants was 17-100, while non-participants had a range of 17-99. Standard deviation for the participant group was 18.02, and the standard deviation for the non-participant group was 22.62. The difference in means between the 2 groups (13.57) for this hypothesis appeared to indicate co-curricular activities had an influence on student achievement, as measured by the 10th Grade Kansas Mathematics Assessment.

Table 17

10th Grade Mathematics: Mean, Standard Deviation, and Range

	N	Mean	Standard Deviation	Range
Participants	1229	70.59	18.02	17-100
Non-Participants	641	57.02	22.62	17-99

To prove the difference was significant, a t-test for independent means was computed. Table 18 on the following page shows the result. It displays the computed,

obtained value (14.10) for the 10th Grade Mathematics. The degrees of freedom for this computation were considered to be "infinity," according to Salkind (359). Since the degrees of freedom remain the same (due to sample size) the critical value of 1.645 was the same. In comparison, the obtained value of 14.10 was greater than the critical value of 1.645. This resulted in rejection of the null hypothesis and acceptance of the third research hypothesis for this study. The difference in groups was determined to be significant, and co-curricular activities had an influence on student achievement, as measured by the 10th Grade Mathematics Assessment.

Table 18

10th Grade Mathematics: Degrees of Freedom, T-Value, and Effect Size

Df	T-Value	Effect Size (Cohen's d)
Infinity	14.10	0.66

Because the data demonstrated a difference between the participant and non-participant groups, it was necessary to determine how much effect co-curricular activities had on the 10th Grade Mathematics Assessment. The effect size (Cohen's d) for this hypothesis was computed to be 0.66. By using Table 25 on page 80 of the Appendix, a value of 0.66 is considered a "medium effect size". By using the same table, an effect size value of 0.66 yields a percentile standing of nearly 76 and a percentage of non-overlap of 43.0%. A percentile standing of 76 indicates the mean of the participant group is at the 76th percentile of the non-participant group. A percentage of non-overlap of 43.0% indicates 43% of the participant and non-participant groups do not overlap. The

effect of co-curricular activities on the 10th Grade Mathematics Assessment was significant.

11th Grade Reading Results

The final hypothesis, found in Chapters 1 and 3, stated the following:

Students involved in co-curricular activities at the 11th grade level perform better on the Kansas Reading Assessment than 11th grade students not involved in co-curricular activities at the 0.05 level of significance.

Table 19 shows the results for participants and non-participants on the 11th Grade Kansas Reading Assessment. A total of 1,795 students took the 11th Grade Reading Assessment. Of those 1,795 students, 1,187 participated in at least 1 co-curricular activity, and 608 students did not participate in any activity. The mean for the participant group was 83.65, and the mean for the non-participant group was 10.85 less at 72.80. The range for the participant group was 24-100, and non-participants had a range of 17-99. The standard deviations for the 2 groups were 12.01 for the participant group and 23.00 for the non-participant group. The difference in means between the 2 groups (10.85) appeared to indicate involvement in co-curricular activities had an influence on student achievement.

Table 19

11th Grade Reading: Mean, Standard Deviation, and Range

	N	Mean	Standard Deviation	Range
Participants	1187	83.65	12.01	24-100
Non-Participants	608	72.80	23.00	17-99

To prove the difference was significant, a t-test for independent means was computed. Table 20 displays the computed, obtained value (13.12) for the 11th Grade Reading t-test. The degrees of freedom for this computation were "infinity," according to Salkind (359). Since the degrees of freedom remain the same (due to sample size) the critical value was 1.645. In comparison, the obtained value of 13.12 was greater than the critical value of 1.645. This resulted in rejection of the null hypothesis and acceptance of this research hypothesis. The difference in groups was determined to be significant, and co-curricular activities had an influence on student achievement, as measured by the 11th Grade Reading Assessment.

Table 20

11th Grade Reading: Degrees of Freedom, T-Value, and Effect Size

Df	T-Value	Effect Size (Cohen's d)
Infinity	13.12	0.59

Because the data demonstrated a difference between the participant and non-participant groups, it was necessary to determine how much effect co-curricular activities had on the 11th Grade Reading Assessment. The effect size (Cohen's d) for this

hypothesis was computed to be 0.59. Using Table 25 on page 80 of the Appendix, a value of 0.59 is considered a "medium effect size" (169). By using the same table, an effect size value of 0.59 yields a percentile standing of slightly less than 73 and a percentage of non-overlap of 38.2%. A percentile standing of 73 indicates the mean of the participant group is at the 73rd percentile of the non-participant group. A percentage of non-overlap of 38.2% indicates 38.2% of the participant and non-participant groups do not overlap. The effect of co-curricular activities on the 11th Grade Reading Assessment was significant.

Summary

The descriptive statistics and the t-tests for independent means provided valuable results for the acceptance of the 4 hypotheses presented in Chapters 1 and 3. After figuring the means and standard deviations, t-tests were computed for each hypothesis. Because the t-test computations were determined to be significant, the t-tests were followed by computations of effect size (Cohen's d) for each hypothesis. These figures were used to accept the 4 hypotheses identified in this study, which state students who participate in co-curricular activities will perform better on the respective Kansas Assessment than students who do not participate in co-curricular activities.

The interpretation, implications, and rationale for the findings of this study will be presented in Chapter 5. In addition, a discussion of previously cited literature (Chapter 2), as it relates to the findings of this study and how this study incorporated those recommendations to advance the previous studies cited, will be completed. Finally, recommendations for future study will be shared.

Chapter 5

Summary and Recommendations

Introduction

This study examined the relationship between student involvement in co-curricular activities and student performance on the Kansas Assessments. The specific research question was: "Do students involved in co-curricular activities perform better on state math and reading assessments?" The students' assessment results were organized and analyzed in comparison to their involvement or non-involvement in various co-curricular activities. These activities were tagged in the Olathe School District's data system. The previous chapter provided the results of this study. This final chapter summarizes the results, implications, and recommendations developed from testing the 4 hypotheses. The chapter concludes with recommendations for future research.

Summary of Results, Implications, and Recommendations

As with Chapter 4, this section is divided into 4 parts, one for each research hypothesis examined in this study. A summary of Chapter 4 findings, along with implications and recommendations from the results, are included for each research hypothesis.

8th Grade Mathematics Results

The first hypothesis, found in Chapters 1, 3, and 4, stated the following:

Students involved in co-curricular activities at the 8th grade level perform better on the Kansas Mathematics Assessment than 8th grade students not involved in co-curricular activities at the 0.05 level of significance.

Chapter 4 presented test results for this hypothesis. A t-test for independent means yielded a t-value of 10.99. This t-value allowed the null hypothesis to be rejected and the research hypothesis to be accepted. The effect size (Cohen's d) for the hypothesis was 0.63. This was considered a medium effect size with a percentage of non-overlap of 38.2%. Clearly, the higher assessment scores achieved by co-curricular participants were, in large part, a result of participation in co-curricular activities.

Of the 1,725 8th grade students who took the 8th Grade Mathematics Assessment, 83% of them participated in co-curricular activities. As mentioned previously in Chapter 1, 8th grade is the first year students have a wide range of co-curricular activities available to them in the Olathe School District. The results showed a strong connection between co-curricular participation and higher scores on the 8th Grade Kansas Mathematics Assessment. At a time when many adolescents are trying to determine where they fit into the social structure of middle level education, co-curricular activities gave many 8th grade students a purpose for attending school, as referenced by Kleese in Chapter 2. Co-curricular opportunities allowed many 8th graders to find "a place to try out their academic skills in an eclectic, community-like environment" (Kleese 1).

Acceptance of this hypothesis obliges school districts to look at how co-curricular activities are offered and promoted to 7th grade students. With the wide range of activities available at the 8th grade level, schools need to encourage student participation

early in the 7th grade year. Many 8th grade activities require students to prepare ahead of time, such as cheerleading and drill team which hold try-outs during spring of the 7th grade year. Many athletic opportunities available in 8th grade involve possible camp participation during the summer prior to the 8th grade school year. As a result, it is imperative for schools to be sure all students and parents receive adequate information about activity opportunities during the summer prior to the onset of the 8th grade school year. Additionally, schools should publish the results of how effective participation in co-curricular activities can be in raising academic achievement, especially the results from their own schools. During homeroom, mentoring sessions, or other forums, schools must educate 7th grade students about these possibilities. As opportunities approach, schools must use multiple media (flyers, announcements, clinics) to reach all students.

8th Grade Reading Results

The second hypothesis, found in Chapters 1, 3, and 4, stated the following:

Students involved in co-curricular activities at the 8th grade level perform better on the Kansas Reading Assessment than 8th grade students not involved in co-curricular activities at the 0.05 level of significance.

Chapter 4 presented test results for this hypothesis. A t-test for independent means yielded a t-value of 10.85. This t-value allowed the null hypothesis to be rejected and the research hypothesis to be accepted. The effect size (Cohen's d) for the hypothesis was 0.58. This was considered a medium effect size with a percentage of non-overlap of

nearly 38.2%. Again, the higher assessment scores achieved by co-curricular participants on the 8th Grade Reading Assessment were, in large part, a result of participation in co-curricular activities.

For this hypothesis, the percentage of students participating in co-curricular activities (83%) was the same as the percentage of co-curricular participants who took the 8th Grade Mathematics Assessment. The results for 8th Grade Reading again show a strong connection between co-curricular involvement and success on the assessment. This can be explained by the attachment theory applied by Eric Freitag and shared in Chapter 2. Freitag explained that students who participate in co-curricular activities "have an enhanced attachment and investment in their schools." (17) Because of this attachment and investment in school, students inevitably perform better academically. In this case, the increased performance was measured on the 8th Grade Kansas Reading Assessment.

The findings for this hypothesis support similar gains as noted for 8th grade mathematics and further support the claim of the effect co-curricular activities can have on student achievement. School districts need to emphasize these findings and promote the benefits of co-curricular activities to parents. With the additional information, parents will hopefully be compelled to encourage their children to participate in co-curricular opportunities. Schools and school districts should use parent meetings and site council meetings to convey the benefits and opportunities available through co-curricular activities. Different co-curricular activities should be emphasized through newsletter articles, as well as flyers at parent-teacher conferences. Schools need to empower parents (whose sons and daughters participate in co-curricular activities) to publicly share this

information in the community, especially with friends and neighbors who have students close to entering middle or junior high school.

10th Grade Mathematics Results

The third hypothesis, found in Chapters 1, 3, and 4, stated the following:

Students involved in co-curricular activities at the 10th grade level perform better on the Kansas Mathematics Assessment than 10th grade students not involved in co-curricular activities at the 0.05 level of significance.

Chapter 4 presented test results for this hypothesis. A t-test for independent means yielded a t-value of 14.10. This t-value allowed the null hypothesis to be rejected and the research hypothesis to be accepted. The effect size (Cohen's d) for the hypothesis was 0.66. This was considered a medium effect size with a percentage of non-overlap of 43.0%. Clearly, the higher assessment scores achieved by co-curricular participants were, in large part, a result of participation in co-curricular activities.

Of the 1,870 10th grade students who took the 10th Grade Mathematics Assessment, 66% of them participated in co-curricular activities. The percentage of non-overlap of 43% showed a strong connection between co-curricular involvement and success on the 10th Grade Kansas Mathematics Assessment. As referenced in Chapter 2, Charla Lewis believed the effect of co-curricular activities on students goes beyond their academic development. Lewis stated, "Participation in extracurricular activities is a useful and acutely appropriate vehicle for children to gain valuable academic and social

experiences, as well as related strategies for overall healthy psycho-social development" (2). At the 10th grade level when students are making the transition from middle level education to high school, it is imperative for educators to continue focusing on the whole child. The district must build students' academic skills while still supporting their social and emotional well-being.

For this researcher, the most concerning data from the 10th grade was the percentage of student participation (66%) in co-curricular activities. This is significantly less than the 83% of 8th graders who participated in co-curricular activities. As mentioned in the previous paragraph, students make the transition from junior high to high school during the 10th grade year in the Olathe School District. The district needs to evaluate the programs in place to assist with this transition. Because of the strong effect co-curricular activities had on the 10th grade assessment data, increased student participation in co-curricular activities should be a part of every transition plan. Students need a connection to their high school, and co-curricular activities serve that purpose well. Schools need to provide students information regarding co-curricular activities early in the transition process. During parent meetings, school officials should provide data to support the importance of being involved in co-curricular activities. At the beginning of the 10th grade year or during the summer prior, schools should hold co-curricular fairs where students can see what activities are available and can easily sign up for those opportunities.

11th Grade Reading Results

The final hypothesis, found in Chapters 1, 3, and 4, stated the following:

Students involved in co-curricular activities at the 11th grade level perform better on the Kansas Reading Assessment than 11th grade students not involved in co-curricular activities at the 0.05 level of significance.

Chapter 4 presented test results for this hypothesis. A t-test for independent means yielded a t-value of 13.12. This t-value allowed the null hypothesis to be rejected and the research hypothesis to be accepted. The effect size (Cohen's d) for the hypothesis was 0.59. This was considered a medium effect size with a percentage of non-overlap of 38.2%. Clearly, the higher assessment scores achieved by co-curricular participants were, in large part, a result of participation in co-curricular activities.

Of the 1,795 11th grade students who took the 11th Grade Reading Assessment, 67% of them were participants in co-curricular activities. The percentage of non-overlap of 38.2% showed a strong connection between co-curricular involvement and success on the 11th Grade Kansas Reading Assessment. Students at this grade level are preparing to make the transition to higher education or to being productive citizens in their community. Quoted in Chapter 2, Branch said, "Co-curricular activities help students build character and gain motivation that can be utilized in life beyond the school setting" (1). Co-curricular activities at this level help to build skills in cooperation and teamwork that carry well beyond the walls of a high school. As the publishers of the SAT found in their research, students who participated in co-curricular activities "were found to be most likely to succeed at their chosen profession and make creative contributions to their community" (NFHS 7).

As noted on the 10th grade results, the percentage of 11th grade students who participated in co-curricular activities was also much lower (67%) than at the 8th grade level. By the 11th grade, students' "free" time is diminished, and students start to look at more activities beyond the school setting, as well as part-time job opportunities. Because of these competing time demands, schools must continue to publicly promote the co-curricular offerings available to students. They must explain during enrollment and guidance sessions how co-curricular activities contribute to a student's long-term success. To increase the percentage of participation at the 11th grade level, the district should do in-depth evaluation of its co-curricular offerings to determine whether the current co-curricular activities meet the demands of current students. In the fall of 2007, the Olathe Board of Education adopted new policy language allowing for a limited-open forum and the addition of student-initiated groups. This change of policy could result in the addition of additional clubs of interest to students, such as Key Club, Chess Club, and Fellowship of Christian Athletes.

Recommendations for Future Research

As the results of this study are examined and reflected upon, recommendations can be made for further research. The following recommendations are a result of the considerations given at the completion of this study.

To provide more complete information regarding the effect of co-curricular activities on student assessment scores, a study disaggregating participants by gender should be conducted. Table 23 in the Appendix provided co-curricular participation numbers for participants of this study by gender. For grades 7-12, 80% of females and

69% of males participated in co-curricular activities. Although males outnumbered females in grades 7-12, females participated in co-curricular activities more than males. This information could lead schools to analyze the cause of this disparity, as well as its effect on assessment scores. Further analysis could study the types of co-curricular activities schools offered and how to better align female and male participation.

Future researchers should also review desegregation of participants by ethnicity. As schools continue to face changing student demographics, it will be vitally important to include all students in co-curricular activities. Table 24 in the Appendix provided co-curricular participation numbers for grades 7-12, divided by ethnicity for the 2006-2007 school year. Hispanic students participated at the lowest level, at 56%. In the Olathe School District, as well other school districts across the country, the number of Hispanic students has dramatically increased in recent years, but Hispanic students are underrepresented in co-curricular activities. Further study to understand the reasons for this phenomenon could yield productive results. It would also provide insight into what effect non-participation has on academic progress, as well as acclimation to the school community.

Further study should be completed paying particular attention to how co-curricular activities are categorized. Many previous studies focused solely on athletics as a means of participation; other studies included the performing arts, as well. This study included the wide range of activities available to students, including athletics, clubs, and the performing arts. Feldman and Matjasko stated “not all extracurricular activities share the same characteristics” (194). An examination of individual activities could determine which activities have a more positive effect on student achievement.

Further research could also look to further categorize activities by another characteristic, such as time commitment to the activity. Other categorical work could be completed examining the level of student involvement (no involvement, involvement in 1 activity, involvement in multiple activities).

To ensure the reliability of the results discovered in this study, further longitudinal work must be done. Duplication of the current study results would reinforce the current findings and might provide additional insight. Longitudinal work that tracks a cohort of students over time would provide important information about the effect of co-curricular activities on student achievement. This work might provide information pertaining to the decrease in student participation from junior high to high school. Additional longitudinal work might provide a legitimate answer to Freitag's 'chicken and egg' question presented in Chapter 2: "Which came first- the competent child who chose extracurricular activities or the extracurricular activities that helped create the competent child?" (46)

Works Cited

Branch, Jason Luther. "Extracurricular Activities and Academic Achievement." (Doctoral Dissertation, University of Southern Mississippi, 2003). ProQuest Dissertations and Theses, AAT 3103645.

Buoye, Alexander J. "Capitalizing on the Extra Curriculum: Participation, Peer Influence, and Academic Achievement." (Doctoral Dissertation, University of Notre Dame, 2004). ProQuest Dissertations and Theses, AAT 3147379.

Camp, William G. "Participation in Student Activities and Achievement: A Covariance Structural Analysis". Journal of Educational Research, 83 (1990) 272-278.

Center for Educational Testing and Evaluation (CETE). University of Kansas, 1 Feb. 2006 <http://www.cete.ku.edu/>.

City of Olathe website, Retrieved December 15, 2006. <http://www.olatheks.org/Visitors/about_facts.cfm>.

Coaches' Quarterly. "Values of interscholastic athletics validated by many across the nation", Winter (1999), 23.

Corbett, Michael. "To Participate or Not Participate: The Relationship Between School-Sponsored Extracurricular Activity Participation and Student Outcomes" (Doctoral Dissertation, Rutgers, The State University of New Jersey, 2007). ProQuest Dissertations and Theses, ATT 3274177.

Corral, Anna Maria. "A Case Study of the Role of High School Booster Organizations in Fund Raising, Governance Issues, and Personnel Decisions" (Doctoral Dissertation, University of Southern California, 2001). ProQuest Dissertations and Theses, AAT 3065775.

Douglas, J.Y. "After-school programs and extracurricular activities decrease delinquent behavior", 6 June 2007, <http://web.nwe.ufl.edu/~jdouglas/F02finalart12.pdf>.

Everson, Howard T. and Roger E. Millsap. "Beyond Individual Differences: Exploring School Effects on SAT Scores". Educational Psychologist, Summer (2005), 157-172.

Feldman, Amy F. and Jennifer L. Matjasko. "The Role of School-Based Extracurricular Activities in Adolescent Development: A Comprehensive Review and Future Directions". Review of Educational Research, Summer (2005), 159-210.

Freitag, Eric J. "Promoting Achievement Trough Sports: An In-depth Analysis on the Impact of Sports and Other Extra-curricular Activities on the Development of Youth." (Doctoral Dissertation, The Wright Institute, 2005). ProQuest Dissertations and Theses, AAT 3191623.

Heath, Suzanne. "Parent's Guide to No Child Left Behind". 23 August 2007, from <http://www.wrightslaw.com/info/nclb.parent.guide.heath.html>.

Holloway, John H. "Extracurricular Activities: A Path to Academic Success?" Educational Leadership, 57(4), (2000) 87-88.

Howard, Bruce and John Gillis. "Participation in High School Sports Increases Again; Confirms NFHS Commitment to Stronger Leadership". 27 November 2007, <http://www.nfhs.org/web/2006/09/participation_in_high_school_sports_increases_again_confirms_nf.aspx>.

Kansas State Department of Education (KSDE). 21 August 2007, <http://online.ksde.org/rcard/>.

Kansas Technical Manual 2006. 7 November 2007, <http://www.cete.ku.edu/>.

Kilrea, Timothy B. "A Study of the Relationship Between Extracurricular Activity Participation and the Academic Achievement of High School Students". (Doctoral Dissertation, Illinois State University, 1998). ProQuest Dissertations and Theses, AAT 9924349.

Kleese, Edward J. "Student Activities: The Third Curriculum II". National Association of Secondary School Principals (1994).

Lewis, Charla Patrice. "The Relation between Extracurricular Activities with Academic and Social Competencies in School Age Children: A Meta-Analysis". (Doctoral Dissertation, Texas A&M University, 2004). ProQuest Dissertations and Theses, AAT 3189504.

Marsh, Herbert W. and Sabina Kleitman. "Extracurricular School Activities: The Good, the Bad, and the Nonlinear", Harvard Educational Review. Winter (2002), 464-511.

McCarthy, Dr. Kevin J. "The Effects of Student Activity Participation, Gender, Ethnicity, and Socio-Economic Level on High School Student Grade Point Averages and Attendance", National Association of African American Studies & National Association of Hispanic and Latino Studies Literature Monograph Series. February (2000), 409-424.

Merrium-Webster. Webster's Third New International Dictionary (3rd ed.). Springfield, Massachusetts: Merrium-Webster, Incorporated (1993).

Milhoces, G. "Athletes adept at getting jump on their studies". USA Today, 16 May 1996, 1-2c.

Miller, John S. "An examination of academic achievement and the development of personal attributes of students participating in extracurricular activities in two rural Idaho high schools" (Doctoral dissertation, University of Idaho, 2004). ProQuest Dissertations and Theses, AAT 3123843.

National Center of Education Statistics (NCES). "Table 2. Enrollment in educational institutions, by level and control of institution: selected years, fall 1980 through fall 2006". 22 August 2007, <http://nces.ed.gov/programs/digest/d06/tables/dt06_002.asp>.

National Center of Education Statistics (NCES). "Table 26. Expenditures of educational institutions, by level and control of institution: Selected years, 1899-1900 through 2005-06". 22 December 2007, <http://nces.ed.gov/programs/digest/d06/tables/dt06_026.asp?referer=list>.

National Center of Education Statistics (NCES). "Table 34. Enrollment in public elementary and secondary schools, by level, grade, and state or jurisdiction: Fall 2003". 29 June 29 2007, <http://nces.ed.gov/programs/digest/d05/tables/xls/tabn034.xls>.

National Center of Education Statistics (NCES). "Table 138. Percentage of high school sophomores who participate in various school-sponsored extracurricular activities, by selected student characteristics". 20 June 2007, <http://nces.ed.gov/programs/digest/d05/tables/xls/tabn138.xls>.

National Center of Education Statistics (NCES). "Table 143. Percentage of high school sophomores who participate in various school-sponsored extracurricular activities,

by selected student characteristics". 17 December 2007, <http://nces.ed.gov/programs/digest/d06/tables/xls/tabn143.xls>.

National Federation of State High School Associations. "The case for high school activities". 27 June 2006, <http://www.nfhs.org/scriptcontent/Va_custom/vimdisplays/contentpagedisplay.cfm?content_ID=163>.

Neish, Mark A. "Student Activities and Academic Achievement at Marysville High School", National Association of Secondary Principals, (1993) 1-10.

Olathe School District website. 20 November 2006, <http://www.olatheschools.com>.

Pepe, Thomas J. and Alice L Tufts. "Pay for Play: Fees for Cocurricular activities", Legal Memorandum. 9 November 1984.

Phi Delta Kappa/Gallup Poll 32nd Edition. 27 June 2006, <http://www.pdkintl.org/kappan/kpol0009.htm#4a>.

Rozelle, Zach D. "Nontraditional Revenue Sources Being Used by Indiana School Corporations and Indiana High Schools" (Doctoral Dissertation, Ball State University, 2006). ProQuest Dissertations and Theses, AAT 3209434.

Salkind, Neil J. Statistics for People Who Think They Hate Statistics. Thousand Oaks, California: Sage Publications, 2005.

Stencel, Jonathan Richard. "A Study of the Relationship Between Interscholastic Athletic Participation and Academic Achievement For a group of Tennessee High School Students" (Doctoral Dissertation, Union University, 2005). ProQuest Dissertations and Theses, AAT 3197287.

Stephens, Larry J. and Laura A. Scaben. "The Effect of Interscholastic Sports Participation on Academic Achievement of Middle Level School Students", National Association of Secondary Principals, NASSP Bulletin. March (2002), 34-41.

U.S. Census Bureau (2003). 21 August 2007, <http://www.census.gov/prod/2004pubs/p20-550.pdf>.

VanDuyne, Dennis W. "The Effects of Extracurricular Engagement on Students' Academic Achievement". (Doctoral Dissertation, Purdue University, 2004). ProQuest Dissertations and Theses, AAT 3166717.

Whitley, Roger L. "Those Dumb Jocks' Are at It Again: A comparison of the educational performances of athletes and nonathletes in North Carolina High Schools form 1993 through 1996", The High School Journal. April/May (1992), 223-233.

Zaugg, Holt. "Academic Comparison of Athletes and Non-Athletes in a Rural High School". NASSP Bulletin, September (1998), 63-72.

Appendix

Table 21

Number of Participants per Co-curricular Activity in Grades 7 through 9 for the 2006-2007 School Year

ACTIVITY	# of Students		ACTIVITY	# of Students
BATTLE OF THE BOOKS	191		LEADERSHIP ORGANIZATION	159
ART	121		LIBRARY COUNCIL	54
BAND	1,162		MATH COUNTS	85
BASKETBALL	527		NEWSPAPER	84
CHEERLEADING	145		ORCHESTRA	470
COMMUNITY/SCHOOL SERVICE	129		PEP	1,396
CREATIVE WRITING	29		PROBLEM SOLVING	145
DANCE/DRILL TEAM	146		SCIENCE OLYMPIAD	133
DEBATE	46		STUDENT COUNCIL	320
DRAMA	538		TECHNOLOGY	33
FITNESS/WELLNESS	91		TRACK	1,423
FOOTBALL	564		VOCAL MUSIC	1,007
HIGH SCHOOL SPORTS	199		VOLLEYBALL	236
KANSAS ASSOCIATION FOR YOUTH	286		YEARBOOK	90

Source of Information: Olathe District Schools, 2007

Table 22

Number of Participants per Co-curricular Activity in Grades 10 through 12 for the 2006-2007 School Year

ACTIVITY	# of Students		ACTIVITY	# of Students
ACADEMIC DECATHLON	12		NATIONAL HONOR SOCIETY	427
BAND	506		ORCHESTRA	271
BASEBALL	132		SASH	135
BASKETBALL	220		SCHOLAR BOWL	46
BOWLING	103		SCIENCE OLYMPIAD	50
BUSINESS MEN AND WOMEN	119		SOCCER	242
CHEERLEADING	130		SOFTBALL	93
CROSS COUNTRY	140		SPEAKER BUREAU	25
CULINARY ARTS	35		STUDENT AMBASSADORS/MENTORS	190
DANCE/DRILL TEAM	121		STUDENT COUNCIL	282
DEBATE	132		STUDENT DEVELOPMENT	631
DRAMA	305		STUDENT NATURALIST	122
FASHION	87		SWIMMING	119
FOOTBALL	340		TECHNOLOGY	88
FOREIGN LANGUAGE	172		TENNIS	114
FORENSICS	78		TRACK	421
FUTURE TEACHERS OF OLATHE	39		VOCAL MUSIC	601
GOLF	84		VOLLEYBALL	115
GYMNASTICS	30		WRESTLING	101
JOURNALISM	82		YEARBOOK	76
KANSAS ASSOCIATION FOR YOUTH	137			

Source of Information: Olathe District Schools, 2007

Table 23

Co-curricular Participation for Grades 7-12 by Gender for the 2006-2007 School Year

	Involvement in 1 or more Co-Curricular Activity		No Co-curricular Activity Involvement		TOTALS
MALE	3,853	69%	1,711	31%	5,564
FEMALE	4,207	80%	1,072	20%	5,279
TOTALS	8,060	74%	2,783	26%	10,843

Source of Information: Olathe District Schools, 2007

Table 24

Co-curricular Participation for Grades 7-12 by Ethnicity for the 2006-2007 School Year

	Involvement in 1 or more Co-Curricular Activity		No Co-curricular Activity Involvement		TOTALS
American Indian	31	63%	18	37%	49
Asian	247	69%	113	31%	360
African American/ Black	569	75%	187	25%	756
Hispanic	466	56%	367	44%	833
White	6,615	76%	2036	24%	8651
Multi	132	68%	62	32%	194
TOTALS	8,060	74%	2783	26%	10843

Source of Information: Olathe District Schools, 2007

Table 25

Interpretation of Cohen's *d*

Cohen's Standard	Effect Size	Percentile Standing	Percent of Non-overlap
	2.0	97.7	81.1%
	1.9	97.1	79.4%
	1.8	96.4	77.4%
	1.7	95.5	75.4%
	1.6	94.5	73.1%
	1.5	93.3	70.7%
	1.4	91.9	68.1%
	1.3	90	65.3%
	1.2	88	62.2%
	1.1	86	58.9%
	1.0	84	55.4%
	0.9	82	51.6%
LARGE	0.8	79	47.4%
	0.7	76	43.0%
	0.6	73	38.2%
MEDIUM	0.5	69	33.0%
	0.4	66	27.4%
	0.3	62	21.3%
SMALL	0.2	58	14.7%
	0.1	54	7.7%
	0.0	50	0%

Obtained from http://web.uccs.edu/lbecker/Psy590/es.htm

Appendix A

21 February 2007

Bill Weber
17351 W 163rd St
Olathe, KS 66062

1858
BAKER
UNIVERSITY

Dear Mr. Weber:

The Baker University IRB has reviewed your research project proposal (P-0026-0207-0221-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 proposal.
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,

Marc L Carter, PhD
Chair, Baker University IRB

CC: Karl Krawitz

Appendix B

Olathe
Unified School District 233

May 1, 2007

Bill Weber, Principal
Chisholm Trail Jr. High School

Dear Bill:

Your research project, Student Involvement in Co-Curricular Activities and Success on Kansas Assessments, has been approved with the following criteria:

- The project goals are aligned with the district and building school improvement goals.
- Carolyn Good, Project Coordinators, Instructional Resource Center, (913) 780-8169, will serve as district contact for the project.
- A summary report should be submitted following the completion of your project. Please submit the report to me at the address listed below.

Olathe staff members look forward to working with you throughout the project. If you should have any questions or require any assistance, please contact me at the R.R. Osborne Instructional Resource Center (913-780-7006).

Sincerely,

Barbara Russell

Barbara Russell
Research Project Facilitator