EFFECT OF ATTENDANCE ON MISSOURI ACHIEVEMENT PROGRAM
COMMUNICATION ARTS AND MATHEMATIC SCORES FOR RURAL,
SUBURBAN AND URBAN SCHOOLS

By

SHIRLEY KANTOLA AND AMY TOEBBEN

Submitted to
The Educational Leadership Faculty
Northwest Missouri State University Missouri
Department of Educational Leadership
College of Education and Human Services
Maryville, MO 64468

Field Study Committee Members
Dr. Timothy J. Wall

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ABSTRACT

The major purpose of this research was to describe the relationships between rural and suburban attendance rates and academic achievement. A secondary purpose of this research was to explore the relationship between student socioeconomic status and location of school. The study used existing data from Missouri Assessment Program (MAP) for the third, fifth, and seventh grade students Communication Arts (CA) and Mathematics (MA) assessments. Advanced and proficient scores were collected from rural, suburban and urban school districts in Missouri. 2012-2013 attendance data was collected as the percentage of hours absent from 499 Missouri school districts. Socioeconomic status was determined by the districts percentage of students who qualified for free and reduced lunch. Attendance rates for rural, suburban and urban schools districts were shown to have a statistically significant (p=0.000 - 0.030) difference in students who attend rural, suburban, and urban schools. Socioeconomic status for rural, suburban and urban school districts was shown to have a statistically significant (p=0.000) difference in students who attend rural, suburban, and urban schools. Districts academic achievement scores for third grade MAP Communication Arts and Mathematics scores were shown to have a statistically significant (p=0.000 – 0.026) difference in students who attend rural, suburban, and urban districts. Rural and suburban school districts academic achievement scores for 5th grade MAP Communication Arts and Mathematics scores were shown not have a statistically significant (0.060 - 0.066) difference in their scores. However, MAP Communication Arts and Mathematics scores for 5th grade rural and suburban students did show a
Rural and suburban school districts academic achievement scores for 7th grade MAP Communication Arts and Mathematics scores were shown not have a statistically significant (0.444 – 0.927) difference in their scores. However, MAP Communication Arts and Mathematics scores for 7th grade rural and suburban students did show a statistically significant difference (0.000 – 0.005) when compared to their urban peers.
TABLE OF CONTENTS

ABSTRACT .................................................................................................................. 2

LIST OF TABLES ....................................................................................................... 6

LIST OF FIGURES ..................................................................................................... 9

CHAPTER ONE: INTRODUCTION TO THE STUDY .............................................. 10

  Background
  Conceptual Underpinnings
  Statement of the Problem
  Purpose of the Study
  Research Questions
  Null Hypotheses
  Anticipated Benefits of the Study
  Limitations and Delimitations of the Study
  Definition of Terms
  Summary

CHAPTER TWO: REVIEW OF RELATED LITERATURE ........................................ 20

  Overview
  Attendance
  Academic Achievement
  Socioeconomic Status
  School Location
  Summary

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY ...................... 26
Attendance, Achievement, Socioeconomic Status

Problem and Purposes Overview

Research Design

Variables Used in the Study

Research Questions

Null Hypothesis

Study Group

Data Collection and Instrumentation

Data Analysis

Summary

CHAPTER FOUR: PRESENTATION AND ANALYSIS OF DATA ..................30

Presentation of the Data Analysis by Research Question

Findings

Summary

CHAPTER FIVE: OVERVIEW, FINDINGS, AND RECOMMENDATIONS ........57

Overview

Restatement of Purpose

Discussion of Findings, Conclusions and Recommendations

Summary

REFERENCES .........................................................................................62

APPENDIX A .........................................................................................65
LIST OF TABLES

Table 1: Summary of Descriptive Statistics for Attendance Rates when considering School Location ...............................................................30

Table 2: Analysis of Variance – Summary Significant Attendance Rate Differences by School Location .................................................................31

Table 3: Summary Post Hoc Analysis Results for Test of Significance Results for Attendance Rates when Considering School Location ........................................32

Table 4: Summary of Descriptive Statistics for 3rd Grade Advanced and Proficient Communication Arts Scores by School Location ................................33

Table 5: Analysis of Variance - Summary Significant of Advanced and Proficient MAP Communication Arts Assessment Scores by School Location ...............................................34

Table 6: Summary Post Hoc Analysis Results for Test of Significance Results for 3rd Grade Advanced and Proficient score for the MAP Communication Arts Assessment when Considering School Location ............................................................35

Table 7: Summary of Descriptive Statistics for 3rd Grade Advanced and Proficient MAP Mathematics Scores by School Location ..................................................36

Table 8: Analysis of Variance - Summary Significant of Advanced and Proficient MAP Mathematics Assessment Scores by School Location ..................................................37

Table 9: Summary Post Hoc Analysis Results for Test of Significance Results for 3rd Grade Advanced and Proficient score for the MAP Mathematics Assessment when Considering School Location ..................................................38
Table 10: Summary of Descriptive Statistics for 5th Grade Advanced and Proficient Communication Arts Scores by School Location ........................................40
Table 11: Analysis of Variance - Summary Significant of Advanced and Proficient 5th Grade MAP Communication Arts Assessment Scores by School Location ...............40
Table 12: Summary Post Hoc Analysis Results for Test of Significance Results for 5th Grade Advanced and Proficient score for the MAP Communication Arts Assessment when Considering School Location .................................................................41
Table 13: Summary of Descriptive Statistics for 5th Grade Advanced and Proficient Mathematics Scores by School Location ........................................43
Table 14: Analysis of Variance - Summary Significant of Advanced and Proficient 5th Grade MAP Mathematics Assessment Scores by School Location .........................43
Table 15: Summary Post Hoc Analysis Results for Test of Significance Results for 5th Grade Advanced and Proficient score for the MAP Mathematics Assessment when Considering School Location .................................................................44
Table 16: Summary of Descriptive Statistics for 7th Grade Advanced and Proficient Communication Arts Scores by School Location ........................................46
Table 17: Analysis of Variance - Summary Significant of 7th Grade Advanced and Proficient MAP Communication Arts Assessment Scores by School Location ............47
Table 18: Summary Post Hoc Analysis Results for Test of Significance Results for 7th Grade Advanced and Proficient score for the MAP Communication Arts Assessment when Considering School Location .................................................................47
Table 19: Summary of Descriptive Statistics for 7th Grade Advanced and Proficient Mathematics Scores by School Location ........................................49
Table 20: Analysis of Variance – Summary Significant of 7th Grade Advanced and Proficient MAP Mathematics Assessment Scores by School Location ..........................50

Table 21: Summary Post Hoc Analysis Results for Test of Significance Results for 7th Grade Advanced and Proficient score for the MAP Mathematics Assessment when Considering School Location .................................................................51

Table 22: Summary of Descriptive Statistics for Free and Reduced Percentage Rate when Considering School Location .................................................................53

Table 23: Analysis of Variance – Summary Significant Free and Reduced Percentage Rate by School Location .................................................................53

Table 24: Summary Post Hoc Analysis Results for Test of Significance Results for Free and Reduced Percentage Rates when Considering School Location .................................54
LIST OF FIGURES

Figure 1: Disaggregation Graph of Attendance Rates Hours Absent by Rural, Suburban, and Urban Schools in Missouri .........................................................58

Figure 2: Disaggregation Graph of Free and Reduced Percentage by Rural, Suburban, and Urban Schools in Missouri .........................................................59
CHAPTER ONE
INTRODUCTION TO THE STUDY

Background

Educators know that students must be present for learning in order to reach their fullest potential. Throughout our history school districts have stressed the importance of student attendance by putting policies in place as accountability for students and parents to make it a priority. The State of Missouri is required to assess each school district on various areas of achievement and growth including overall district attendance rates (Missouri Department of Secondary and Elementary Education, 2013). A suburban Kansas City, Missouri district has always maintained a respectable attendance rate that the district found to be acceptable based on the Missouri State Improvement Plan (MSIP). However, during the 2012-2013 the district went down one percent in the overall district attendance rates. Although the lowered attendance percentage still met the MSIP review requirements and one percent is not that significant of a percentage based on a one hundred percent scale, the district did not show growth causing them to lose $850,000 in funding for the following school year.

The Missouri School Improvement Program has the responsibility of reviewing and accrediting the 522 school districts in Missouri. The process of accrediting school districts is mandated by state law and by State Board of Education regulation (Missouri Department of Secondary and Elementary Education, 2013). There are five standards districts are held accountable for by the State of Missouri and the State Board of Education two of which are academic achievement and attendance rates. The measurement of academic achievement is determined by results from the Missouri Assessment Program (MAP). Each school district administers assessments required by
the MAP. This assessment measures academic achievement and demonstrates improvement in the performance of its students over time. One significant impact of these assessment results is accreditation standings. For those families who have a choice in school selection, higher performing schools are more attractive to families looking for a place to raise their children. This increase of student population in a district directly affects funding the state provides those districts based on the per pupil expenditures, monies that are allotted through the state formula (Missouri Department of Secondary and Elementary Education, 2013). Determination of accreditation for school districts is also based on sub groups for individual schools within a district.

For many schools and districts low socioeconomic students are considered to be one of the subgroups reviewed and their scores on achievement tests and attendance rates directly impact the school and districts overall ratings. Low socioeconomic is a subgroup of students that have many challenges to meeting the same academic achievements that higher socioeconomic students do. In fact, when it comes to school readiness, children from poverty often do not have the same advantages as their peers. Research shows that children from low-income homes-in the first four years of life-are exposed to thirty million fewer words than those from high-income homes (Zorn, 2013). This means that when they enter the early years of their education they are often already at a disadvantage. Other challenges include mobility and lack of financial stability as well as behavior problems. There are often elevated levels of externalizing problems, such as aggression and acting out, and internalizing problems, such as depression and anxiety (Magnuson and Votruba-Drzal, 2009).
Not only has attendance become a high priority for students availability for learning, but it is also beginning to affect how districts will be able to meet the needs of the student population if funding is reduced. Districts must find ways to ensure students are attending school on a regular basis so it is through this study research will indicate model districts that have high attendance rates and achievement scores and determine if lower socioeconomic status is a factor in their success to meet MSIP standards (Missouri Department of Secondary and Elementary Education, 2013).

*Conceptual Underpinnings for the Study*

Educators know that students are most successful when they are present and in the classroom for learning. Unfortunately, teachers, administrators, and counselors continue to work against chronic absenteeism in schools. Nationwide, 5-7.5 million students are chronically absent each year, a problem that contributes to higher dropout rates and wider achievement gaps (Balfanz and Byrnes, 2012). Most schools look at overall attendance rates; however, they do not always examine individual student attendance rates. If a student misses ten percent of the school year they are considered to have chronic absenteeism (Balfanz and Byrnes, 2012; Jacobson, 2008; Chang, 2010) and are usually in academic trouble. It is imperative define chronic absenteeism in order to know what researchers are referring to. Furthermore, school officials need to have this understanding to put programs and systems in place to improve attendance rates for individual students and not just the overall district percentages.

According to a study conducted in Delaware in 2008, the higher the rate of absenteeism reduced academic performance as measured by standardized mathematics and language tests. The study took place over a three-year time span and included
students from grades eight to ten. The study controlled for variables such as gender, ethnicity, and socioeconomic factors (Paredes, R.D. and Ugarte, G.A, 2011). In 2004 another study was conducted in Chicago with a reduced sample of students at a public secondary school in Chicago. The study concluded that a moderate to strong positive correlation between attendance and average graded existed. The study also concluded that if students were not attending classes, they did not have the necessary interaction for learning (Paredes, R.D. and Ugarte, G.A, 2011). Therefore, there is a sense of urgency for students to attend school in order to reach proficiency on standardized tests, but one must also consider the reasons students are not attending.

In their research Balfanz and Chang (Principal Leadership, 2013) found there to be three categories to describe absences: discretion, aversion, and barriers. The information presented by the researchers indicates that within these categories of absences there is a need to examine if the socio economic status of students directly affects their attendance rates. Students miss classroom time due to lack of insurance to prevent and treat illnesses quickly, mobility issues (moving often), and economic conditions that cause students to earn money for their family (Ready, 2001). Students affected by these factors fall into the category of low socioeconomic status.

According to a study using data from the Children of the National Longitudinal Survey of Youth (NLSY) and the Infant Health and Development Program (IDHP) comparing children in families with incomes between one fifth and twice the poverty threshold, the poorer children scored between six and thirteen points lower on various standardized tests of IQ, verbal ability and achievement (Brooks-Gunn and Duncan, 1997). These differences are very large from an educational perspective and were present
even after controlling for maternal age, marital status, education, and ethnicity. A six to thirteen point difference might mean, for example, the difference between being placed in a special education class or not (Brooks-Gunn and Duncan, 1997). The challenges they face make attending school and being present in the classroom for learning to be even more important.

Another study conducted by the U.S. Department of Education found that for every year a child spends in poverty, there is the chance that the child will fall behind grade level by age eighteen (Driscoll and Nagel, 2012). The Children’s Defense Fund estimates that every year of child poverty at current levels will cost the nation at least thirty-six billion dollars in lost future productivity alone, because poor children will be less educated and less effective workers (Driscoll and Nagel, 2012). Theories suggest that experiencing poverty during childhood may affect one’s life chances by increasing family stress and reducing parental involvement (Manguson and Votruba-Drzal, 2009). All of these are factors of these students’ lives that must be combatted with intervention and focus on getting them to school for them to succeed in academics.

An additional factor many lower socioeconomic students exhibit is that of behavior problems. So often students living in poverty are typically rated by their parents and teachers as having more behavior problems than their peers (Manguson and Votruba-Drzal, 2009). There are elevated levels of externalizing problems, such as aggression and acting out, and internalizing problems, such as depression and anxiety; in adolescence and later adulthood, in higher rates of nonmarital fertility and criminal activity (Manguson and Votruba-Drzal, 2009). When students have significant behavior
problems is makes it more difficult to focus on academics and often takes them away from the classroom setting to receive the most direct instruction on their level.

According to the National Center for Education Statistics (2010), nearly one-half of the nation’s student populations attend rural schools. School location then becomes an important factor when researching if where schools are located affects their attendance rate and achievement scores on standardized tests. Because all schools districts in Missouri participate in the Missouri Assessment Program (MAP) (Missouri Department of Secondary and Elementary Education, 2013), it would be important to compare urban, suburban, and rural districts to determine if there was significant differences in attendance and performance and, if so, what those differing factors would include.

Statement of the Problem

Though Chang, (2010), Paredes and Ugarte (2011), and Schiming (2013), chronicle the effects of students attending school, it has not been empirically demonstrated that this directly affects the academic performance between rural and suburban, and urban schools. There is a lack of information on academic performance and attendance rate when comparing the three school locations: rural, suburban, and urban districts. Even though school districts report their daily average attendance rates, in the state of Missouri many schools have a percentage rate in the ninety percent or higher range. Does this high of an attendance rate have a relationship to districts scoring advanced and proficient on the Missouri Assessment Program? Or does the location of the school make a difference on achievement scores?
Purpose of the Study

Although there are many factors that impact student attendance in schools, there is little research on how Missouri schools maintain a high percentage of attendance rates. This study will attempt to determine if there is a difference in school location and student attendance rates and the role this plays in student achievement. This study will also attempt to determine if socio economic factors affect achievement in rural, suburban, and urban schools.

Research Questions

RQ1: Is there a difference between attendance rates in rural, suburban, and urban schools in Missouri?

RQ2: Is there a difference between attendance rates and academic performance, as defined by Missouri Assessment Program Communication Arts and Mathematics tests, of rural, suburban, and urban schools in Missouri?

RQ3: Is there a difference between socioeconomic status, as defined by free and reduced percentages, of rural, suburban, and urban schools in Missouri?

Null Hypothesis

H₀₁: There is no significant difference between attendance rates in rural, suburban and urban schools in Missouri.

H₀₂: There is no difference between attendance rates and academic performance, as defined by Missouri Assessment Program Communication Arts and Mathematics tests, of rural, suburban, and urban schools.
H₀₃: There is no difference between socioeconomic status, as defined by free and reduced percentages, of rural, suburban, and urban schools in Missouri.

*Anticipated Benefits of the Study*

The benefits of this study will provide information on whether there is a difference between school locations (rural, suburban, and urban) and academic performance. Other benefits include discovering if there is a difference between school location and socioeconomic status. A final benefit of the study will be to ascertain the difference between attendance rates of rural, suburban and urban school districts.

*Limitations and Delimitations*

One limitation of this study is that the Missouri Assessment Program does not truly measure everything that students have learned in an academic year. This assessment does not measure a student’s attitude or other emotional factors that can affect testing results. Another limitation of this study is the percentage of free and reduced students per school district is dependent on families enrolling for this program. Some families are too embarrassed or proud to apply for this assistance so inaccurate data may not be portrayed. Measuring all the characteristics of poverty is not reflected in this study. A third limitation is that district attendance data is based on an average daily attendance rate and does not reflect chronic absences of individual students.

Delimitations of this study include that only Missouri assessment data was collected for 3rd, 5th, and 7th grade students. A second delimitation is that attendance data and free and reduced data were only collected from the state of Missouri for this study.
Definition of Terms

The following terms and definitions were used by this study.

Attendance: Attendance was defined as the mean of hours absent in a given school year.

Missouri Assessment Program (MAP): This standardized test used by the State of Missouri is used to measure students’ progress in meeting the Show-Me Standards and Grade Level Equivalent strands. The test includes assessments in Communication Arts, Mathematics and Science, which are required for grades 3-8. Scale scores are reported in four different criteria levels: Below Basic, Basic, Proficient, and Advanced. For the purpose of this study data was collected for the Proficient and Advanced levels.

Socioeconomic Status: The percentage of students who qualify for free and reduced lunch status was used to determine socioeconomic status of a district.

Summary

This study attempted to determine if there is a difference between attendance rate and academic achievement in rural, suburban and urban schools. School funding in Missouri is partially based on achievement scores and attendance rates as measured by the Missouri School Improvement Program. State funding causes these factors to be a high priority for Missouri schools. Research has shown a link between student academic performance and attendance rates on standardized assessments.

Attendance rates are calculated on an average daily rate for school districts, which causes many district to meet the required ninety percent standard from the Missouri Department of Secondary and Elementary Education. According to research if a student misses ten percent of the school year they are considered to have chronic absenteeism (Balfanz and Byrnes, 2012; Change, 2012; Jacobson, 2008). Schools must work to
improve individual student attendance and not just focus on overall school attendance rates.

Most low socioeconomic students have a disadvantage for being successful in academic achievement because they are exposed to fewer words and vocabulary to make them successful (Zorn, 2013). There are large differences in experiences higher socioeconomic students have and lower socioeconomic students have and this is evident from scores on IQ tests including verbal ability and achievement (Brooks and Duncan, 1997). In addition to these challenges, researchers (Ready, 2001; Chang, 2010; Manguson and Drzal, 2009) agree that factors such as health, mobility and family stressors play a major role in students missing school. Students who exhibit behavior problems also prevent themselves from participating fully in their academic experiences. If students are not at school and present in the classroom they are not learning as much as they could; therefore, suffering academically and making them potentially less productive and effective workers in their future (Driscoll and Nagle, 2012).

When considering differences in students it is important to study school location and it’s potential influence on attendance and achievement. Nearly one-half of the nations students attend rural schools and the lack of information on academic performance and attendance rate comparing these schools to their suburban and urban counterparts demonstrates the need for more research.
CHAPTER TWO
REVIEW OF RELATED LITERATURE

It makes sense that dropout patterns are linked with poor attendance from the beginning of a child’s educational career. Children who are chronically absent in kindergarten have the lowest performance in reading, mathematics, and general knowledge in 1st grade (Jacobson, 2008). In a study done by Daugherty in Delaware he concluded that after students were absent just fifteen times their average scores on the standardized math assessment fell below the required state limit (Paredes, R. D. and Ugarte, G. A., 2011). Minnesota State University’s (Schiming, 2013) research states that the greatest influence on student performance is the time spent in the classroom, the second largest effect on student performance is any time spent in discussion that supplements the lecture, and the third largest impact on performance is the time spent outside a class in preparation for the class itself (Schmidt, 1983). When school personnel, parents, and community members make attendance issues a priority there is a greater chance of reducing the absenteeism rate.

Attendance

Chronic absenteeism is becoming a problem for many school districts. It is impossible for students to get the complete school experience when they are not present. Chronic absenteeism is not the same as truancy or average daily attendance – the attendance rate schools use for state report cards and federal accountability. Chronic absenteeism means missing ten percent of a school year for any reason (Belfanz & Brynes, 2012). A school can have ninety-five percent average daily attendance and twenty-five percent of students chronically absent (Belfanz & Change, 2013). Even
though absenteeism is a concern with students’ grades kindergarten through twelfth grade, it seems to be having a much larger impact on the youngest students. What many educators might not realize however is that thousands of our youngest students are at risk because they are chronically absent, missing ten percent or more of school over the course of an academic year. Nationwide, nearly one out of ten kindergarteners and first graders are chronically absent (Chang, 2010). The impact of them missing is significant in their early academics that sets them on course for the remainder of their academic career (Jacobson, 2008). Nationwide, 5-7.5 million students are chronically absent each year, a problem that contributes to higher dropout rates and wider achievement gaps (Balfanz & Byrnes, 2012). It is important to clearly define chronic absenteeism, as days tend to add up quickly as the school year progresses.

While there are many excuses for students not to attend school, most reasons fit into three categories; the students cannot attend, will not attend, or do not attend school. Balfanz and Chang use three categories to explain absences: discretion, aversion, and barriers (Principal Leadership, 2013). Reason for why students cannot attend school can be attributed to illness, responsibilities for family members, legal issues, the need to work, and uncertain housing situations. These barriers keep students from attending school on a consistent day-to-day basis. In an effort to avoid bullying or unsafe condition students will chose not to attend school. Students’ aversion to attending school could be based on these conditions or the anxiety that these conditions cause. Parent partnership and their view of the importance of school is also a factor that affects attendance. This discretion results in students and parents to devalue the educational experience, which causes attendance to not be a priority. Legal authority for the state to require school
Attendance, Achievement, Socioeconomic Status

Attendance is found in the common law doctrine of *parens patriae*, which maintains, essentially, that as a parent to all persons, the state has the inherent prerogative to provide for the commonwealth and individual welfare (Alexander & Alexander, 2005). So as a guardian to everyone the state can legally protect those who cannot protect themselves, which applies to school aged children who are not attending school. According to Sheppard (2009), parental involvement affected children’s achievement more than school procedures, especially in the primary years.

*Academic Achievement*

There is little doubt among researchers and educators that missing school has an adverse relationship with academic success (Balfanz & Byrnes, Vaughan, 2012; Chang, 2010; Jacobson, 2008). If children are not in school the odds of academic success is decreased. On average, children missing ten percent or more of the school year scored five points less than did those who were absent up to three percent of the school year in kindergarten. Kindergarten and first-graders that are chronically absent are far less likely to be reading at their present grade level by third grade. That reading ability is critical for students to succeed in their ensuing school years (Husk, 2013). By sixth grade, chronic absences are an indicator that students are at risk of dropping out of school. By ninth grade, good attendance is an even better predictor of high school graduation than eighth grade test scores are (Husk, 2013). Being on time and having regular attendance is a life skill that all students must learn.

Within the literature, absences have been upheld as having a consistently negative association with multiple measures of student achievement (Gottfried, 2011). Poor attendance averages in school buildings was determined to be one of the factors leading...
to student test scores being much lower than classmates (Gottfried, 2011). The adverse affects of lower exams scores include higher percentage of students dropping out of school, developing substance abuse issues, and an increased chance of future unemployment (Gottfried, 2011).

**Socioeconomic Status**

When looking closer at the effects of absenteeism on academic achievement socioeconomic factors must also be considered. Absenteeism rates are higher in families that earn a lower income. Compared to more affluent students, children living in poverty are twenty-five percent more likely to miss three or more days of school per month (National Center for Education Statistics, 2006). Student mobility, substandard housing, serious health concerns and lack of medical care are contributing factors to absenteeism. Disadvantage children are more likely to move more frequently during their school career leading to a lack of consistent educational opportunities. Even when these students do have stable housing it tends to be of poorer quality, which can lead to exposure to pollutants and other health risks. As a result, they are much more likely to be frequently absent from school due to illness or injury. Due to the lack of accessible private health care and insurance, many minor ailments may persist and lead to more serious health concerns, which often lead to longer absences from school.

**School Location**

Typically a school’s distance from an urban center will define whether or not it qualifies as a rural school. (National Center for Education Statistics, 2010). However, most states do not have set criteria for determining if a school district is rural, urban, or
suburban. It is not uncommon for some school districts’ status to change over the course of time. As suburban districts continue to grow larger, some of the rural districts may change to suburban. It is important to evaluate each district when researching in order for the information regarding school locations to be accurate.

Nationwide, nearly one-half of all nations’ student population attends a rural school (National Center for Education Statistics, 2010). A great deal of focus has been directed towards reforming urban school even though there is a large disparity in the economic and educational standing of rural schools. Educational reports show rural schools score lower than their suburban school districts in reading, math and science assessment for fourth and eighth grade students. High school graduation rates mirror this trend with graduation rates for rural high schools at seventy-three percent situated slightly below suburban high schools at seventy-four percent and considerably higher than that of urban areas at fifty-nine percent (Alliance for Excellent Education, 2010). Students whose parents are more educated tend to do better on measures of academic achievement, and parent education levels tend to be lower in rural than urban and suburban communities (Graham & Provosts, 2012).

Positive aspects to rural schools include the tendency to have a high level of community involvement supportive families. Because the communities work so closely together it tends to be easier to track students attendance and know what support families or students might need. Rural schools also tend to have smaller class sizes making it easier for students to receive more individualized instruction from teachers. Along with the positive aspects of rural schools, there are also cons. Due to the lack of funding in smaller schools there is not the ability to update textbooks that sometimes put students at
a disadvantage with out of date information. Due to an increasing number of English Language Learners in rural schools, districts are struggling to meet the financial demands to support the programs implemented from No Child Left Behind (Alliance for Excellent Education, 2010). The lack of funding to rural districts has affected their funding for transportation and additionally teacher recruitment has proven to be a challenge because they cannot compete with the salary schedules of suburban schools.

Summary

It is critical that data is used to determine who and what prevents students from coming to school so a plan can be put into place. The principal plays a major role in increasing the attendance percentages of the school. Roby (2013) suggests student attendance should be charted and monitored weekly, since high attendance rates are indicators of effective schools. After data is collected, the principal may make decisions of how to support families in intervention. Efforts to increase attendance include rewards, free breakfasts, announcements over the intercom system, certificates of recognition, and letters of praise (Paredes & Ugarte, 2011). Whether or not children have the opportunity to reach their potential depends, in part, on whether they are present at school, starting in kindergarten, so they can learn. Students who have been absent require opportunities to learn what they have missed and subsequently to demonstrate what they know, understand, and can do, regardless of the reason for the absence (O’Connor, 2011).
CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

Research Design

Data was collected for this research study from rural, suburban, and urban school districts in Missouri based on district attendance rates and third, fifth, and seventh grade Missouri Assessment scores. An analysis of variance (ANOVA) was used to compare attendance rates of rural, suburban and urban school districts and their advanced and proficient scores on the MAP Communication Arts (CA) and Math (MA) tests at the third, fifth and seventh grade levels. An alpha level of 0.05 was set by the researcher to determine acceptance of the null hypothesis as suggested by Kranzler (2011) and Trochim (2006).

Variables Used in the Study

Independent and dependent variables were used in this study. The independent variable was the attendance rate for different location of the school districts as categorized by rural, suburban and urban settings. The dependent variable was the percentage of students who scored proficient and advanced on the Missouri Assessment Program for the third, fifth, and seventh grade.

Research Questions

RQ1: Is there a difference between attendance rates in rural and suburban schools?

RQ2: Is there a difference between attendance rates and academic performance of rural and suburban schools?

RQ3: Is there a difference between socioeconomic status, as defined by free and reduced percentages, of rural, suburban, and urban schools?
Null Hypothesis

NH$_{1}$: There is no significant difference between attendance rates in rural and suburban schools.

NH$_{2}$: There is no significant difference between attendance rates and academic performance or rural and suburban schools.

NH$_{3}$: There is no difference between socioeconomic status, as defined by free and reduced percentages, of rural, suburban, and urban schools.

Study Group

The study group was made up of third, fifth and seventh grade students from 449 school districts in Missouri’s rural, suburban and urban schools. The scores from the 2013 Missouri Assessment Program Communication Arts and Mathematics assessment and 2013 attendance rates were compared for these specific groups of students. Using a map of Missouri school districts, suburban schools were determined by using a 20-mile radius from the center of an urban school and rural schools were determined by using a 20-mile radius from suburban schools.

Data Collection and Instrumentation

Data was collected from the Department of Elementary and Secondary Education (DESE) website. All scores came from those students who scored in the Advanced and Proficient range on the 2013 Missouri Performance Assessment (MAP). Student scores were collected for the third, fifth, and seventh grade Communication Arts and Mathematics Assessments from rural, suburban and urban school districts of Missouri. The MAP test is a standardized state assessment used in Missouri to compare
districts and specific schools. Scores within the advanced and proficient range were selected to compare districts in this study. Attendance rates for the year 2013 were also collected from the DESE website to compare attendance rates of rural, suburban, and urban school districts.

**Data Analysis**

Several specific Analysis of Variance (ANOVA) tests were run to collect the data for this research. An ANOVA was run on Missouri Assessment Program advanced and proficient scores for the Communication Arts and Mathematics assessments at the third, fifth and seventh grade levels. An ANOVA was also run on attendance rates of rural, suburban, and urban schools in the state of Missouri. An analysis of variance (ANOVA) is used to test for statistical significance of the differences among the means of two or more groups (Kranzler, 2011). The ANOVA starts with the total amount of variability in the data and divides it up into various categories (Kranzler, 2011).

**Summary**

This chapter presented the Research Design, Variables Used in the Study, Research Questions, Null Hypotheses, Study Group, Data Collection and Instrumentation, and Data Analysis.

This study will attempt to determine if there is a difference in attendance rates for rural, suburban and urban schools. It will also determine if academic achievement of these rural, suburban and urban schools is affected by attendance. A final purpose of this study is to determine if low socioeconomic status is a factor in a school districts academic achievement. In this study academic achievement is measured by collecting proficient and advanced scores from the third, fifth, and seventh grade Missouri Assessment
Program (MAP). Data from 499 Missouri School Districts was collected in an Excel spreadsheet and an Analysis of Variance (ANOVA) test was run to determine the statistical significance between rural, suburban and urban school districts.
CHAPTER FOUR
FINDINGS AND RESULTS FROM DATA ANALYSIS

Presentation of the data Analysis by Research Question

Results for Research Questions #1:

Research Questions

RQ1: Is there a difference between attendance rates in rural, suburban, and urban schools in Missouri?

Null Hypothesis

H₀₁: There is no significant difference between attendance rates in rural, suburban and urban schools in Missouri.

For this question the ANOVA was used to determine the difference between attendance rate percentages when considering school location, as defined by rural, suburban, and urban schools.

ANOVA - ATTENDANCE RATE FOR PERCENTAGE OF HOURS ABSENT DURING THE 2012-2013 SCHOOL YEAR

Table 1

Summary of Descriptive Statistics for Attendance Rates when considering School Location

<table>
<thead>
<tr>
<th>School Type</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>399</td>
<td>95.14</td>
<td>0.78</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>36</td>
<td>94.84</td>
<td>0.86</td>
</tr>
<tr>
<td>3 - urban</td>
<td>14</td>
<td>93.90</td>
<td>1.83</td>
</tr>
</tbody>
</table>

Table one gives a summary of descriptive statistics for percentage of attendance rates. Group one consisted of students who attend rural schools. Group two consisted of
students who attend suburban schools. Group three consisted of students who attend urban schools. Group one consisted of 399 school districts and had a group mean attendance percentage 95.14 percent. Group 2 consisted of 36 school districts and had a mean of 94.84. Group 3 consisted of 14 school districts and had a mean score of 93.90.

Table 2

*Analysis of Variance - Summary Significant Attendance Rate Differences by School Location*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Location</td>
<td>23.28</td>
<td>2</td>
<td>11.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance Rates</td>
<td>315.7</td>
<td>446</td>
<td>0.71</td>
<td>16.45</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of ANOVA test of significance results for attendance rates for rural, suburban, and urban schools. The independent variable was the rural, suburban and urban school districts. The dependent variable was the attendance rate for each school location. The sum of squares for School Location was 23.28 and the degrees of freedom was 2. The sum of squares for the Attendance Rates was 315.73 and the degrees of freedom was 446. The mean square for Attendance Rates was 0.71. The f value was 16.45. The alpha level was 0.05 and the p-value was 0.000. The null hypothesis was rejected because the p-value was less than the alpha level, reflecting a statistically significant difference. A post hoc pair wise comparison analysis was done and is summarized below.
Table 3

Summary Post Hoc Analysis Results for Test of Significance Results for Attendance Rates when Considering School Location

<table>
<thead>
<tr>
<th>School Location</th>
<th>School Location</th>
<th>Mean $D$</th>
<th>Std. Error</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>2 - suburban</td>
<td>0.30</td>
<td>2.18</td>
<td>0.030</td>
</tr>
<tr>
<td>1 - rural</td>
<td>3 - urban</td>
<td>1.25</td>
<td>5.47</td>
<td>0.000</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>3 - urban</td>
<td>0.95</td>
<td>2.49</td>
<td>0.016</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of the Post Hoc Analysis for the Attendance Rates for rural, suburban and urban schools. Group one represents students from rural schools. Group two represents students from suburban schools. Group three represents students from urban schools. The first row summarized the comparison between groups one and two, the rural and suburban school districts. The mean difference between groups one and two was 0.30. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups one and two. The $p$-value was 0.030 and the alpha level was 0.05. The $p$-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted. There is a statistically significant difference between the attendance rates for rural and suburban schools.

The second row summarized the comparison between group one and group three. The mean difference between groups one and three was 1.25. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups one and three. The $p$-value was 0.000 and the alpha level was 0.05. The $p$-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted.
There was a statistically significant difference in attendance of students who attended rural and urban schools.

The third row summarized the comparison between group two and group three. The mean difference between groups two and three was 0.95. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups two and three. The p-value was 0.016 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted.

There was a statistically significant difference in attendance of students who attended suburban and urban schools.

RQ2: Is there a difference between attendance rates and academic performance, as defined by Missouri Assessment Program Communication Arts and Mathematics tests, of rural, suburban, and urban schools in Missouri?

H₀₂: There is no difference between attendance rates and academic performance, as defined by Missouri Assessment Program Communication Arts and Mathematics tests, of rural, suburban, and urban schools.

For this question the ANOVA was used to determine the difference in 3rd, 5th, and 7th grade Advanced and Proficient MAP Communication Arts and Mathematics scores.

ANOVA- 3rd GRADE COMMUNICATION ARTS SCORES

Table 4

Summary of Descriptive Statistics for 3rd Grade Advanced and Proficient Communication Arts Scores by School Location

<table>
<thead>
<tr>
<th>School Type</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
</table>


Table four gives a summary of descriptive statistics for 3rd grade advanced and proficient score for the MAP Communication Arts Assessment. Group one consisted of students who attend rural schools. Group two consisted of students who attend suburban schools. Group three consisted of students who attend urban schools. Group one consisted of 399 school districts and had a group mean MAP score of 47.47 percent. Group 2 consisted of 36 school districts and had a group mean MAP score of 53.27. Group 3 consisted of 14 school districts and had a group mean MAP score of 28.09.

Table 5

*Analysis of Variance - Summary Significant of Advanced and Proficient*

*MAP Communication Arts Assessment Scores by School Location*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Location</td>
<td>6463.52</td>
<td>2</td>
<td>3231.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd Grade CA Scores</td>
<td>87731.46</td>
<td>446</td>
<td>196.71</td>
<td>16.43</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of ANOVA test of significance results for 3rd grade advanced and proficient scores for the MAP Communication Arts Assessment for rural, suburban, and urban schools. The independent variable was the rural, suburban and urban school districts. The dependent variable was the 3rd grade advanced and proficient MAP CA scores for each school location. The sum of squares for School Location was
6463.52 and the degrees of freedom was 2. The sum of squares for the communication arts scores was 87731.46 and the degrees of freedom was 446. The mean square for 3\textsuperscript{rd} grade advanced and proficient score for the MAP Communication Arts Assessment was 196.71. The f value was 16.43. The alpha level was 0.05 and the p-value was 0.000. The null hypothesis was rejected because the p-value was less than the alpha level, reflecting a statistically significant difference. A post hoc pair wise comparison analysis was done and is summarized below.

Table 6

**Summary Post Hoc Analysis Results for Test of Significance Results for 3\textsuperscript{rd} Grade Advanced and Proficient score for the MAP Communication Arts Assessment when Considering School Location**

<table>
<thead>
<tr>
<th>School Location</th>
<th>School Location</th>
<th>Mean $D$</th>
<th>Std. Error</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>2 - suburban</td>
<td>5.81</td>
<td>2.38</td>
<td>0.018</td>
</tr>
<tr>
<td>1 - rural</td>
<td>3 - urban</td>
<td>19.38</td>
<td>5.06</td>
<td>0.000</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>3 - urban</td>
<td>25.19</td>
<td>5.82</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Significance = $< 0.05$

This table is a summary of the Post Hoc Analysis for the 3\textsuperscript{rd} Grade Communication Arts Scores for rural, suburban and urban schools. Group one represents students from rural schools. Group two represents students from suburban schools. Group three represents students from urban schools. The first row summarized the comparison between groups one and two, the rural and suburban school districts. The mean difference between groups one and two was 5.81. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups one
and two. The p-value was 0.018 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted.

The second row summarized the comparison between group one and group three. The mean difference between groups one and three was 19.38. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups one and three. The p-value was 0.000 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted. There was a statistically significant difference in 3rd grade advanced and proficient scores for the MAP Communication Arts Assessment between students who attend rural and urban schools.

The third row summarized the comparison between group two and group three. The mean difference between groups two and three was 25.19. The null hypothesis stated that there was no statistically significant difference in 3rd grade advanced and proficient scores for the MAP Communication Arts Assessment for students in groups two and three. The p-value was 0.000 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and accepted the alternative. There was a statistically significant difference in 3rd grade advanced and proficient scores for the MAP Communication Arts Assessment between students who attend suburban and urban schools.

**ANOVA- 3rd GRADE MATHEMATICS SCORES**

Table 7

*Summary of Descriptive Statistics for 3rd Grade Advanced and Proficient MAP Mathematics*
Scores by School Location

<table>
<thead>
<tr>
<th>School Type</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>399</td>
<td>50.23</td>
<td>16.75</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>36</td>
<td>56.67</td>
<td>13.56</td>
</tr>
<tr>
<td>3 - urban</td>
<td>14</td>
<td>35.43</td>
<td>17.65</td>
</tr>
</tbody>
</table>

Table seven gives a summary of descriptive statistics for 3rd grade advanced and proficient score for the MAP Mathematics (MA) Assessment. Group one consisted of students who attend rural schools. Group two consisted of students who attend suburban schools. Group three consisted of students who attend urban schools. Group one consisted of 399 school districts and had a group mean MAP score of 50.23 percent. Group 2 consisted of 36 school districts and had a group mean MAP score of 56.67. Group 3 consisted of 14 school districts and had a group mean MAP score of 35.43.

Table 8

Analysis of Variance - Summary Significant of Advanced and Proficient MAP Mathematics Assessment Scores by School Location

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Location</td>
<td>4557.45</td>
<td>2</td>
<td>2278.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd Grade MA Scores</td>
<td>122141.26</td>
<td>446</td>
<td>273.86</td>
<td>8.32</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of ANOVA test of significance results for 3rd grade advanced and proficient scores for the MAP Mathematics Assessment for rural, suburban, and urban schools. The independent variable was the rural, suburban and
urban school districts. The dependent variable was the 3rd grade advanced and proficient MAP MA scores for each school location. The sum of squares for School Location was 4557.45 and the degrees of freedom was 2. The sum of squares for the MA scores was 122141.26 and the degrees of freedom was 446. The mean square for 3rd grade advanced and proficient score for the MAP MA Assessment was 273.86. The f value was 8.32. The alpha level was 0.05 and the p-value was 0.000. The null hypothesis was rejected because the p-value was less than the alpha level, reflecting a statistically significant difference. A post hoc pair wise comparison analysis was done and is summarized below.

Table 9

*Summary Post Hoc Analysis Results for Test of Significance Results for 3rd Grade Advanced and Proficient score for the MAP Mathematics Assessment when Considering School Location*

<table>
<thead>
<tr>
<th>School Location</th>
<th>School Location</th>
<th>Mean D</th>
<th>Std. Error</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- rural</td>
<td>2- suburban</td>
<td>6.44</td>
<td>2.24</td>
<td>0.026</td>
</tr>
<tr>
<td>1- rural</td>
<td>3- urban</td>
<td>14.80</td>
<td>3.24</td>
<td>0.001</td>
</tr>
<tr>
<td>2- suburban</td>
<td>3- urban</td>
<td>21.24</td>
<td>4.56</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of the Post Hoc Analysis for the 3rd Grade MAP Mathematics Scores for rural, suburban and urban schools. Group one represents students from rural schools. Group two represents students from suburban schools. Group three represents students from urban schools. The first row summarized the comparison between groups one and two, the rural and suburban school districts. The
mean difference between groups one and two was 6.44. The null hypothesis stated that there was no statistically significant difference in MAP MA scores for students in groups one and two. The p-value was 0.026 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted.

The second row summarized the comparison between group one and group three. The mean difference between groups one and three was 14.80. The null hypothesis stated that there was no statistically significant difference in MAP MA for students in groups one and three. The p-value was 0.001 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and accepted the alternative. There was a statistically significant difference in 3rd grade advanced and proficient scores for the MAP Mathematics Assessment between students who attend rural and urban schools.

The third row summarized the comparison between group two and group three. The mean difference between groups two and three was 21.24. The null hypothesis stated that there was no statistically significant difference in 3rd grade advanced and proficient scores for the MAP Mathematics Assessment for students in groups two and three. The p-value was 0.000 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted. There was a statistically significant difference in 3rd grade advanced and proficient scores for the MAP Mathematics Assessment between students who attend suburban and urban schools.
ANOVA- 5th GRADE COMMUNICATION ARTS SCORES

Table 10

Summary of Descriptive Statistics for 5th Grade Advanced and Proficient Communication Arts Scores by School Location

<table>
<thead>
<tr>
<th>School Type</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>399</td>
<td>52.29</td>
<td>13.09</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>36</td>
<td>56.58</td>
<td>16.09</td>
</tr>
<tr>
<td>3 - urban</td>
<td>14</td>
<td>35.53</td>
<td>17.38</td>
</tr>
</tbody>
</table>

Table 10 gives a summary of descriptive statistics for 5th grade advanced and proficient score for the MAP Communication Arts Assessment. Group one consisted of students who attend rural schools. Group two consisted of students who attend suburban schools. Group three consisted of students who attend urban schools. Group one consisted of 399 school districts and had a group mean MAP score of 52.29 percent. Group 2 consisted of 36 school districts and had a group mean MAP score of 56.58. Group 3 consisted of 14 school districts and had a group mean MAP score of 35.53.

Table 11

Analysis of Variance - Summary Significant of Advanced and Proficient 5th Grade MAP Communication Arts Assessment Scores by School Location

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Location</td>
<td>4582.27</td>
<td>2</td>
<td>2291.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th Grade CA Scores</td>
<td>81171.69</td>
<td>446</td>
<td>182</td>
<td>12.59</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05
This table is a summary of ANOVA test of significance results for 5th grade advanced and proficient scores for the MAP Communication Arts Assessment for rural, suburban, and urban schools. The independent variable was the rural, suburban and urban school districts. The dependent variable was the 5th grade advanced and proficient MAP CA scores for each school location. The sum of squares for School Location was 4582.271 and the degrees of freedom was 2. The sum of squares for the communication arts scores was 81171.69 and the degrees of freedom was 446. The mean square for 5th grade advanced and proficient score for the MAP Communication Arts Assessment was 182. The f value was 12.59. The alpha level was 0.05 and the p-value was 0.000. The null hypothesis was rejected because the p-value was less than the alpha level, reflecting a statistically significant difference. A post hoc pair wise comparison analysis was done and is summarized below.

Table 12

Summary Post Hoc Analysis Results for Test of Significance Results for 5th Grade

Advanced and Proficient score for the MAP Communication Arts Assessment when Considering School Location

<table>
<thead>
<tr>
<th>School Location</th>
<th>School Location</th>
<th>Mean D</th>
<th>Std. Error</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>2 - suburban</td>
<td>4.29</td>
<td>1.84</td>
<td>0.066</td>
</tr>
<tr>
<td>1 - rural</td>
<td>3 - urban</td>
<td>16.77</td>
<td>4.66</td>
<td>0.000</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>3 - urban</td>
<td>21.05</td>
<td>4.06</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of the Post Hoc Analysis for the 5th Grade Communication Arts Scores for rural, suburban and urban schools. Group one represents
students from rural schools. Group two represents students from suburban schools. Group three represents students from urban schools. The first row summarized the comparison between groups one and two, the rural and suburban school districts. The mean difference between groups one and two was 4.29. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups one and two. The p-value was 0.066 and the alpha level was 0.05. The p-value was more than the alpha level so the null hypothesis was accepted.

The second row summarized the comparison between group one and group three. The mean difference between groups one and three was 16.77. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups one and three. The p-value was 0.000 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and accepted the alternative.

There was a statistically significant difference in 5th grade advanced and proficient scores for the MAP Communication Arts Assessment between students who attend rural and urban schools.

The third row summarized the comparison between group two and group three. The mean difference between groups two and three was 21.05. The null hypothesis stated that there was no statistically significant difference in 5th grade advanced and proficient scores for the MAP Communication Arts Assessment for students in groups two and three. The p-value was 0.000 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted.

There was a statistically significant difference in 5th grade advanced and proficient scores
for the MAP Communication Arts Assessment between students who attend suburban and urban schools.

**ANOVA- 5th GRADE MATHEMATICS SCORES**

Table 13

*Summary of Descriptive Statistics for 5th Grade Advanced and Proficient Mathematics Scores by School Location*

<table>
<thead>
<tr>
<th>School Type</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>399</td>
<td>53.50</td>
<td>15.87</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>36</td>
<td>58.71</td>
<td>16.05</td>
</tr>
<tr>
<td>3 - urban</td>
<td>14</td>
<td>42.40</td>
<td>20.18</td>
</tr>
</tbody>
</table>

Table thirteen gives a summary of descriptive statistics for 5th grade advanced and proficient score for the MAP Mathematics (MA) Assessment. Group one consisted of students who attend rural schools. Group two consisted of students who attend suburban schools. Group three consisted of students who attend urban schools. Group one consisted of 399 school districts and had a group mean MAP score of 53.50 percent. Group 2 consisted of 36 school districts and had a group mean MAP score of 58.71. Group 3 consisted of 14 school districts and had a group mean MAP score of 42.40.

Table 14

*Analysis of Variance - Summary Significant of Advanced and Proficient 5th Grade MAP Mathematics Assessment Scores by School Location*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
</table>

43
This table is a summary of ANOVA test of significance results for 5th grade advanced and proficient scores for the MAP Mathematics Assessment for rural, suburban, and urban schools. The independent variable was the rural, suburban and urban school districts. The dependent variable was the 5th grade advanced and proficient MAP MA scores for each school location. The sum of squares for School Location was 2699.51 and the degrees of freedom was 2. The sum of squares for the MA scores was 114548.37 and the degrees of freedom was 446. The mean square for 5th grade advanced and proficient score for the MAP MA Assessment was 256.84. The f value was 5.26. The alpha level was 0.05 and the p-value was 0.006. The null hypothesis was rejected because the p-value was less than the alpha level, reflecting a statistically significant difference. A post hoc pair wise comparison analysis was done and is summarized below.

Table 15

*Summary Post Hoc Analysis Results for Test of Significance Results for 5th Grade Advanced and Proficient score for the MAP Mathematics Assessment when Considering School Location*

<table>
<thead>
<tr>
<th>School Location</th>
<th>Mean D</th>
<th>Std. Error</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>5.21</td>
<td>1.89</td>
<td>0.060</td>
</tr>
<tr>
<td>1 - rural</td>
<td>11.0</td>
<td>2.55</td>
<td>0.011</td>
</tr>
<tr>
<td>2 - suburban</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - urban</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This table is a summary of the Post Hoc Analysis for the 5th Grade MAP Mathematics Scores for rural, suburban and urban schools. Group one represents students from rural schools. Group two represents students from suburban schools. Group three represents students from urban schools. The first row summarized the comparison between groups one and two, the rural and suburban school districts. The mean difference between groups one and two was 5.2. The null hypothesis stated that there was no statistically significant difference in MAP MA scores for students in groups one and two. The p-value was 0.060 and the alpha level was 0.05. The p-value was greater than the alpha level so the null hypothesis was accepted stating there is no statistically significant difference between rural and suburban 5th grade Map Mathematics Assessment scores.

The second row summarized the comparison between group one and group three. The mean difference between groups one and three was 11.10. The null hypothesis stated that there was no statistically significant difference in MAP MA for students in groups one and three. The p-value was 0.011 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and accepted the alternative. There was a statistically significant difference in 5th grade advanced and proficient scores for the MAP Mathematics Assessment between students who attend rural and urban schools.

The third row summarized the comparison between group two and group three. The mean difference between groups two and three was 16.31. The null hypothesis
stated that there was no statistically significant difference in 5th grade advanced and proficient scores for the MAP Mathematics Assessment for students in groups two and three. The p-value was 0.0004 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and accepted the alternative. There was a statistically significant difference in 5th grade advanced and proficient scores for the MAP Mathematics Assessment between students who attend suburban and urban schools.

**ANOVA- 7th GRADE COMMUNICATION ARTS SCORES**

Table 16

*Summary of Descriptive Statistics for 7th Grade Advanced and Proficient Communication Arts*  
*Scores by School Location*

<table>
<thead>
<tr>
<th>School Type</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>399</td>
<td>55.21</td>
<td>13.32</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>36</td>
<td>57.00</td>
<td>15.31</td>
</tr>
<tr>
<td>3 - urban</td>
<td>14</td>
<td>41.84</td>
<td>18.43</td>
</tr>
</tbody>
</table>

Table sixteen gives a summary of descriptive statistics for 7th grade advanced and proficient score for the MAP Communication Arts Assessment. Group one consisted of students who attend rural schools. Group two consisted of students who attend suburban schools. Group three consisted of students who attend urban schools. Group one consisted of 399 school districts and had a group mean MAP score of 55.21 percent. Group 2 consisted of 36 school districts and had a group mean MAP score of 57.00. Group 3 consisted of 14 school districts and had a group mean MAP score of 41.84.
Table 17

Analysis of Variance - Summary Significant of 7th Grade Advanced and Proficient MAP Communication Arts Assessment Scores by School Location

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Location</td>
<td>2585.29</td>
<td>2</td>
<td>1292.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7th Grade CA Scores</td>
<td>83268.63</td>
<td>446</td>
<td>186.70</td>
<td>6.92</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of ANOVA test of significance results for 7th grade advanced and proficient scores for the MAP Communication Arts Assessment for rural, suburban, and urban schools. The independent variable was the rural, suburban and urban school districts. The dependent variable was the 7th grade advanced and proficient MAP CA scores for each school location. The sum of squares for School Location was 2585.290 and the degrees of freedom was 2. The sum of squares for the communication arts scores was 83268.63 and the degrees of freedom was 446. The mean square for 7th grade advanced and proficient score for the MAP Communication Arts Assessment was 186.701. The f value was 6.92. The alpha level was 0.05 and the p-value was 0.001. The null hypothesis was rejected because the p-value was less than the alpha level, reflecting a statistically significant difference. A post hoc pair wise comparison analysis was done and is summarized below.

Table 18

Summary Post Hoc Analysis Results for Test of Significance Results for 7th Grade Advanced and Proficient score for the MAP Communication Arts Assessment when
Considering School Location

<table>
<thead>
<tr>
<th>School Location</th>
<th>School Location</th>
<th>Mean D</th>
<th>Std. Error</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>2 - suburban</td>
<td>1.80</td>
<td>0.77</td>
<td>0.444</td>
</tr>
<tr>
<td>1 - rural</td>
<td>3 - urban</td>
<td>13.37</td>
<td>3.64</td>
<td>0.000</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>3 - urban</td>
<td>15.17</td>
<td>2.97</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of the Post Hoc Analysis for the 7th Grade MAP Communication Arts Scores for rural, suburban and urban schools. Group one represents students from rural schools. Group two represents students from suburban schools. Group three represents students from urban schools. The first row summarized the comparison between groups one and two, the rural and suburban school districts. The mean difference between groups one and two was 1.80. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups one and two. The p-value was 0.444 and the alpha level was 0.05. The p-value was greater than the alpha level so the null hypothesis was accepted stating there is no statistically significant difference between rural and suburban 7th grade Map Communication Arts Assessment scores.

The second row summarized the comparison between group one and group three. The mean difference between groups one and three was 13.37. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups one and three. The p-value was 0.000 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and accepted the alternative. There was a statistically significant difference in 7th grade advanced and proficient scores.
for the MAP Communication Arts Assessment between students who attend rural and urban schools.

The third row summarized the comparison between group two and group three. The mean difference between groups two and three was 15.17. The null hypothesis stated that there was no statistically significant difference in 7th grade advanced and proficient scores for the MAP Communication Arts Assessment for students in groups two and three. The p-value was 0.005 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted.

There was a statistically significant difference in 7th grade advanced and proficient scores for the MAP Communication Arts Assessment between students who attend suburban and urban schools.

**ANOVA- 7th GRADE MATHEMATICS SCORES**

Table 19

*Summary of Descriptive Statistics for 7th Grade Advanced and Proficient Mathematics Scores by School Location*

<table>
<thead>
<tr>
<th>School Type</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>399</td>
<td>60.22</td>
<td>14.54</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>36</td>
<td>59.98</td>
<td>18.22</td>
</tr>
<tr>
<td>3 - urban</td>
<td>14</td>
<td>42.49</td>
<td>21.02</td>
</tr>
</tbody>
</table>

Table nineteen gives a summary of descriptive statistics for 7th grade advanced and proficient score for the MAP Mathematics (MA) Assessment. Group one consisted of students who attend rural schools. Group two consisted of students who attend
suburban schools. Group three consisted of students who attend urban schools. Group one consisted of 399 school districts and had a group mean MAP score of 60.22 percent. Group 2 consisted of 36 school districts and had a group mean MAP score of 59.98. Group 3 consisted of 14 school districts and had a group mean MAP score of 42.49.

Table 20

Analysis of Variance - Summary Significant of 7th Grade Advanced and Proficient

MAP Mathematics Assessment Scores by School Location

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Location</td>
<td>4256.50</td>
<td>2</td>
<td>2128.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd Grade MA Scores</td>
<td>101469.93</td>
<td>446</td>
<td>227.51</td>
<td>9.35</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of ANOVA test of significance results for 7th grade advanced and proficient scores for the MAP Mathematics Assessment for rural, suburban, and urban schools. The independent variable was the rural, suburban and urban school districts. The dependent variable was the 7th grade advanced and proficient MAP MA scores for each school location. The sum of squares for School Location was 4256.50 and the degrees of freedom was 2. The sum of squares for the MA scores was 101469.93 and the degrees of freedom was 446. The mean square for 7th grade advanced and proficient score for the MAP MA Assessment was 227.51. The f value was 9.35. The alpha level was 0.05 and the p-value was 0.000. The null hypothesis was rejected because the p-value was less than the alpha level, reflecting a statistically significant
difference. A post hoc pair wise comparison analysis was done and is summarized below.

Table 21

*Summary Post Hoc Analysis Results for Test of Significance Results for 7th Grade*

*Advanced and Proficient score for the MAP Mathematics Assessment when Considering School Location*

<table>
<thead>
<tr>
<th>School Location</th>
<th>School Location</th>
<th>Mean D</th>
<th>Std. Error</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>2 - suburban</td>
<td>0.24</td>
<td>0.09</td>
<td>0.927</td>
</tr>
<tr>
<td>1 - rural</td>
<td>3 - urban</td>
<td>17.73</td>
<td>4.41</td>
<td>0.001</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>3 - urban</td>
<td>17.49</td>
<td>2.92</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of the Post Hoc Analysis for the 7th Grade MAP Mathematics Scores for rural, suburban and urban schools. Group one represents students from rural schools. Group two represents students from suburban schools. Group three represents students from urban schools. The first row summarized the comparison between groups one and two, the rural and suburban school districts. The mean difference between groups one and two was 0.24. The null hypothesis stated that there was no statistically significant difference in MAP MA scores for students in groups one and two. The p-value was 0.927 and the alpha level was 0.05. The p-value was greater than the alpha level so the null hypothesis was accepted stating there is no statistically significant difference between rural and suburban 7th grade Map Mathematics Assessment scores.
The second row summarized the comparison between group one and group three. The mean difference between groups one and three was 17.73. The null hypothesis stated that there was no statistically significant difference in MAP MA for students in groups one and three. The p-value was 0.001 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted. There was a statistically significant difference in 7th grade advanced and proficient scores for the MAP Mathematics Assessment between students who attend rural and urban schools.

The third row summarized the comparison between group two and group three. The mean difference between groups two and three was 17.49. The null hypothesis stated that there was no statistically significant difference in 7th grade advanced and proficient scores for the MAP Mathematics Assessment for students in groups two and three. The p-value was 0.005 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted. There was a statistically significant difference in 7th grade advanced and proficient scores for the MAP Mathematics Assessment between students who attend suburban and urban schools.

RQ3: Is there a difference between socioeconomic status, as defined by free and reduced percentages, of rural, suburban, and urban schools in Missouri?

H₀₃: There is no difference between socioeconomic status, as defined by free and reduced percentages, of rural, suburban, and urban schools in Missouri.

For this question the ANOVA was used to determine the difference in free and reduced percentage rate for rural, suburban, and urban schools.
ANOVA- FREE AND REDUCED PERCENTAGE RATES

Table 22

Summary of Descriptive Statistics for Free and Reduced Percentage Rate when considering School Location

<table>
<thead>
<tr>
<th>School Type</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>399</td>
<td>54.82</td>
<td>14.04</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>36</td>
<td>43.99</td>
<td>24.74</td>
</tr>
<tr>
<td>3 - urban</td>
<td>14</td>
<td>79.69</td>
<td>22.91</td>
</tr>
</tbody>
</table>

Table twenty-two gives a summary of descriptive statistics for free and reduced percentage rate. Group one consisted of students who attend rural schools. Group two consisted of students who attend suburban schools. Group three consisted of students who attend urban schools. Group one consisted of 399 school districts and had a group mean attendance percentage 54.82 percent. Group 2 consisted of 36 school districts and had a mean of 43.99. Group 3 consisted of 14 school districts and had a mean score of 79.69.

Table 23

Analysis of Variance - Summary Significant Free and Reduced Percentage Rate by School Location

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Location</td>
<td>12880.64</td>
<td>2</td>
<td>6440.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free and Reduced Attendance Percentage Rate</td>
<td>106652.27</td>
<td>446</td>
<td>239.13</td>
<td>26.93</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Note: Significance = < 0.05

This table is a summary of ANOVA test of significance results for free and reduced percentages for rural, suburban, and urban schools. The independent variable was the rural, suburban and urban school districts. The dependent variable was the free and reduced percentage rate for each school location. The sum of squares for School Location was 12880.64 and the degrees of freedom was 2. The sum of squares for the Free and Reduced Percentage Rate was 106652.28 and the degrees of freedom was 446. The mean square for Free and Reduced Attendance Rate was 239.13. The f value was 26.93. The alpha level was 0.05 and the p-value was 0.000. The null hypothesis was rejected because the p-value was less than the alpha level, reflecting a statistically significant difference. A post hoc pair wise comparison analysis was done and is summarized below.

Table 24

Summary Post Hoc Analysis Results for Test of Significance Results for Free and Reduced Percentage Rates when Considering School Location

<table>
<thead>
<tr>
<th>School Location</th>
<th>School Location</th>
<th>Mean D</th>
<th>Std. Error</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - rural</td>
<td>2 - suburban</td>
<td>10.83</td>
<td>4.10</td>
<td>0.000</td>
</tr>
<tr>
<td>1 - rural</td>
<td>3 - urban</td>
<td>24.87</td>
<td>6.35</td>
<td>0.000</td>
</tr>
<tr>
<td>2 - suburban</td>
<td>3 - urban</td>
<td>35.70</td>
<td>4.67</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: Significance = < 0.05

This table is a summary of the Post Hoc Analysis for the Free and Reduced Percentage Rates for rural, suburban and urban schools. Group one represents students from rural schools. Group two represents students from suburban schools. Group three
represents students from urban schools. The first row summarized the comparison between groups one and two, the rural and suburban school districts. The mean difference between groups one and two was 10.83. The null hypothesis stated that there was no statistically significant difference in free and reduced attendance rates for students in groups one and two. The p-value was 0.000 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and accepted the alternative.

The second row summarized the comparison between group one and group three. The mean difference between groups one and three was 24.87. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups one and three. The p-value was 0.000 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted. There was a statistically significant difference in free and reduced percentage rates of students who attended rural and urban schools.

The third row summarized the comparison between group two and group three. The mean difference between groups two and three was 35.70. The null hypothesis stated that there was no statistically significant difference in attendance for students in groups two and three. The p-value was 0.000 and the alpha level was 0.05. The p-value was less than the alpha level so the null hypothesis was rejected and the alternative accepted. There was a statistically significant difference in free and reduced attendance rates for students who attended suburban and urban schools.

Summary
Based on the findings for attendance rate percentages among rural, suburban and urban schools, the null hypothesis was rejected. There is a statistically significant difference in the attendance rates for rural, suburban and urban schools.

When comparing the results for academic performance for rural, suburban and urban schools, the findings vary. The null hypothesis was rejected when comparing 3rd grade performance on the MAP Communication Arts and Mathematics Assessments. There is a statistically significant difference in academic performance for these 3rd grade assessments. The null hypothesis was accepted for 5th and 7th grade MAP Communication Arts and Mathematics Assessments when comparing scores for rural and suburban school districts. There is no statistically significant difference in these academic performance based on the MAP assessment for these districts. However, the null hypothesis was rejected when comparing scores for rural and urban school districts and comparing suburban and urban schools districts when using 5th and 7th grade MAP Communication Arts and Mathematics Assessment scores. There is a statistically significant difference in academic performance for these 5th and 7th grade assessments scores when comparing rural and suburban schools to urban schools.

The null hypothesis was also rejected when comparing the free and reduced percentage rates for rural, suburban and urban schools. There is a statistically significant difference in the attendance rates for rural, suburban, and urban schools.
CHAPTER FIVE
FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Overview

This study was designed to find the difference in attendance rates, academic performance, and socioeconomic status between rural, suburban, and urban schools districts. Data was collected from 499 Missouri school districts, 399 of them rural districts, 36 of them suburban districts, and 14 of them urban districts. The Missouri Assessment Program was used to measure the students’ academic performance. Data was collected for 3rd, 5th, and 7th grade students who scored in the advanced and proficient levels. The 2012 – 2013 attendance rates as defined by the mean of hours absent from school and free and reduced percentages were also collected from each rural, suburban, and urban school district.

Restatement of Purpose

There are many factors that impact student attendance in schools. However, there is scant research on how Missouri schools maintain a high percentage of attendance rates. This study will attempt to determine if there is a difference in school location and student attendance rates and the role this plays in student achievement. This study will also attempt to determine if socio economic factors affect achievement in rural, suburban, and urban schools.

Discussion of Findings, Conclusions and Recommendations

The results of this study suggest that there is a statistically significant difference in attendance rates in rural, suburban, and urban schools in Missouri. Although there is a
A statistically significant difference in the attendance rates between these schools the overall group mean attendance rate met the Missouri School Improvement Program standard of a minimum of ninety percent with rural schools at 95%, suburban schools at 95%, and urban schools at 94%. Most schools look at overall attendance rates; however, they do not always examine individual student attendance rates. If a student misses ten percent of the school year they are considered to have chronic absenteeism (Balfanz and Byrnes, 2012; Jacobson, 2008; Chang, 2012) and are usually in academic trouble.

![Figure 1: Disaggregation Graph of Attendance Rates Hours Absent by Rural, Suburban, and Urban Schools in Missouri.](image)

The comparison between rural, suburban, and urban schools and the Missouri Achievement Program Communication Arts and Mathematics score of third, fifth and seventh grade students provide varying results. Results indicated that there is a statistically significant difference in the 3rd grade MAP Communication Arts and Mathematics scores between rural, suburban and urban schools. In contrast, the result showed that there was no significant difference between 5th and 7th grade MAP
Communication Arts and Mathematics scores between rural and suburban schools, but there was a statistically significant difference when comparing these same scores with their urban counterparts.

Results also conclude that there is a statistically significant difference in socioeconomic status between rural, suburban and urban schools in Missouri. Rural districts had an average of 55% of their student population categorized as free and reduced, suburban districts had an average of 44% of their student population categorized as free and reduced, and urban districts had an average of 80% of their student population categorized as free and reduced. The United States has one of the highest rates of child poverty among western industrialized nations. About sixty-five percent of children never experience poverty, whereas fifteen percent of children are poor for at least five of fifteen years (Magnuson and Votruba-Drzal, 2009).

![Disaggregation Graph of F/R PERCENTAGE by 1=rural, 2=suburban, 3=urban](image)

*Figure 2: Disaggregation Graph of Free and Reduced Percentage by Rural, Suburban, and Urban Schools in Missouri.*
Conclusions

1. Districts in rural, suburban, and urban schools in Missouri meet the state standard for attendance requirements based on Missouri School Improvement Program standards.

2. There was a statistically significant difference in MAP Communication Arts and Mathematics third grade scores for rural, suburban and urban school districts. There were not statistically significant differences in fifth and seventh grade MAP Communication Arts and Mathematics scores for rural and suburban school districts; however, there were significant differences in these fifth and seventh grade scores when comparing urban districts to rural and suburban districts.

3. There is a statistically significant difference in free and reduced rates for rural, suburban and urban school districts.

Recommendations

Research and data from the study suggests the following recommendations.

Recommendation One. School districts attendance accountability should be reformed to require schools to examine individual student attendance records. The use of daily average attendance allows districts to mask chronic absenteeism of individual students. Further studies are needed.

Recommendation Two. Student achievement should be measured on a more frequent basis versus annually. The results from more frequent assessment will provide more accurate information on student achievements and provide educators with data to identify
students’ area of strengths and weaknesses. This data will give teachers a clear understand of how to adjust their instruction to meet students’ needs. Further studies are needed.

Recommendation Three. Identification of low socioeconomic students needs to occur as early as possible, which means connecting with families in your district prior to their students attending kindergarten. School administrators, social workers, counselors, and nurses need to continue to build an understanding and support system to help meet the needs of these low socioeconomic families. Identification of low socioeconomic families should not be based solely on free and reduced lunch applications. A larger criteria needs to be implemented to find and meet the needs of all families within our districts.
REFERENCES


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## APPENDIX A

### 2013 MISSOURI SCHOOL DISTRICT INFORMATION

<table>
<thead>
<tr>
<th>SCHOOL DISTRICT</th>
<th>1=rural, 2=suburban, 3=urban</th>
<th>3rd GRADE ELA</th>
<th>3RD GRADE MATH</th>
<th>5TH GRADE ELA</th>
<th>5TH GRADE MATH</th>
<th>7TH GRADE ELA</th>
<th>7TH GRADE MATH</th>
<th>NUMBER OF STUDENTS</th>
<th>F/R PERCENTAGE</th>
<th>ATTENDANCE RATE HRS ABSENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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