The Relationship Between School Size and the Number of High School Dropouts

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Submitted to the Graduate Department and Faculty
of the School of Education of Baker University
in partial fulfillment of the requirements for the degree

Doctor of Education
in
Educational Leadership

October 20, 2014

Dissertation Committee

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Abstract

The purpose of this study was to determine whether school size has a significant impact on dropout rates. The study attempted to determine whether students attending schools with a higher enrollment have a greater chance of dropping out than those with fewer students. A secondary purpose was to determine the effect race/ethnicity and socioeconomic status had on the relationship between school size and dropout totals. A quantitative research design was used for this study to examine the impact high school size has on dropout total. The researcher analyzed archival data to compare schools of different sizes. The independent variables for this study were school size, race/ethnicity, and socioeconomic status. The dependent variable for this study was dropout total. The population for this study included all public high schools (N=564) in the state of Missouri during the 2011-2012 school year. The sample for this study was defined as Missouri high schools, grades 9-12, that reported a dropout total for the 2011-2012 school year.

Results indicated there is a statistically significant relationship between school size and dropout rate. As school size increases, the dropout total also increases. School administration can use the results of this study to focus on the critical issue of keeping school sizes at an optimal number so students have a greater chance to graduate. Recommendations for further research include expanding the current study to include additional variables that potentially impact dropout totals such as academic achievement or attendance percentage or replicating the current study using longitudinal data to assess the relationship between school size and dropout total over time.

Dedication

This dissertation is dedicated to Michael, Gannon, Brock and Shay. Thank you for your love and support through this journey. I also dedicate this dissertation to my grandparents, Fina and Nathaleen Kinne, who passed away during this journey. Through you, I learned how to love unconditionally and cherish each day we get to spend with our loved ones.

Acknowledgements

I am so fortunate that God has blessed me with such amazing family and friends. Each day, I am grateful for all the blessings He has provided me, to include this doctoral degree.

Mom and Dad, I want to thank you for teaching me how to work hard and never give up on my dreams. Your love and support have made me who I am today and I'm so grateful for the both of you. A special thank you to Scott, Sara, Shawn, Joy, and Amy; your support was appreciated and meant the world to me as I pursued this journey.

Lara Gilpin and Corey Vorthmann, thank you for the wonderful company to and from Overland Park during our coursework. Special thanks to my current and past colleagues of the St. Joseph School District. Your words of encouragement throughout this journey were invaluable. I want to thank Dr. Harold Frye and Peg Waterman for their patience, guidance, and support throughout this process.

Above all else, I want to thank my husband and kids for their love and support during this journey. Although this dissertation took me longer than I would have liked, I didn't have to miss a baseball or hockey game, or much family time. Thank you for always believing in me and motivating me to the end! I love each of you more than you'll ever know!

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Chapter One

Introduction

According to a national report from Editorial Projects in Education Research Center (2013), "Diplomas Count," Missouri's graduation rate increased in 2010, reaching an 80.7% level. This was an increase of 1.4% from 2009. However, there were still "an estimated 20,000 students who dropped out of Missouri's class of 2010" (Kittle, 2011, para. 3). At the national level, Sparks (2013) projected about 1 million students to drop out each year. "That amounts to more than 5,500 students lost each school day, or one student every 31 seconds" (Swanson & Lloyd, 2013, p. 1).

Kittle (2011) cited a study from the Alliance for Excellent Education that indicated the class of 2010 would cut into Missouri's lifetime earnings to the sum of $5.2 billion. Missouri could generate almost $7.9 million in additional annual state revenue tax if they cut the number of dropouts in half (Kittle, 2011). On average, a high school dropout earns about $7800 less a year than a high school graduate (Alliance for Excellent Education, n.d.).

The dropout problem not only costs the economy billions of dollars, but also makes it difficult for these young adults to succeed. For high school students who do not receive a high school diploma, it becomes increasingly more difficult to find a job (Gehrman, 2013). The job market continues to become more competitive, requiring a high school diploma or higher for a person to even apply for a position. The unemployment rate in 2010, according to the Bureau of Labor Statistics, was 14.9% for citizens with less than a high school diploma. The same report indicated average weekly

earnings of $444 for people not having a high school diploma (as cited in America's Promise Alliance, 2012).

Often referred to as the "silent epidemic," dropping out of school has been researched extensively, in an attempt to identify key characteristics of schools and students so interventions can be put into place for students to graduate. This silent epidemic "disproportionately affects young people who are low-income, minority, urban, single-parent children attending large, public high schools in the inner city" (Bridgeland, Dilulio, & Morison, 2006, p. 1). Although minority students (Indian, Asian, Hispanic, Black) are narrowing the gap between the non-minority (White) and minority students, the gap still exists, in some areas as much as 30 percent (Swanson & Lloyd, 2013, p. 2). Similarly, the socioeconomic status gap between students who receive free & reduced lunch or not has decreased from 21 percentage points in 1990 to 11 percentage points in 2011 (National Center for Educational Statistics, 2013). In addition, Swanson (2009) noted differences based on school size as reported through differences in urban, suburban, and rural schools. Swanson (2009) reported a graduation rate of 60.9% for urban schools, 75.3% for suburban schools, and 74% for rural schools for the graduating class of 2005. These statistics highlight the importance of choosing school size, minority and socioeconomic status as variables to address the dropout problem.

Background

Diplomas Count is an annual report "engaged in an ongoing study of high school graduation and issues related to late-secondary schooling and the transition to postsecondary education and employment" (EPERC, 2013, p. 1). The report consists of a national overview of graduation rates as well as a highlights briefing for each state. At

the time of the current study, the most recent data available from the "Diplomas Count" report was the class of 2010. Nationwide, 74.7% of all public school students graduated from high school with a regular diploma from the class of 2010. The graduation percentage increased 2 percentage points from 2009 to 2010. At almost 75%, the 2010 graduation percentage was the highest since 1973 (EPERC, 2013, p. 1). Missouri's graduation rate increased 9.5 points from 2000 to 2010. In 2010, Missouri ranked the 8th highest in graduation-rate percentage, graduating 80.7% of students (EPERC, 2013).

According to "Diplomas Count," most race/ethnicity subgroups also experienced gains in graduation rates from 2009 to 2010. Although some percentages seem low, Hispanic students' graduation rates have increased 5.4% from 2009 to 2010 nationally (EPERC, 2013) and Black students' graduation rates have increased 3.3% from 2009 to 2010 nationally. Native American students have dropped 2% while the white group has remained steady (EPERC, 2013). The graduation profile for the class of 2010 (Table 1) represents Missouri and National graduation percentage gaps between the reported race/ethnicity subgroups. Although the source for this information refers to Native Americans in the data, Missouri reports this subgroup as Indian.

Table 1

Profile for Class of 2010: Graduation Percentages

Subgroup	Missouri Graduation %	National Graduation %
Native American	^	51.1
Asian	77.9	81.1
Hispanic	68.5	68.1
Black	64.9	61.7
White	83.2	79.6

Note. Adapted from *Diplomas count*, by Editorial Projects in Education Research Center, 2013, *Education Week* 32*(34).*

^ Value not reported because of insufficient data.

Historically, states have had a considerable amount of flexibility when calculating graduation rates. Methods such as the Longitudinal Graduation Rate (LGR), National Center for Education Statistics Rate (Leaver rate), Adjusted Completion Rate (ACR), and Cumulative Promotion Index (CPI) are different ways states have calculated their graduation rates (Swanson, n.d.). In 2008, a change was made under the No Child Left Behind Act, requiring all states to "transition toward a uniform, cohort-based method for calculating graduation rates and to use that rate for federal accountability purposes" (EPERC, 2012, p. 10). Starting with the 2011-2012 school year, all states are required to use the federal adjusted cohort rate formula, "which tracks individual students over time to determine the percentage of students who entered the 9^{th} grade in a given year (the 'cohort') who have earned a regular diploma four years later" (EPERC, 2012, p. 10). This calculation can also be adjusted if one of the following events occurs: transfer to private school, transfer out of state, or death (EPERC, 2012, p. 10).

Statement of the Problem

Dropout rates are a concern for districts not only in Missouri, but also across the United States. With almost one in four U.S. public school students dropping out of high school before graduation, America continues to face a dropout epidemic (America's Promise Alliance, 2011). As a result, the Grad Nation campaign, launched by America's Promise, initiated goals for the project including each high school reaching a graduation rate of 90% by 2020 (America's Promise Alliance, 2011).

There are several factors that could contribute to a high school student dropping out of school such as: being held back a grade, attendance, grades, family structure, race, gender, or socioeconomic status (Hammond, Linton, Smink, & Drew, 2007). Although some of these factors may contribute to a student dropping out of school, they cannot be controlled. One factor school districts across the nation can control is school size. Because of the vast array of school sizes of Missouri public high schools, this variable, along with the other two, should be researched as potentially relevant to the likelihood of students staying in school.

Purpose Statement

The purpose of this study was to determine whether school size has a significant impact on dropout rates. The study determined whether students attending schools with more students have a greater chance of dropping out than those with fewer students. A secondary purpose was to determine the effect school characteristics, race/ethnicity and socioeconomic status, have on the relationship between school size and dropout totals.

Significance of the Study

The significance of the current study is the contribution of research that may address factors associated with dropout issues in Missouri high schools. One of the factors, school size, is addressed in depth. This study is important not only to the field of education in Missouri, but for communities across the United States. By learning how school size impacts dropout totals, districts may be better able to make informed decisions about optimal sizes for buildings in their district. Missouri policy makers will be able to create policies at the local and state level that address this dropout problem that stretches across our communities. Additionally, the study contributes more knowledge to the research base in the areas of school size, minority status, and socioeconomic status as they relate to dropout totals.

Delimitations

According to Lunenburg and Irby (2008), "delimitations are self-imposed boundaries set by the researcher on the purpose and scope of the study" (p. 134). The following delimitations were used in this study:

1. School size, dropout total, socioeconomic status, and race/ethnicity from the 2011-2012 school year were the variables investigated for this study.
2. Missouri public high schools that calculated and submitted a graduation rate for the 2011-2012 school year, with the exception of alternative schools, were used in this study.

Assumptions

Lunenburg and Irby (2008) stated, "assumptions are postulates, premises, and propositions that are accepted as operational for purposes of the research" (p. 135). This study was based on the following assumptions:

1. All data retrieved from the Missouri Department of Elementary and Secondary Education (DESE) were accurate.
2. All participating schools reported accurate dropout percentages to DESE.

Research Questions

Three research questions guided this dissertation:

1. To what extent does school size impact dropout total?
2. To what extent does race/ethnicity percentage impact the relationship between school size and dropout total?
3. To what extent does socioeconomic status percentage impact the relationship between school size and dropout total?

Definition of Terms

The following is a list of the terms used for this study. The definitions provided help the reader become more familiar with terms used in the study.

Core Data Collection System. The Core Data Collection System is a "web-based data collection system with interactive edits" used by school districts in the state of Missouri (Missouri Department of Elementary and Secondary Education (DESE) (2012c).

DESE. The Department of Elementary and Secondary Education "is the administrative arm of the State Board of Education of Missouri" (Missouri DESE, 2013b, para. 1).

Enrollment. The total head counts of all resident and nonresident students included in the January Membership Count and reported to Missouri DESE in the Core Data Collection System. Enrollment is also known as School Size for this study (Missouri DESE, 2013, p. 61).

Graduation Rate. "From the beginning of ninth grade, students who are entering that grade for the first time form a cohort that is subsequently adjusted by adding any students who transfer into the cohort later during the ninth grade and the next three years, and subtracting any students who transfer out" (Missouri DESE, 2011b, p. 4).

High School. DESE recognizes a high school as a school comprised of grades 9 through 12 (Missouri DESE, n.d.).

Overview of Methodology

This study was conducted as a quantitative research design that examined the effect that school size has on dropout totals. Two additional variables were utilized, race/ethnicity and socioeconomic status, to determine whether they have an impact on the relationship between school size and graduation rate. The independent variable, school size, was measured as the total number of students enrolled in grades 9-12 as reported in the January Membership to the Missouri Department of Elementary and Secondary Education (DESE) during the February reporting cycle to the Core Data Collection System. Dropout totals were used as the dependent variable. Data collection consisted of downloading a spreadsheet containing school size, graduation rate, ethnicity, and

socioeconomic status for each Missouri public high school. High schools that did not meet the specified criteria were removed from the spreadsheet. A Pearson product moment correlation was calculated to index the strength and direction of the relationship between school size and dropout totals. Furthermore, correlation coefficients were compared using Fisher's Z test to test for differences in the relationship between school size and dropout total based on race/ethnicity percentage and socioeconomic status percentage.

Summary and Organization of the Study

The first chapter of the study included: background, the statement of the problem, the purpose statement, significance of the study, delimitations, assumptions, research questions, and an overview of the methodology used in the study. Chapter two provides a thorough review of literature related to the research questions involving school size, dropout factors, race/ethnicity, and socioeconomic status. Chapter three contains a description of the methodology used for the research study. The results of the testing of the research questions and the study's findings are presented in Chapter four. Chapter five provides a summary of the entire study, findings related to the literature, conclusions, implications for action, and recommendations for future research.

Chapter Two

Review of Literature

This chapter provides a background of information in regard to the history of the educational system, specifically the trends for graduation rates at the national and state level and characteristics of the dropout problem. This chapter also provides research on characteristics that contribute to the rise and fall of dropout rates as well as specific dropout prevention programs that have been created to reduce the number of dropouts. Although this study focuses on dropout rates, part of the literature review addresses graduation rates.

History of the Educational System and Graduation Rates

The Boston Latin Grammar School was the first school, founded in 1635 (U.S. Department of Education, n.d., p. 1). The primary goal for the school was to "prepare young men for college at Harvard, service in government, and the church" (U.S. Department of Education, n.d., p. 1). The first public high school, the English Classical School, opened in Boston almost 200 years later. "By 1870, there were still only 500 public high schools with 50,000 students in the United States" (U.S. Department of Education, n.d., p.1). During this time young women were also able to begin attending high school (U.S. Department of Education, n.d., p. 1).

Some of the declines in high school attendance throughout history can be attributed to the major wars. Therefore, young people were dropping out of high school to enlist in the military. For example, "according to military estimates, nearly ten million World War II veterans had not completed high school, although half of these men had some high school education" (Quinn, 2002, p. 32). State departments were being pushed

to accept the General Educational Development (GED) test as a viable form of completion in lieu of a high school diploma. This made it possible for veterans to continue their education and acquire jobs requiring high school completion (Quinn, 2002).

"Finishing high school became more firmly established as a social and educational norm in postwar America, as the graduation rate rose steadily through the 1950s and 1960s" (Swanson, 2010, para. 10). In 1969, 77% of students earned diplomas (Swanson, 2010). Over the next 30 years, graduation rates continued to increase and decrease, sometimes significantly (Swanson, 2010). "Although the nation regained some ground between the late 1990s and 2005, the graduation rate now stands at about the same level as it did in the early 1960s" (Swanson, 2010, para. 11).

Dropout Problem

The National Dropout Prevention Center partnered with Communities In Schools (CIS) to "conduct a comprehensive study of the dropout crisis in the United States" (Hammond et al., 2007, p. 1). "The intent of the study was to identify the risk factors or conditions that significantly increase the likelihood of students dropping out of school and identify evidence-based programs that address the identified risk factors and conditions" (Hammond et al., 2007, p. 1). The study narrowed dropout factors into four areas: individual, family, school, and community. In this section, risk factors are categorized in each identified area.

Individual Factors. Research results indicate that students are more at risk of dropping out of school if they possess some or all of the following individual risk factors:

- High risk demographic characteristics

- High-risk attitudes, values, and behaviors
- Poor school performance
- Disengagement from school (Hammond et al., 2007, pp. 11-12).

The research findings involve each of the individual factors listed above. There are several areas that could impact a student's decision to drop out of school.

***High risk demographic characteristics*.** High-risk demographic characteristics could include:

- race or ethnicity
- gender
- immigration status
- speaks limited English
- physical disability
- emotional disability
- behavioral disability
- intellectual disability. (Hammond et al., 2007)

The National Center for Educational Statistics conducted a study in 2004 based on the dropouts of the sophomore class of 2002, from a sample of 752 public, Catholic, and other private schools. Chapman, Laird, Ifill, and KewalRamani concluded, "Asian/Pacific Islander students had the lowest dropout percentage of all racial/ethnic groups" (Chapman et al., 2011, p. 8). Also, the white subgroup had the highest percentage of dropouts, 44 %. In regards to gender, males dropped out at a slightly higher rate than females. According to an article in *Education Week*, the researcher used

three years of statewide data and found that "dropout rates for English Language Learners (ELL) students were 25 percent, compared to 15 percent for non-English learners" (Maxwell, 2011, para. 3). Students classified as English-language learners (ELL) for a longer period of time, or in later grades, have a higher dropout percentage than those ELL students who are reclassified as English proficient at a younger age (Maxwell, 2011).

It is evident that large graduation gaps exist among subgroups in many states. "The graduation rate for African Americans, Hispanics, economically disadvantaged students, students with disabilities, or with limited English proficiency lags far behind that of other students" (Balfanz, Bridgeland, Bruce, & Hornig Fox, 2013, p. 15). A dropout factory is defined as a high school where no more than 60 percent of students who start as freshmen persist to their senior year. "In 2002, 39 percent of Hispanic and nearly 50 percent of African American students attending regular or vocational high schools with 300 or more students were in schools that could be classified as dropout factories" (Balfanz et al., 2013, p. 18). By 2011, the number of African Americans attending so-called dropout factories reduced to 25%. The number of Hispanics attending so-called dropout factories had an even large decline. (Balfanz et al., 2013). Although these statistics depict rapid improvement, there is still work to be done. One in four African American and one in six Hispanic students are still attending school where graduating is not the norm (Balfanz et al., 2013). "In the era of limited opportunities for those without a high school diploma to find jobs that will support a family, one-third of African American and 30 percent of Hispanic students still are not graduating from high school" (Balfanz et al., 2013, p. 16).

Historically, the dropout rate for students with disabilities is substantially higher than students receiving a general education (Blackorby & Wagner, 1996). From 2001-2011, however, the number of students with disabilities who dropped out of high school decreased from 45.9 % to 26.2% (U.S. Department of Education, 2011). In regards to those who did not graduate, 44.9 % had an emotional disturbance disability, 22.7 % had speech or language impairments, 25.1 % had a specific learning disability, 22.3 % had an intellectual disability, and 23.4 % had other health impairments (American Psychological Association, 2012). Some students are classified in more than one of the disability categories listed above.

High risk attitudes, values, and behaviors. "Students who drop out are more likely to have a history of serious behavior problems than those who complete high school" (Hale & Canter, 1998, para. 7). Biddle (2010) claimed that when juveniles wind up in the justice system, they rarely receive a quality education or treatment for the issues that led to their current situation. He also said the likelihood of juvenile prisoners graduating is one out of every eight. Attitudes, values, and behaviors play a large part in why youth commit crimes, placing them in the justice system. "For school reformers, addressing the problems of juvenile justice systems is almost as important in stemming the nation's dropout crisis as addressing literacy" (Biddle, 2010, para. 4). Likewise, a student's attitude toward school or how school is valued are factors that contribute to high school dropouts. "Students who drop out are more likely to perceive the school setting as non-supportive and/or irrelevant" (Hale & Canter, 1998, p. 2).

Poor school performance. Bridgeland, Dilulio, and Burke Morison (2006) claimed that poor academic achievement is also a strong predictor for dropping out of

school. This includes test scores (local, state, and national measures or instruments), grades, and grade point average. "Poor grades and low test scores, regardless of ability, may increase student frustration and reduce motivation to stay in school" (Hale & Canter, 1998, p. 2). An annual report (*The Silent Epidemic*) conducted for the Bill and Melinda Gates Foundation, reported that "failing in school" was one of the top five reasons for dropping out provided by high school dropouts. There were 35% who reported they were failing school when they decided to drop out. Also, 32% of those who responded to the survey were required to repeat a grade at some point in their education (Bridgeland et al., 2006). "Some research [has indicated] that retained students are three times more likely to dropout than non-retained students" (Hale & Canter, 1998, p. 2). Russell Rumberger and Sun Ah Lim prepared a report for the California Dropout Research Project that included 389 analyses, and "more than 200 of them included at least one measure of academic achievement" (Rumberger & Ah Lim, 2008, p. 19). "At the high school level, 30 of the 51 analyses showed that higher test scores lowered the risk of dropping out or, conversely, lower test scores increased the risk of dropping out" (Rumberger & Ah Lim, 2008, p. 19). According to Rumberger and Ah Lim (2008), "grades appear to be a more consistent predictor than test scores" (p. 19). This is due to the reasoning that test scores are usually measured over one or two days whereas grades are a reflection of students' ability throughout the school year (Rumberger & Ah Lim, 2008).

Disengagement from school. Disengagement is an additional factor that has been linked to students dropping out. Students often state that school is boring or teachers are not invested in helping them to succeed as reasons for dropping out (Convissor, n.d.). Socially, students become disengaged from school for a variety of reasons. Students may

not have any friends or are unable to make friends easily. Social engagement in clubs, sports, or activities is important for high school students and helps to increase engagement and decrease chances of dropping out of school (Appleton, Christenson, & Furlong, 2008). The California Dropout Research Project used thirty-three analyses to determine the relationship between extracurricular activities and dropout behavior. "At the high school level 14 of the 26 analyses found that participation in extracurricular activities reduced the likelihood of dropping out or increased the odds of graduating, while 11 analyses found no significant effect and one study found that participation increased the likelihood of dropping out" (Rumbarger & Lim, 2008, p. 25). When students do not have a positive group of friends during this critical time in their schooling, they tend to be drawn in by negative influences and students who are also at risk of dropping out (Appleton, Christenson, & Furlong, 2008).

Attendance is a key factor in disengagement from school. "Consistent with national data, absenteeism is the most common indicator of overall student engagement and a significant predictor of dropping out" (Bridgeland et al., 2006, p. 8). Students start arriving late to school, which sometimes leads to skipping classes, and eventually missing school altogether (Hale & Canter, 1998). This does not happen on a single day; rather, it happens gradually over time. Students can be turned over to the truancy officer, who requires them to return to school, sometimes not fixing the root of the problem that led them to their current state. "School dropouts have higher rates of chronic truancy and tardiness than those who stay in school" (Hale & Canter, 1998, p. 2). Missing several days of school makes it difficult for students to catch up and learn content. "Daily school attendance reflects both student motivation and parent support" (Hale & Canter, 1998, p.

2). The California Dropout Research Project (2008), used several analyses to examine the relationship between absenteeism and student dropouts. "At the high school level, 13 of the 19 analyses provided evidence for a statistically positive relationship between absenteeism and dropout, four analyses found no significant relationship, and two analyses found a statistically negative relationship" (Rumberger & Lim, 2008, p. 25).

Family Factors. Several family factors can impact whether a student drops out of high school. These factors include: parents' education, single parenting, behavior problems, and school attendance (Hale & Canter, 1998). "Parents of dropouts are more likely to view school negatively, to have minimal involvement with school and to place little value on school attendance and achievement" (Hale & Canter, 1998, p. 2). Additionally, "students who have a sibling who dropped out of school are at much higher risk of dropping out themselves" (Hale & Canter, 1998, p. 2).

Students in the study conducted for the Bill and Melinda Gates Foundation gave personal reasons for dropping out of school. "One third (32 percent) said they had to get a job and make money; 26% said they became a parent; and 22 percent said they had to care for a family member" (Bridgeland et al., 2006, p. 1). Of the 26 percent who left school to be parents, it was either because they had their own child or were forced to care for younger siblings or take care of the home because no parent was available. Students stated they believed they would have graduated if they had been able to stay in school.

Also, families who have undergone significant changes, such as death, divorce, or remarriage, put their children at a higher risk of lower achievement scores, which potentially dropping out of school (Shaw & Ingoldsby, n.d.). Permissive parenting, allowing children to come and go as they please, providing minimal structure or rules, or

allowing other siblings to drop out, significantly increases the chances for children to drop out of high school. (Gleason & Dynarski, 2002; Rosenthal, 1998).

High levels of stress can also have an impact on students dropping out (Rosenthal, 1998). Stress can be caused by substance abuse, financial or health problems, or residential moves (Rosenthal, 1998). Factors pertaining to poverty also play a role in students dropping out. These factors include: high mobility and homelessness, hunger and food insecurity, parents who are in jail or absent, domestic violence, and drug abuse (Rumberger, 2013). "In 2009, poor (bottom 20 percent of all family incomes) students were five times more likely to drop out of high school than high-income (top 20 percent of all family incomes) students" (as cited in Rumberger, 2013, para. 3). Bertrand studied the social interaction between the family and school social systems and its effect on high school dropouts in 1962. What he found was "students aim to fit-in with their family social structure rather than their school social system, thereby affecting their decision to stay in school" (as cited in Ingrum, n.d.). Precursors like stress and poverty are important for school staff to know and understand but some may not have the tools or relational capacity to help students overcome these barriers (Hale & Canter, 1998).

School Factors. Rumberger and Palardy (2005) claimed that factors within the school contribute to dropout totals: school structure, resources, student body characteristics and performance, environment, teacher quality, and academic and discipline policies and practices. They also stated that, although there is some debate about what factors contribute to Catholic and other private schools having lower dropout rates than public schools, private schools consistently have a lower dropout rate than public schools. According to the Bridgeland, Dilulio, & Morison (2006)," failing in

school ranked as one of the top 5 reasons for leaving school. "Three in ten said that they could not keep up with their school work and 43 percent said they missed too many days of school and could not catch up' (p. 2). An additional 32 percent of those surveyed had to repeat a grade before dropping out of school. It is evident that teacher quality matters; however, when looking at research, specific characteristics of teacher quality are not clear (Rumberger & Palardy, 2005). Some additional school factors include:

1. Rigid retention policies
2. Widespread administrative transfers
3. Emphasis on competency testing
4. Tracking and perceived "unfair" discipline practices
5. Larger class size
6. High teacher turnover
7. Low teacher expectations for student performance
8. Perceived lack of support for students with academic and behavior problems. (Hale & Canter, 1998, pp. 2-3)

Each of these factors has been shown to be related to student decisions to drop out of high school (Hale & Canter, 1998).

Community Factors. A student's community can also influence whether they remain in school or drop out. "In the Johns Hopkins study of the promoting power of schools, 61 % of urban schools, 20% of suburban, and only 5 % of rural schools had the lowest levels of promoting power, where entering freshman had less than a 50/50 chance of graduating four years later" (Hammond et al., 2007, p. 16). Urban communities with high poverty are more likely to see an increase in drugs and violence, which are factors in

dropping out of school. "Disadvantaged communities influence child and adolescent development through the lack of resources (playgrounds and parks after-school programs) or negative peer influences" (as cited in Rumberger, 2013). These communities that are impoverished or have high populations of minorities are at risk of a higher dropout rate (Rumberger, 2013). "Communities that clearly value education and encourage school-community partnerships are more likely to establish programs and foster attitudes that maintain student engagement in schooling" (Hale & Canter, 1998, p. 3). It is important for communities to provide support for minority groups and students in poverty so they have a greater chance to graduate (Hale & Canter, 1998).

It is essential to focus efforts on closing the "graduation gap among students of different races, ethnicities, income levels, disabilities, and language proficiencies" Balfanz et al., 2013, p. 67). These efforts should include:

- Early warning systems required in schools with significant graduation gaps.
- Early warning systems to track success of recovery and second-chance opportunities.
- Schools, districts, and states to conduct policy audits to ensure that school attendance, behavior, and course-passing policies support graduation for all.
- A continued focus on graduating in schools where the majority of students are of minority or economically disadvantaged.
- Federal funding to encourage states, districts, and schools to implement evidence-based strategies to close graduation gaps and reward them when the gaps are closed. (Balfanz et al., 2013, p. 67)

"Practitioners and policymakers must redouble efforts to target policy, evidence-based interventions, and additional resources to enable student subgroups to graduate at rates equal to more advantaged students" (Balfanz et al., 2013, p. 67).

Advantages and Disadvantages of School Size

This section explains the advantages and disadvantages for students attending large and small schools. There are two primary reasons to support the argument for large schools: economic advantage and more curricular offerings. Turner and Thrasher (1970) studied schools with various enrollments and found that "although educational opportunities tend to increase slightly in secondary school centers beyond 800, the cost per pupil per educational opportunity shows little further decrease beyond this point." Turner and Thrasher did not advocate for schools to be over 1,000 students. Larger schools will have more course sections because of the higher enrollment. However, Monk (as cited in Slate, n.d.) would have argued that an increase in course offerings does not necessarily mean students will receive a better curriculum. On the other hand, because of the increased variety of offerings, students can find courses that interest them, which could keep them engaged in school (Crew, 2010).

Advantages of small schools include: increased student achievement, increased attendance, elevated teacher satisfaction, and improved school climate (National Education Association, n.d.). Small schools offer a more visible climate and personal student/teacher relationships. Relationships allow for teachers to capitalize on the individual differences and the needs of each student (National Education Association, n.d.). "The National Center on Education Statistics reported marked reduction in teacher and principal reports of incidents of fights, weapons, and other forms of violence in

schools of 350 or fewer as compared with 750 students or more" (Grauer & Ryan, 2002, para. 12). The Bill and Melinda Gates Foundation has invested "$700 million into helping to establish and study small schools across the country" (National Education Association, n.d.). One of the most recent investments by the foundation was a $3.5 million study in New York. This study "tracked the academic performance of more than 21,000 students who applied for ninth grade admission at 105 small high schools, mainly in Brooklyn and in the Bronx, from 2005 to 2008" (Hu, 2012, para. 2). The results indicated a 67.9 % graduation rate of the students who attended these small high schools compared to only 59.3 % graduation rate for those students that attended larger high schools. "The higher graduation rate at small schools held across the board for all students, regardless of race, family income or scores on the state's eighth-grade math and reading tests, according to the data" (Hu, 2012, para. 5). Co-author of the small schools study, Howard Bloom, commented that it is not only the size that gets these results; it's how the small school size is used on a day-to-day basis. Teachers in these schools are able to provide real-life, hands-on experiences for students in conjunction with local business partnerships.

At the turn of the 20th century, school consolidation became the primary route for school boards across the nation to increase efficiency. Those in favor of school consolidation "believed the fixed per-pupil cost to provide students with administrators, essential teachers, and decent facilities are unjustifiably high in small schools" (Strange & Malhoit, 2005, p. 2). "Per-pupil annual costs in smaller schools are, on average, between 10 and 20 % higher than equivalent costs in larger schools" (Strange & Malhoit,

2005, p. 2). The opportunity for students to have more course offerings and the lower per-pupil costs are two of the primary reasons school consolidation has been supported.

On the contrary, critics have argued that the cost of transportation and the decline in the local economy are two significant disadvantages to school consolidation. "Researchers have concluded that when a community loses its school, the local economy suffers from a significant reduction in employment, retail sales, tax collections, and property values" (Strange & Malhoit, 2005, p. 3). Educational researchers also have noted the following benefits of preserving rural schools:

1. Students learn more and better.
2. Students drop out less frequently and graduate at higher rates.
3. Parents are more involved.
4. Students are more satisfied and behave better, resulting in fewer infractions, both minor and serious. (Strange & Malhoit, 2005, pg. 3).

These benefits are even more significant for students of poverty and small schools have been known to "narrow the achievement gap between children from more and less affluent communities" (Strange & Malhoit, 2005, p. 3).

In addition to school size, district size has also been researched. In a 2003 study by Duncombe and Yinger, it was noted that "doubling the enrollment of a 300-student district is likely to produce a net 22.8 % savings; that doubling the enrollment of a 1,500-student district is likely to yield a 3.2 percent savings; and that little or no savings are to be expected for mergers of districts already enrolling more than 1,500 students" (as cited in Coulson, 2007). According to Coulson (2007), from the Mackinac Center for Public Policy, "several recent studies have concluded that the economic benefits of increasing

district size diminish as the size of the district grows, and that there is an optimal size of school district beyond which per-pupil expenditures begin to rise." While the number of public schools has decreased, student population has increased.

School consolidation occurs when "(a) combining districts and (b) closing schools and sending students from the closed schools to other schools (or building a new and larger school)" (Howley, Johnson, & Petrie, 2011, p. 1). These following statistics demonstrate how much the school and district consolidation movement has changed schools. In 1920, there were an estimated 271,000 schools in nearly 130,000 school districts serving 23.6 million students. By the 1980s, however, the school consolidation approach started to decline. However, because of the consolidation movement, data from the National Center for Education Statistics (NCES)(2011) reported that in the 2008-2009 school year there were 100,713 public schools in 13,976 school districts serving 49.3 million students.

Proponents of small schools have argued that the increased student population in schools accounts for higher dropout rates (Greene & Winters, 2005). According to the Missouri Department of Elementary and Secondary Education (DESE), all public and nonpublic secondary schools in Missouri are required by law to report any students "who drop out of school for any reason other than to attend another school, college, or university, or enlist in the armed services" (para.1). In 2009, this law was revised to include the requirement that the Missouri Department of Secondary and Elementary Education "make available by free electronic record on the first business day of each month the number of dropouts reported by school districts during the previous month" (Missouri DESE, 2013a). The monthly reporting enables the department to have

immediate contact with students who have dropped out to provide them with information about adult education and literacy classes around the state.

Lee (2010) found there is an ideal size for high schools. Her research included a sample of U.S. high schools while also controlling for prior academic ability and characteristics such as social background. Students learned more in schools whose student population was 600-900, and less in either larger or smaller schools, according to Lee (2010). The sample did not find the optimal size (600-900 students) schools were able to offer a "solid curriculum" but were "small enough so students were known by their teachers and didn't get lost in the cracks" (Lee, 2010, para. 3). Additionally, the effect of school size on learning was even more important for minority students and students in poverty (Lee, 2010).

School Intervention Programs

As state and federal mandates have increased, in regards to higher standards for dropout total, school districts have been forced to think of other interventions to provide for students who are unable to socially and academically function within a regular school setting. This section includes research about alternative schools and other state and national programs created to help those students who are struggling in school. Schools are able to "fulfill their legal responsibility to provide equal access to education for all students" (National Dropout Prevention Center/Network, n.d., para. 3). In the 1950s and 1960s alternative schools were typically used for students who had already dropped out of high school. Currently, alternative schools are used for students in "at-risk situations" to help them develop the tools necessary to function appropriately in school settings and (National Dropout Prevention Center/Network, n.d.). These schools usually have more

programs and resources to help educate the whole child and sometimes the entire family. The following benefits have been noted for effective alternative schools:

1. Reducing truancy
2. Improving attitudes toward school
3. Accumulating high school credits
4. Reducing behavior problems (National Dropout Prevention Center/Network, n.d.). However, there are some key pieces that need to be present in order to have a successful alternative school.
5. Maximum teacher/student ratio of 1:10
6. Small student base not exceeding 250 students
7. Clearly stated mission and discipline code
8. Caring faculty with continual staff development
9. School staff having high expectations for student achievement
10. Learning program specific to the student's expectations and learning style
11. Flexible school schedule with community involvement and support
12. Total commitment to have each student be a success. (National Dropout Prevention Center/Network, n.d.)

The dropout prevention center has a valid point that if regular schools operated under these same principles, there probably wouldn't be a need for alternative schools. Without alternative schools, public high school dropout totals would probably be substantially higher.

Schools across the nation have taken the lead to develop programs whose primary focus is to help students stay in school and graduate. Programs, such as the Coca-Cola

Valued Youth Program, Check & Connect Program, A+ Program, and America's Promise are just a few highlighted in the following subsections. Although these programs do not solve all of the issues surrounding student dropouts, students have benefited from these programs.

Coca-Cola Valued Youth Program. This research-based program, which was created in 1984, has provided the opportunity for at-risk high school students to "serve as tutors for elementary students" (U.S. Department of Education, 2009, para. 2). The program has aimed at assisting these students in building academic skills and self-esteem. The at-risk students tutor elementary students "four days a week during regular school hours and receive minimum wage for their efforts" (U.S. Department of Education, 2009, para. 2). Once a week, students attend class that helps provide additional support as well as go on field trips to "educational sites and professional settings" (U.S. Department of Education, 2009, para. 2). Since the beginning of the program, more than 33,000 students have stayed in school, those previously at risk of dropping out. In order for the program to be successful, at-risk students must feel valued and the effort they are willing to put forth must be focused towards specific strategies (U.S. Department of Education, 2009).

Check & Connect Program. The Office of Special Education Programs from the U.S. Department of Education started the Check & Connect Program in 1990. Grants have helped to continue and develop this program (University of Minnesota Institute on Community Integration (n.d.). Check & Connect is classified as a "dropout prevention strategy" that assigns adults such as school personnel, family members, and community members to mentor and support students at-risk of dropping out (*U.S. Department of*

Education, 2006). "The Check component is designed to continually assess student engagement through close monitoring of student performance and progress indicators" (pg. 1) while the Connect component provides undivided attention to the student and helps to monitor any attendance, behavior, or academic problems the at-risk student may be having (*U.S. Department of Education*, 2006). The mentor serves as the student's advocate, while also remaining positive and motivating the at-risk student to stay in school. Although there is a lack of extensive findings, the few studies that have been conducted have shown positive effects on staying in school, potentially positive effects on progressing in school but no discernible effects on completing school (*U.S. Department of Education*, 2006). Check & Connect is also being considered for the following youth: juvenile offenders, Native American youth, and postsecondary students (*U.S. Department of Education*, 2006).

A+ Schools Program. The A+ Schools Program originated in Missouri and was "created in 1993 by state law as an incentive for improving Missouri's high schools" (MO DESE, n.d., para. 1). The goal of the A+ Program has been to prepare students for post-secondary education or employment (Missouri Department of Higher Education, n.d.). Students who complete this program are eligible to receive financial incentives for post-secondary education. In order to qualify for the program, students must meet the following requirements:

- Enter into a written agreement with the high school prior to graduation.
- Attend a designated school for three consecutive years immediately prior to graduation.
- Graduate with an overall GPA of 2.5 points or higher on a 4-point scale.

- Have an overall attendance rate of at least 95 percent for grades 9-12.
- Perform 50 hours of district-supervised, unpaid tutoring or mentoring.
- Maintain a record of good citizenship and avoid the use of drugs and alcohol. (Missouri Department of Higher Education, n.d.)

There are currently 231 designated A+ high schools across Missouri "that have graduated more than 65,000 eligible students since the program began" (MO DESE, n.d., para. 2). Schools that offer the A+ Program have seen a decrease in dropout rates (Lee, Meuser, & Podgursky, 2004). Former Governor Mel Carnahan referenced the A+ Schools Program in his speech on World Class Schools for Missouri, stating:

> The A+ Schools Program will mobilize an intensive partnership among high schools, community colleges, students, teachers, parents, labor, businesses, and communities to give these students the motivation, skills, and knowledge to graduate from high school. It will create an innovative and well-designed path from high school to high skill, high wage jobs. (as cited in MO DESE, n.d, para. 1)

America's Promise. America's Promise was created because of a challenge presented at the Presidents' Summit for America's Future. At this summit, in 1997, "Presidents Clinton, Bush, Carter, and Ford (with Nancy Reagan representing President Reagan) challenged America to make children and youth a priority" (America's Promise Alliance, 2011b, para. 11). All 50 states, 30 governors, 100 mayors, 145 community delegations, and prominent business leaders were all represented at the Summit (America's Promise Alliance, 2007). General Colin Powell was the founder of America's Promise and his wife, Alma Powell, still plays an integral part in this Alliance

that utilizes more than 400 partners nationwide (America's Promise Alliance, 2011b). The goal is to end the high school dropout problem and help students to graduate prepared for the 21st century workforce (America's Promise Alliance, 2011c). This initiative is based upon five promises, derived from the work of Bill Milliken, the founder of Communities in Schools, Peter Benson from the Search Institute, and "a growing field of advocates and experts in positive youth development." The promises are:

1. Caring Adults
2. Safe Places
3. A Healthy Start
4. Effective Education
5. Opportunities to Help Others. (America's Promise Alliance, 2007, para. 15)

The Alliance chose against creating a new framework and followed Milliken's original four principles that were used for his organization (America's Promise Alliance, 2007). Marion Edelman with the Children's Defense Fund suggested adding "A Healthy Start" as the fifth principle because of the need for healthcare (America's Promise Alliance, 2007). These Five Basics are also referred to as the Five Promises. According to the Alliance, "children who receive at least four of the Five Promises are much more likely than those who experience only one or zero Promises to succeed academically, socially, and civically" (America's Promise Alliance, 2013a, para. 2). To maximize the full potential of the Five Promises, students must embed the Promises "in their families, at schools and out in their communities" (America's Promise Alliance, 2013a). America's Promise has established a goal to help them reach millions of disadvantaged youth, one "Promise" at a time. When their goal is achieved, they believe they will see

noticeable changes, specifically in regard to the graduation rates (America's Promise Alliance, 2007).

Summary

In summary, the literature has revealed that there are several factors which can contribute to whether or not a student drops out of high school. The overview of literature included a historical perspective on dropout and graduation rates and school size at the national level and state level. School size and school intervention programs were also reviewed in this chapter. The next chapter explains the methodology used to address the research questions stated in chapter one.

Chapter Three

Methods

The purpose of this study was to investigate whether school size has an impact on dropout totals. A secondary purpose was to look at the impact race/ethnicity percentage and socioeconomic status percentage had on the relationship between school size and dropout rate. This chapter includes the following sections: research design, population and sample, sampling procedures, instrumentation, data collection procedures, data analysis and hypothesis testing, and limitations.

Research Design

A quantitative research design was used for this study to examine the impact school size has on dropout total. The researcher analyzed archival data to compare schools of different sizes. The independent variables for this study were school size, race/ethnicity, and socioeconomic status percentage. The dependent variable for this study was dropout total.

Population and Sample

The population for this study included all public high schools (N = 564) in the state of Missouri during the 2011-2012 school year. The sample for this study was defined as Missouri high schools, grades 9-12, who reported a dropout total for the 2011-2012 school year.

Sampling Procedures

Purposive sampling, defined as "selecting a sample based on the researcher's experience or knowledge of the group to be sampled" (Lunenburg & Irby, 2008, p. 175) was used in this study. In order to be sampled the school had to meet the following

criteria: Missouri public high school with 9-12 grade configuration, and reported a dropout total for the 2011-2012 school year.

Instrumentation & Measurement

Missouri school data, for each school district and building, is accessible through the Missouri Department of Elementary and Secondary Education's data management system. Each district is responsible for the Core Data Collection System, which is "a web based data collection system with interactive edits used by each of the 522 local school districts" (Missouri DESE, 2012d, para. 2). Districts enter data into the data collection system six times a year to provide funding and ensure districts are in compliance with federal and state guidelines (Missouri DESE, 2012d).

School information is stored in an Excel worksheet on the DESE website. Data for all of the variables is recorded as a number or a percentage. For purposes of the current study, school size was defined as the total number of students enrolled in grades 9-12 as reported in the September Membership to the Missouri Department of Elementary and Secondary Education (DESE) during the October reporting cycle to the Core Data Collection System. The September Membership is defined as the "count of resident students in grades K-12 taken the last Wednesday in September who are enrolled on the count day and in attendance at least 1 of the 10 previous days of school" (Missouri DESE, 2011a, p. 3.)

Race/ethnicity was measured as the percentage of Indian, Asian, Hispanic, and Black students included in the September Membership Count for the 2011-2012 school year, and reported to DESE in the Core Data Collection System (Missouri DESE, 2012c). School district personnel report this data. For the purpose of this study, race/ethnicity

was calculated as the percentage of Non-White students. The percentage of Non-White students was calculated by adding together the race/ethnicity subgroups. In order to convert race/ethnicity to a categorical variable for hypothesis testing , descriptive statistics for the race/ethnicity percentage were used to determine the highest and lowest percentage in the data set. The difference was calculated by subtracting the lowest percentage from the highest percentage. This number was divided by 3 to create the low, moderate, and high race/ethnicity percentage categories.

Socioeconomic status was defined as the percentage of students who qualified for the free or reduced lunch program included in the January Membership Count for the 2011-2012 school year, and reported to DESE in the Core Data Collection System (Missouri DESE, 2012c). For the purpose of this study, poverty at a high school was calculated as the percentage of students who were eligible for free and reduced lunch and provided documentation through the application process using federal eligibility guidelines. Students automatically qualified if they resided in a household that received Food Stamps, Temporary Assistance, or the Food Distribution Program on Indian Reservations (Missouri DESE, 2013c). In order to conduct the hypothesis test using SES as a categorical variable, the highest and lowest percentage in the data set were identified. The difference was calculated by subtracting the lowest percentage from the highest percentage. This number was divided by 3 to create the low, moderate, and high socioeconomic status percentage categories.

In order to calculate the dropout totals, the average enrollment was calculated. The average enrollment (AE) is the function of the beginning September enrollment (BS) transfers in (TI), transfers out (TO), and subtracting dropouts (D). The formula follows:

$$\text{Dropout Rate} = (D/AE) \times 100,$$

$$\text{where } AE = (BS + BS + TI - TO - D) / 2$$

This is the formula the Missouri Department of Education uses to calculate the average enrollment (AE) and the dropout rate of each school.

Data Collection Procedures

A Proposal for Research (see Appendix A) was submitted on December 19, 2013 to the Baker University Institutional Review Board (IRB) requesting an exempt review due to the use of non-personally identifiable archival data. On April 14, 2014 the IRB granted approval for the study in accordance with Baker University's requirements and policies for conducting research under the exempt category (see Appendix B).

The data collection procedures were minimal as all the information collected is public on the Department of Secondary Education website. A Microsoft Excel spreadsheet consisting of school size, graduation rate, race/ethnicity percentage, and socioeconomic status percentage was downloaded from the DESE site. High schools that did not meet the specified criteria were removed from the spreadsheet. A spreadsheet containing the names of the high schools sampled for this study is included in Appendix C.

Data Analysis and Hypothesis Testing

The three research questions are listed below with the hypothesis that was posed along with the analysis used to test hypothesis. The type of analysis to test each hypothesis is also described.

Research Question 1. To what extent does school size impact dropout total?

Research Hypothesis 1: There is a positive correlation between school size and dropout total. A Pearson product moment correlation was calculated to index the strength and direction of the relationship between school size and dropout totals. A *t* test was conducted to test for the statistical significance of the correlation coefficient. The level of significance was set at .05.

Research Question 2. To what extent does race/ethnicity percentage impact the relationship between school size and dropout total?

Research Hypothesis 2: The relationship between school size and dropout totals is impacted by race/ethnicity percentage. Also calculated were Pearson product moment correlations between school size and dropout totals for schools that were low, moderate, and high in diversity. A Fisher's *z* test was conducted to compare each of the following: low race/ethnicity percentage schools with moderate race/ethnicity percentage schools, low race/ethnicity percentage schools with high race/ethnicity percentage schools, and moderate race/ethnicity percentage schools with high race/ethnicity percentage schools. The level of significance was set at .05.

Research Question 3. To what extent does socioeconomic status percentage impact the relationship between school size and dropout total?

Research Hypothesis 3: The relationship between school size and dropout total is impacted by socioeconomic status percentage. A Fisher's *z* test was conducted to compare each of the following: low socioeconomic status category with the moderate socioeconomic status category, low socioeconomic status category with the high socioeconomic status category, and moderate socioeconomic status category with the high socioeconomic status category. The level of significance was set at .05.

Limitations

According to Lunenburg & Irby (2008), "limitations are factors that may have an effect on the interpretation of the findings or on the generalizability of the results" (p. 133). The limitation for this study was the potential of errors that exist in the reporting of percentages of students receiving free and reduced lunch in high schools. The Federal School Nutrition Program is an opt-in program. Some high school students may choose not to enroll because of the stigma that may be attached to this program (Federal Education Budget Project, 2013).

Summary

This chapter contained a restatement of the purpose and research questions for this study. The participants were chosen through purposive sampling from public high schools in Missouri. Data collection and measurements for each variable were described in detail in this chapter. Finally, data analysis and hypothesis testing were reported in this chapter. The results are presented in chapter four.

Chapter Four

Results

The purpose of this study was to determine whether school size has a significant impact on dropout totals for public high schools in the state of Missouri. In previous chapters, the background of the study was stated, relevant literature was reviewed, methodology was identified, and research questions, hypotheses, and hypothesis testing were stated. In this chapter, the results of the hypothesis testing are presented.

Descriptive Statistics

In preparation for addressing research question 2, a categorical variable was constructed from the race/ethnicity percentages provided by DESE. The highest and lowest percentages in the data set were determined. The difference was calculated by subtracting the lowest percentage from the highest percentage. This number was divided by 3 to create the low, moderate, and high race/ethnicity percentage categories. The low category represented 0-33.3%, moderate represented 33.4-66.7%, and high 66.8-100%. Because of the disproportionate sample sizes among the categories, the moderate and high race/ethnicity percentage categories were combined. The low category included 444 schools and the moderate to high categories contained 47 schools.

In preparation for addressing research question 3, a categorical variable was constructed from the free and reduced lunch percentages provided by DESE. The smallest percentage was subtracted from the largest and the difference was divided by three. The sample of public high schools was divided into the following three subgroups: 6.6-34.27%, 34.28-61.95%, and 61.95-89.62% of students receiving free/reduced lunch.

The low category included 114 schools, the middle category contained 291 schools, and the high category contained 85 schools.

Hypothesis Testing

The research question and hypothesis stated to address each research question are listed below. The results of the analyses are described for each research question.

Research Question 1. To what extent does school size impact dropout total?

***Research Hypothesis 1*:** There is a positive correlation between school size and dropout total.

This research question was addressed by calculating a Pearson product moment correlation coefficient to index the strength and direction of the relationship between school size and dropout total. A *t* test was conducted to test for the statistical significance of the correlation coefficient. The level of significance was set at .05. The correlation coefficient (r = .452) provided evidence for a moderately strong positive relationship between school size and dropout total. The results of the one sample *t* test indicated a statistically significant relationship between school size and dropout total, df = 489, p = .000. As school size increases the dropout total increases.

Research Question 2. To what extent does race/ethnicity percentage impact the relationship between school size and dropout total?

Research Hypothesis 2: The relationship between school size and dropout total is impacted by race/ethnicity percentage.

The sample was divided into two subsamples based on whether the schools were not very racially diverse (low race/ethnicity percentage) and those that were moderately or highly diverse (high race/ethnicity percentage). A Pearson product moment

correlation was calculated for each subsample to index the direction and strength of the relationship between school size and dropout total. A Fisher's *z* test was conducted to address RQ 2. The two sample correlations were compared. The level of significance was set at .05. The results of the Fisher's *z* test indicated a statistically significant difference between the two values, $z = 5.563$, $p = .000$. The correlation for the schools with low ethnicity percentages ($r = .765$) was significantly stronger than the correlation for the schools with moderately high or high ethnicity percentages ($r = .128$). This difference in correlations is evidence that the size of the school is more closely related to dropout total in schools with fewer minority students than it is in schools with more minority students.

Research Question 3. To what extent does socioeconomic status percentage impact the relationship between school size and dropout total?

Research Hypothesis 3: The relationship between school size and dropout total is impacted by socioeconomic status. A Pearson product moment correlation was calculated for each subsample to index the direction and the strength of the relationship between school size and dropout total. Three Fisher's *z* tests were conducted to address RQ 3, as indicated in table 2. The sample correlations were compared for the low free or reduced lunch percentage schools and the moderate free or reduced lunch percentage schools, the low free or reduced lunch percentage schools and high free or reduced lunch percentage schools, and the moderate free or reduced lunch percentage schools and high free or reduced lunch percentage schools. The level of significance was set at .05. The results of the Fisher's *z* test indicated a statistically significant difference between the correlations for each pair of school categories. The correlation for the schools with low

free or reduced lunch percentages (r = .763) was significantly weaker than the correlation for the schools with moderately high free or reduced lunch percentages (r = .839). The correlation for the schools with low free or reduced lunch percentages (r = .763) was significantly stronger than the correlation for the schools with high free or reduced lunch percentages (r = .523). The correlation for the schools with moderately high free or reduced lunch percentages (r = .839) was significantly stronger than the correlation for the schools with high free or reduced lunch percentages (r = .523).

Table 2

Socioeconomic Variable Comparisons

Comparison	*R*	*R*	*Z*	*p*
Low & Moderate	0.763	0.839	-3.877	0.000
Low & High	0.763	0.523	2.904	0.002
Moderate & High	0.839	0.523	5.092	0.000

These differences between correlations provide evidence that the size of the school is more closely related to dropout total in schools who fall in the moderate category of free & reduced lunch percentages than it is in schools who fall in the low or high category of free & reduced lunch percentages.

Summary

This chapter included the results from the calculation of the correlation coefficient, the testing of the statistical significance of the correlation, and the comparison of the correlation based on race/ethnicity and socioeconomic status. Results indicated there was a statistically significant relationship between school size and dropout rate. As school size increases, the dropout total also increases. An additional variable

tested, ethnicity, relationship to dropout rate indicated the size of the school is more closely related in schools with fewer minority students than it is in schools with more minority students. Lastly, in regards to the socioeconomic variable, results indicated the size of the school is more closely related to dropout total in schools who fall in the moderate category of free & reduced lunch students than it is in schools who fall in the low or high category of free and reduced lunch students. Examination of the results indicated that ethnicity has a stronger impact on dropout total than the socioeconomic variable. Chapter five presents major findings, implications for action, recommendations for future studies, and concluding remarks.

Chapter Five

Interpretation and Recommendations

The preceding four chapters have presented background, problem, significance, purpose, and research questions of this study. Next, a review of literature related to the history and factors of student dropouts, as well as school interventions, was presented. Finally, the research methodology of the study and the resulting hypothesis tests and statistical analysis of the data collected during the study were presented as well as the results of the descriptive statistics and hypotheses testing. The fifth chapter presents a study summary including an overview of the problem, purpose statement and research questions, review of methodology, and major findings. In addition, findings related to the literature, implications for action, recommendations for future research and concluding remarks are also included.

Study Summary

This study was conducted to determine the impact school size had on dropout totals. The sample consisted of Missouri public high schools that reported a dropout total for the 2011-2012 school year. This section provides a brief overview of chapters one through four of the study. The overview includes an overview of the problem, purpose statement and research questions, review of methodology, and major findings.

Overview of the Problem. Dropout rates are a concern for districts not only in Missouri, but also across the United States. With almost one in four U.S. public school students dropping out of high school before graduation, America continues to face a dropout epidemic (America's Promise Alliance, 2011). As a result, the Grad Nation campaign, launched by America's Promise, has goals for the project including each high

school reaching a graduation rate of 90% by 2020, which translates to a 10% dropout rate (America's Promise Alliance, 2011).

There are several factors that could contribute to a high school student dropping out of school such as: held back a grade, attendance, grades, family structure, race, gender, or socioeconomic status (Hammond et al., 2007). Although there are several factors that may contribute to a student dropping out of school, one that school districts across the nation can control is school size. Because of the vast array of school sizes of Missouri public high schools, this variable should be addressed as potentially relevant to the likelihood of students staying in school.

Purpose Statement and Research Questions. The purpose of this study was to determine if school size has a significant impact on dropout total. The study attempted to determine if students attending schools with fewer students have a better chance of graduating than those with more students. A secondary purpose was to determine the effect race/ethnicity percentages and socioeconomic status percentages had on the relationship between school size and dropout total. Three research questions were posed to address the purposes of the study.

Review of Methodology. This quantitative research study examined the impact school size had on dropout total. The independent variables for this study were school size, race/ethnicity, and socioeconomic status. The dependent variable for this study was dropout total. Pearson product moment correlations were calculated to index the strength and direction of the relationship between each variable. Additionally, a t-test was used to test the statistical significance of the correlation and a Fisher's *z* was used to compare pairs of correlations.

Major Findings. Results indicated there is a statistically significant relationship between school size and dropout total. As school size increases, the dropout total also increases. School size also has more of an impact on dropout total when schools are less diverse. Lastly, results indicated the size of the school is more closely related to dropout total in schools with fewer free & reduced lunch students than it is in schools with more free and reduced lunch students.

Findings Related to the Literature.

This section connects the current study's finding with previous studies related to school size and high school dropout rates. The results of this study indicated that school size had a significant effect on dropout total. These results corresponded to the Johns Hopkins study where it was determined that 61% of urban schools and only 5% of rural schools "entering freshman had less than a 50/50 chance of graduating four years later" (Hammon, Linton, Smink & Drew, 2007, p. 16). Additionally, the results of this study supported the National Education Association findings that indicated a 67.9% graduation rate of students who attended small high schools compared to 59.3% graduation rate for those that attended larger high schools (Hu, 2012). There are several factors that contribute to students dropping out of school, as stated in chapter two.

The results of this study also indicated the difference in correlations as evident that the size of the school is more closely related to dropout total in schools with fewer minority students than it is in schools with more minority students. "This result supports the research that one in four African American and one in six Hispanic students still attend high schools where graduating is not the norm" (Balfanz et al., 2013, p. 18). It is

important for communities to provide support for minority groups and students in poverty so they have a greater chance to graduate (Hale & Canter, 1998).

Finally, the current study's results that the size of the school is more closely related to dropout total in schools with fewer free and reduced lunch students supports the research that factors pertaining to poverty play a role in students dropping out. "In 2009, poor (bottom 20 percent of all family incomes) students were five times more likely to drop out of high school than high-income (top 20 percent of all family incomes) students" (as cited in Rumberger, 2013, para. 3). Factors pertaining to poverty also play a role in students dropping out. These factors include: high mobility and homelessness, hunger and food insecurity, parents who are in jail or absent, domestic violence, and drug abuse. This study's results support the research conducted for the Bill and Melinda Gates Foundation where dropouts were surveyed and asked the reasoning for dropping out of school. "One third (32 percent) said they had to get a job and make money; 26 percent said they became a parent; and 22 percent said they had to care for a family member" (Bridgeland et al., 2006, p. 1). These communities that are impoverished or have high populations of minorities are at risk of a higher dropout rate (Rumberger, 2013).

Conclusions

Results indicated there was a statistically significant relationship between school size and dropout rate. Results also revealed that the size of the school is more closely related to academic achievement in schools with fewer minority students than it is in schools with more minority students. Lastly, results indicated the size of the school is more closely related to dropout total in schools with a moderate percentage of free & reduced lunch students than it is in schools with a low percentage or high percentage of

free & reduced lunch students. This section provides implications for actions, suggestions for additional research, and concluding remarks.

Implications for Action. School districts face difficult decision as they search for ways to keep students in school and meet the demands of No Child Left Behind. The findings of this study reveal that as school size increases, so does the number of dropouts. Additionally, the variables of ethnicity and socioeconomic status also have different degrees of significance on school size and dropout totals. Thus, it is important for school leaders and communities to realize the profound implications school size and variables have on the high school dropout problem. It is critical to keep school sizes at an optimal size so students have a greater chance to graduate.

With these results, key stakeholders can address the dropout problem and have a better understanding of where to focus and maximize their efforts. Also, the results will allow for educators to predict school dropout rates so they can allocate resources for intervention programs. Furthermore, the variables chosen for this study were also the focus of intervention programs outlined in chapter two, and may be used as appropriate recommendations for schools. School communities must continue to implement and evaluate programs that help keep students from dropping out of school.

Recommendations for Future Research. The researcher examined the relationship between school size and dropout total in Missouri high schools. Additionally, the effect ethnicity and socioeconomic status had on school size and dropout total was also examined. Recommendations for future research to improved and extend this research include the following:

1. A researcher could expand the current study to include additional variables that impact dropout totals such as: academic achievement, discipline data, and attendance percentage.
2. A researcher could replicate the current study using longitudinal data to assess the relationship between school size and dropout total over time.
3. A researcher could expand the current study to include qualitative research using interviews, observations, and focus groups to support the quantitative research measures already revealed.
4. A researcher could replicate the study using data from other states to determine if findings are similar to Missouri high schools.
5. A researcher could conduct an additional study to determine optimal school size for high schools.

Concluding Remarks. The study examined the relationship between the school size and dropout total of Missouri high schools. Results indicated that the higher the school size, the higher the dropout total. Therefore, this issue continues to affect all students, making it difficult for these young adults to succeed as well as cost the economy billions of dollars. By analyzing the data even further, by completing the recommendations for future research, school district and communities can begin to plan and provide resources for students to prevent them from dropping out of school.

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Appendix A: IRB

BAKER UNIVERSITY

School of education
Graduate department

Date: 12/19/2013

IRB PROTOCOL NUMBER _____
(irb USE ONLY)

IRB Request

Proposal for Research
Submitted to the Baker University Institutional Review Board

I. Research Investigator(s) (Students must list faculty sponsor first)

Department(s) **School of Education Graduate Department**

Name	Signature	
1. Dr. Harold Frye		Major Advisor
2. Margaret Waterman		~~Research~~ Analyst
3. Cynthia Appl		University Committee Member
4. Dr. Suzanne Tiemens		External Committee Member

Principal Investigator: Sandy B. Steggall
Phone: 816-294-7442
Email: sandy.steggall@sjsd.k12.mo.us
Mailing address: 3305 West Devonshire Drive St. Joseph, MO 64506

Faculty sponsor: Dr. Harold Frye
Phone: 913-491-4432
Email: Harold.frye@bakeru.edu
Expected Category of Review: ___X_Exempt ___Expedited ____Full

II: Protocol Title: Relationship Between School Size and Graduation Rate

Summary
The following summary must accompany the proposal. Be specific about exactly what participants will experience, and about the protections that have been included to safeguard participants from harm. Careful attention to the following may help facilitate the review process:

In a sentence or two, please describe the background and purpose of the research.
The purpose of the study is to determine if school size has an impact on graduation rate. Ethnicity and socioeconomic status are additional variables that will be examined. The sample will include all public high schools in Missouri that meet specified criteria.

Briefly describe each condition or manipulation to be included within the study.
There are no conditions or manipulation included in the study.

What measures or observations will be taken in the study? If any questionnaire or other instruments are used, provide a brief description and attach a copy.
All measurements for this study are derived from public data on the Missouri Department of Elementary and Secondary website.

Will the subjects encounter the risk of psychological, social, physical, or legal risk? If so, please describe the nature of the risk and any measures designed to mitigate that risk.
The subjects will not encounter the risk of psychological, social, physical, or legal risk in this study.

Will any stress to subjects be involved? If so, please describe.
No, the subjects will not be under any stress.

Will the subjects be deceived or misled in any way? If so, include an outline or script of the debriefing.
No, the subjects will not be deceived or misled.

Will there be a request for information that subjects might consider to be personal or sensitive? If so, please include a description.
The data used in this study is examined at the building level and is not personal or sensitive.

Will the subjects be presented with materials which might be considered to be offensive, threatening, or degrading? If so, please describe.
The material presented is not offensive, threatening, or degrading toward the subjects.

Approximately how much time will be demanded of each subject?
All data is archival so time will not be demanded of the subjects.

Who will be the subjects in this study? How will they be solicited or contacted? Provide an outline or script of the information which will be provided to subjects prior to their volunteering to participate. Include a copy of any written solicitation as well as an outline of any oral solicitation.
The subjects in this study were all public school buildings in the state of Missouri. There will not be any additional solicitation.

What steps will be taken to insure that each subject's participation is voluntary? What if any inducements will be offered to the subjects for their participation?
All public school districts in Missouri must provide demographic and graduation rates to the Missouri Department of Elementary and Secondary Education. No additional participation will be necessary for this study.

How will you insure that the subjects give their consent prior to participating? Will a written consent form be used? If so, include the form. If not, explain why not.
Subjects will not be contacted for this study. All data is public information made available by the Missouri Department of Elementary and Secondary Education.

Will any aspect of the data be made a part of any permanent record that can be identified with the subject? If so, please explain the necessity.
No data will be made a part of any permanent record from this study.

Will the fact that a subject did or did not participate in a specific experiment or study be made part of any permanent record available to a supervisor, teacher or employer? If so, explain.
Archived data will be used for this study. No data will be made part of any permanent record as a result of this study.

What steps will be taken to ensure the confidentiality of the data? Where will it be stored? How long will it be stored? What will be done with it after the study is complete?
All data given to the researcher will remain confidential and only reviewed by the researcher and the researcher's committee. It will be stored during the duration of this study and will be deleted after research is completed.

If there are any risks involved in the study, are there any offsetting benefits that might accrue to either the subjects or society?
There is no risk involved in this research study.

Will any data from files or archival data be used? If so, please describe.
All data used for this study is public archival data downloaded from the Missouri Department of Elementary and Secondary Education website.

Appendix B: IRB Approval

April 28, 2014

Sandy Steggall,

The Baker University IRB has reviewed your research project application regarding your proposal and has approved it under Expedited Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

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

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

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

Sincerely,

Thomas Peard
Chair, Baker University IRB

cc : Harold Frye

Appendix C: School Names

SCHOOL NAME

!

"#"$%&' (!) $*) !

1050 ADAIR CO. HIGH
ADRIAN SR. HIGH
ADVANCE HIGH
AFFTON HIGH
ALBANY HIGH
ALTON HIGH
APPLETON CITY HIGH
ARCADIA VALLEY HIGH
ARCHIE HIGH
ASH GROVE HIGH
ATLANTA HIGH
AURORA HIGH
AVA HIGH
BAKERSFIELD HIGH
BALLARD HIGH
BAYLESS SR. HIGH
BELL CITY HIGH
BELTON HIGH
BERNIE HIGH
BEVIER HIGH
BILLINGS SR. HIGH
BISMARCK R-V HIGH
BLAIR OAKS HIGH
BLOOMFIELD HIGH
BLUE EYE HIGH
BLUE SPRINGS HIGH
BLUE SPRINGS SOUTH HIGH
BOLIVAR HIGH
BOONVILLE HIGH
BOSWORTH HIGH
BOWLING GREEN HIGH
BRADLEYVILLE HIGH
BRANSON HIGH
BRAYMER HIGH
BRECKENRIDGE HIGH
BRENTWOOD HIGH
BRONAUGH HIGH
BROOKFIELD HIGH
BRUNSWICK HIGH
DEKALB JR.-SR. HIGH
BUCKLIN HIGH
BUNKER HIGH
BUTLER HIGH
CABOOL HIGH
CAINSVILLE HIGH
CALHOUN HIGH
CAMDENTON HIGH
CAMERON HIGH
CAMPBELL HIGH
CANTON HIGH
CENTRAL HIGH
CARL JUNCTION HIGH
SENIOR HIGH
CARTHAGE HIGH SCHOOL
CARUTHERSVILLE HIGH
CASSVILLE HIGH
CENTER SR. HIGH
CENTRAL HIGH
CENTRALIA HIGH
CHADWICK HIGH
CHAFFEE JR.-SR. HIGH
CHARLESTON HIGH
CHILHOWEE HIGH
CHILLICOTHE HIGH
CLARK CO. HIGH
CLARKTON HIGH
CLAYTON HIGH
CLEARWATER HIGH
CLEVER HIGH
CLIMAX SPRINGS HIGH
CLINTON SR. HIGH
PLATTSBURG HIGH
COLE CAMP HIGH
RUSSELLVILLE HIGH
EUGENE HIGH
DAVID H. HICKMAN HIGH
ROCK BRIDGE SR. HIGH
COMMUNITY HIGH
CONCORDIA HIGH
BUNCETON HIGH
COOTER HIGH
COUCH HIGH
CRAIG HIGH

CRANE HIGH
BOURBON HIGH SCHOOL
CUBA HIGH
CROCKER HIGH
CRYSTAL CITY HIGH
DADEVILLE SR. HIGH
BUFFALO HIGH
DELTA C-7 HIGH
DELTA HIGH
DESOTO SR. HIGH
DEXTER HIGH
DIAMOND HIGH
DIXON HIGH
DONIPHAN HIGH
DORA HIGH
DREXEL HIGH
HERCULANEUM HIGH
EAST BUCHANAN HIGH
EAST CARTER CO. R-II HIGH
EAST NEWTON HIGH
EAST PRAIRIE HIGH
EL DORADO SPRINGS HIGH
ELDON HIGH
ELSBERRY HIGH
EMINENCE HIGH
EVERTON HIGH
EXCELSIOR SPRINGS HIGH
EXETER HIGH
FAIR GROVE HIGH
FAIR PLAY HIGH
FAIRFAX HIGH
FARMINGTON SR. HIGH
FAYETTE HIGH
MCCLUER HIGH
MCCLUER NORTH HIGH
MCCLUER SOUTH-BERKELEY HIGH
FESTUS SR. HIGH
FORDLAND HIGH
FORSYTH HIGH
FORT OSAGE HIGH
FOX SR. HIGH
SECKMAN SR. HIGH
FRANCIS HOWELL CENTRAL HIGH
FRANCIS HOWELL HIGH
FRANCIS HOWELL NORTH HIGH
FREDERICKTOWN HIGH
FT. ZUMWALT EAST HIGH
FT. ZUMWALT NORTH HIGH
FT. ZUMWALT SOUTH HIGH
FT. ZUMWALT WEST HIGH
FULTON SR. HIGH
GAINESVILLE HIGH
GALENA HIGH
GALLATIN HIGH
HERMANN HIGH
OWENSVILLE HIGH
GIDEON HIGH
GILMAN CITY HIGH
GLASGOW HIGH
GOLDEN CITY HIGH
GRAIN VALLEY HIGH
GRANDVIEW SR. HIGH
GRANDVIEW HIGH
GREEN CITY HIGH
GREEN RIDGE HIGH
GREENFIELD HIGH
GREENVILLE HIGH
GRUNDY CO. HIGH
HALE HIGH
HALFWAY SECONDARY
HALLSVILLE HIGH
PENNEY HIGH
HANCOCK SR. HIGH
HANNIBAL SR. HIGH
HARDIN-CENTRAL HIGH
HARRISBURG HIGH
HARRISONVILLE HIGH
HARTVILLE HIGH
HAYTI HIGH
HAZELWOOD CENTRAL HIGH
HAZELWOOD EAST HIGH
HAZELWOOD WEST HIGH
WINDSOR HIGH
HERMITAGE HIGH
RUSKIN HIGH SCHOOL
SKYLINE HIGH

HIGBEE HIGH
HILLSBORO HIGH
HOLCOMB HIGH
HOLDEN HIGH
HOLLISTER HIGH
HOUSTON HIGH
HUMANSVILLE HIGH
HUME HIGH
HURLEY HIGH
IBERIA HIGH
TRUMAN HIGH
VAN HORN HIGH
WILLIAM CHRISMAN HIGH
VIBURNUM HIGH
JACKSON SR. HIGH
JAMESTOWN C-I HIGH
JASPER HIGH
JEFFERSON HIGH
JEFFERSON CITY HIGH
JEFFERSON HIGH SCHOOL
JENNINGS HIGH
CREST RIDGE HIGH
JOPLIN HIGH
EAST HIGH SCHOOL
NORTHEAST HIGH
KEARNEY HIGH
KENNETT HIGH
KEYTESVILLE HIGH
KING CITY HIGH
KINGSTON HIGH
KINGSVILLE HIGH
KIRKSVILLE SR. HIGH
KIRKWOOD SR. HIGH
KNOB NOSTER HIGH
KNOX CO. HIGH
LA MONTE HIGH
LA PLATA HIGH
CONWAY HIGH
LADUE HORTON WATKINS HIGH
LAFAYETTE CO. HIGH
LAKELAND HIGH
LAMAR HIGH
LAQUEY R-V HIGH
LATHROP HIGH
LAWSON HIGH
LEBANON SR. HIGH
LEE'S SUMMIT NORTH HIGH
LEE'S SUMMIT SR. HIGH
LEE'S SUMMIT WEST HIGH
LEETON HIGH
LEOPOLD HIGH
LESTERVILLE HIGH
HIGHLAND JR.-SR. HIGH
LEXINGTON HIGH
LIBERAL HIGH
LIBERTY HIGH
LIBERTY NORTH HIGH SCHOOL
LICKING HIGH
LINCOLN HIGH
LINDBERGH SR. HIGH
LINN CO. HIGH
LOCKWOOD HIGH
LOGAN-ROGERSVILLE HIGH
LONE JACK HIGH
LOUISIANA HIGH
LUTIE HIGH
MACKS CREEK HIGH
MACON SR. HIGH
MACON CO. HIGH
MADISON HIGH
MALDEN HIGH
MALTA BEND HIGH
MANSFIELD HIGH
MAPLEWOOD-RICHMOND HGTS. HIGH
MARCELINE HIGH
VIENNA HIGH
BELLE HIGH
MARION C. EARLY HIGH
MARION CO. HIGH
MARIONVILLE HIGH
MARQUAND-ZION HIGH
MARSHALL SR. HIGH
MARSHFIELD HIGH
MARYVILLE HIGH
MAYSVILLE JR.-SR. HIGH
MCDONALD COUNTY HIGH

MEADOW HEIGHTS HIGH
MEADVILLE HIGH
MEHLVILLE HIGH SCHOOL
OAKVILLE SR. HIGH
PACIFIC HIGH
MEXICO HIGH
MIAMI HIGH
MID-BUCHANAN SR. HIGH
MIDWAY HIGH
MILAN HIGH
TUSCUMBIA HIGH
MILLER HIGH
WHEELER HIGH
MOBERLY SR. HIGH
MONETT HIGH
CALIFORNIA HIGH
MONROE CITY R-I HIGH
MONTGOMERY CO. HIGH
MONTROSE HIGH
MORGAN CO. R-I HIGH
MORGAN CO. HIGH
MOUND CITY HIGH
MOUNTAIN GROVE HIGH
LIBERTY SR. HIGH
MT. VERNON HIGH
NAYLOR HIGH
NEELYVILLE HIGH
NEOSHO HIGH
NEVADA HIGH
NEW BLOOMFIELD HIGH
New Franklin Middle-High
NEW HAVEN HIGH
CENTRAL HIGH
NEWBURG HIGH
NEWTOWN-HARRIS HIGH
NIANGUA HIGH
NIXA HIGH
NODAWAY-HOLT JR.-SR. HIGH
NORBORNE HIGH
NORMANDY HIGH
NORTH ANDREW HIGH
NORTH CALLAWAY HIGH
NORTH DAVIESS HIGH
NORTH HARRISON HIGH
NORTH KANSAS CITY HIGH
OAK PARK HIGH
STALEY HIGH
WINNETONKA HIGH
MERCER HIGH
NORTH NODAWAY JR.-SR. HIGH
NORTH PEMISCOT SR. HIGH
NORTH PLATTE HIGH
NORTH SHELBY HIGH
NORTH CO. SR. HIGH
NORTHEAST NODAWAY HIGH
NORTHEAST HIGH
NORTHEAST VERNON CO. R-I HIGH
NORTHWEST HIGH
NORTHWESTERN HIGH
NORWOOD HIGH
OAK GROVE HIGH
OAK RIDGE HIGH
ODESSA HIGH
ORAN HIGH
ORCHARD FARM SR. HIGH
KOSHKONONG HIGH
ORRICK HIGH
CHAMOIS HIGH
LINN HIGH
FATIMA HIGH
OSBORN HIGH
OSCEOLA JR.-SR. HIGH
OTTERVILLE HIGH
OZARK HIGH
PALMYRA HIGH
PARIS HIGH
PARK HILL HIGH
PARK HILL SOUTH HIGH
CENTRAL HIGH
FERN RIDGE HIGH
NORTH HIGH
SOUTH HIGH
WEST HIGH
PATTONSBURG HIGH
PATTONVILLE SR. HIGH
PERRYVILLE SR. HIGH

NORTHWEST HIGH
PIERCE CITY HIGH
CLOPTON HIGH
PILOT GROVE HIGH
PLATO HIGH
PLATTE COUNTY HIGH
PLEASANT HILL HIGH
PLEASANT HOPE HIGH
POLO HIGH
POPLAR BLUFF HIGH
PORTAGEVILLE HIGH
POTOSI HIGH
PRAIRIE HOME HIGH
PRINCETON R-V JR.-SR. HIGH
PURDY HIGH
PUTNAM CO. HIGH
PUXICO HIGH
MARK TWAIN SR. HIGH
RAYMORE-PECULIAR SR. HIGH
RAYTOWN SOUTH SR. HIGH
RAYTOWN SR. HIGH
REEDS SPRING HIGH
REPUBLIC HIGH
RICH HILL HIGH
RICHLAND HIGH
RICHLAND HIGH
RICHMOND HIGH
RIDGEWAY HIGH
RISCO HIGH
RITENOUR SR. HIGH
RIVERVIEW GARDENS SR. HIGH
ROCK PORT HIGH
EUREKA SR. HIGH
LAFAYETTE SR. HIGH
MARQUETTE SR. HIGH
ROCKWOOD SUMMIT SR. HIGH
ROLLA SR. HIGH
SALEM SR. HIGH
SALISBURY HIGH
SANTA FE HIGH
SARCOXIE HIGH
SAVANNAH HIGH
OSAGE HIGH
SCHUYLER CO. HIGH
SCOTLAND CO. HIGH
SCOTT CITY HIGH
SCOTT CO. CENTRAL HIGH
THOMAS W. KELLY HIGH
SMITH-COTTON HIGH SCHOOL
SENATH-HORNERSVILLE SR. HIGH
SENECA HIGH
SEYMOUR HIGH
SOUTH SHELBY HIGH
SHELDON HIGH
SHERWOOD HIGH
SIKESTON SR. HIGH
SILEX HIGH
SLATER HIGH
SMITHTON HIGH
SMITHVILLE HIGH
SOUTH CALLAWAY HIGH
SOUTH HARRISON HIGH
SOUTH HOLT HIGH
SOUTH IRON HIGH
SOUTH NODAWAY HIGH
SOUTH PEMISCOT HIGH
SOUTHERN BOONE HIGH
ELLINGTON HIGH SCHOOL
SOUTHLAND HIGH
SOUTHWEST LIVINGSTON CO R-1 HS
SOUTHWEST HIGH
SPARTA HIGH
SPOKANE HIGH
CENTRAL HIGH
GLENDALE HIGH
HILLCREST HIGH
KICKAPOO HIGH
PARKVIEW HIGH
ST. CHARLES HIGH
ST. CHARLES WEST HIGH
ST. CLAIR HIGH
ST. ELIZABETH HIGH
ST. JAMES HIGH
BENTON HIGH
CENTRAL HIGH
LAFAYETTE HIGH

BEAUMONT CTE HIGH SCHOOL
* " +, - " . !) $*) !
METRO HIGH
ROOSEVELT HIGH
SUMNER HIGH
VASHON HIGH
STANBERRY HIGH
STE. GENEVIEVE SR. HIGH
STEELVILLE HIGH
STET HIGH
STEWARTSVILLE HIGH
STOCKTON HIGH
STOUTLAND HIGH
STRAFFORD HIGH
STURGEON HIGH
SULLIVAN SR. HIGH
SUMMERSVILLE HIGH
SWEET SPRINGS HIGH
TARKIO HIGH
THAYER SR. HIGH
TINA-AVALON HIGH
TIPTON HIGH
TRENTON SR. HIGH
TRI-COUNTY HIGH
TROY BUCHANAN HIGH
TWIN RIVERS HIGH
UNION HIGH
UNION STAR HIGH
UNIVERSITY CITY SR. HIGH
VALLEY PARK SR. HIGH
VALLEY HIGH
VAN BUREN HIGH
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VAN-FAR JR./SR. HIGH
VERONA HIGH
WALNUT GROVE HIGH
WARRENTON HIGH
WARRENSBURG HIGH
WARSAW HIGH
WASHINGTON HIGH
WAYNESVILLE SR. HIGH
WEAUBLEAU HIGH
WEBB CITY HIGH
WEBSTER GROVES HIGH
WELLINGTON-NAPOLEON HIGH
WELLSVILLE HIGH
EMIL E. HOLT SR. HIGH
TIMBERLAND HIGH
WEST NODAWAY HIGH
WEST PLAINS SR. HIGH
WEST PLATTE HIGH
WEST COUNTY HIGH
WESTRAN HIGH
WHEATLAND HIGH
WHEATON HIGH
WILLARD HIGH
WILLOW SPRINGS HIGH
WINDSOR HIGH
WINFIELD HIGH
WINONA HIGH
WINSTON HIGH
WOODLAND HIGH
WORTH CO. HIGH
WRIGHT CITY HIGH
ZALMA HIGH