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Predictive Effects of Absence, Gender, and Lunch Status on Math and Literacy Achievement

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PREDICTIVE EFFECTS OF ABSENCE, GENDER, AND LUNCH STATUS ON MATH AND LITERACY ACHIEVEMENT

by

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DEDICATION

I dedicate this dissertation to my sisters, Laura and Sarah. Farmer toes, how's Howard, toudles, and epizudic . . . we are inextricably tied to a central belief system and experiences that many will not understand. My hope is that our children will grow to have a similar bond to share. I appreciate your support and encouragement to achieve my goals.

ABSTRACT

by
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Title: Predictive Effects of Absence, Gender, and Lunch Status on Math and Literacy Achievement (Under the direction of Dr. Diana Julian)

The purpose of this study was to determine if any predictive effects exist between absence, gender, lunch status, and math and literacy achievement on exams. While research supported the predictive effects of absence, gender, and lunch status on achievement there was inadequate data to determine which predictor played a more significant role.

A quantitative, regression strategy was used to analyze data from students in a rural school in northwest Arkansas. All students in this rural district who had taken the Arkansas Augmented Assessment in math and literacy required under the Arkansas accountability requirements comprised the sample for this study. The population for this study included a total district population of 1,159 students with 89 fourth grade students and 105 eighth grade student that took the Arkansas Augmented Benchmark exam under the state mandated assessments.

Absence, gender, and lunch status, fourth and eighth grade Arkansas Augmented Benchmark exams served as independent variables. The measures for academic achievement, the dependent variables, were the Grades 4 and 8 literacy and math scaled

scores from the Arkansas Augmented Benchmark exams. While the overall model was not statistically significant, student lunch status was the least significant while student absence had a stronger variable correlation.

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CHAPTER I

INTRODUCTION

High-stakes testing, with schools competing for the top position in education and ultimately student enrollment numbers, has caused educators to focus primarily on test scores. High-stakes testing not only measures individual student performance but also measures the level of performance for schools and school districts. This testing can determine the funding available for schools, affecting the successful operation of a school district. Since the inception of high-stakes testing, educators have closely examined students to determine what specific influences are present to assist students in performing above average on state exams.

Student achievement, therefore, is a growing concern for all schools in the United States. Since the passage of the federal No Child Left Behind Act of 2002 (NCLB), schools throughout the country must make adequate yearly progress (AYP) to improve annually toward a goal of 100% proficiency by 2014. The measurement and method of calculating AYP is left to the individual states subject to various limitations (NCLB, 2002).

If a school receives federal funds, a failure to make AYP can also affect funding (NCLB, 2002). Failure also affects state funding and can even result in restrictions on or loss of local control over the school (Arkansas Department of Education, 2003). More importantly for individual students, the goal to improve can encourage some students to

continue making progress toward their life and career goals. Marks (2006) found that low scores on achievement tests significantly reduced the chance of school completion and even more strongly reduced the chance of university enrollment. Marks also found that after leaving school, students with low achievement scores were more likely to be unemployed or not in the labor force compared to those with higher achievement scores.

Ensuring that students receive an adequate education to meet their learning needs is essential. That level of need sometimes depends on multiple intelligences and different learning styles. The United States Department of Education is sympathetic to some of these factors and its regulations include provisions for students who face specified circumstances. For example, funding is provided to meet the needs of students who qualify for free and reduced lunch according to their socioeconomic status (SES) (Healthy, Hunger-Free Kids Act of 2010).

A large number of factors can contribute to students' performance on the benchmark examinations and the resulting raw scores in mathematics and literacy. Some factors found to have a positive correlation with higher achievement are higher SES, student motivation, teacher knowledge and ability, and physical fitness (Blom, Alvarez, Zhang, & Kolbo, 2011; Caro, 2009; Newman et al., 2012; Trumbull & Rothstein-Fisch, 2011). Factors that seem to correlate with lower achievement are lower SES, student absenteeism, ethnic or racial minority status, cultural minority status, and status as an English language learner (Caro, 2009; Myers, 2000b; National Center for Education Statistics, 2009, 2011; Trumbull & Rothstein-Fisch, 2011). The relationship of yet other factors to academic achievement, such as gender and geographic location, is unclear (Karaarslan & Sungur, 2011; Marks, 2006). Research needs to continue to examine what

factors positively or negatively affect student achievement, particularly in math and literacy.

Statement of the Problem

The purposes of this study were four-fold. First, the purpose of this study was to determine the predictive effects of school absences, gender, and lunch status on math achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. Second, the purpose of this study was to determine the predictive effects of school absences, gender, and lunch status on literacy achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. Third, the purpose of this study was to determine the predictive effects of school absences, gender, and lunch status on math achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas. Fourth, the purpose of this study was to determine the predictive effects of school absences, gender, and lunch status on literacy achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in rural school district located in northwest Arkansas.

Background

Many factors influence a student's achievement on high-stakes tests. Everything from a student's innate, individual ability to whether he or she got a good night's sleep before the test can affect academic performance. Any study on achievement must necessarily deal with more general, and therefore more imprecise, factors that can be

measured objectively and can be shared by a number of students that make analysis of certain issues meaningful.

Legal Mandates to Increase Student Achievement

After NCLB became law, the Arkansas Comprehensive Testing, Assessment, and Accountability Program Act of 1983 was amended to add a requirement that Arkansas schools meet AYP goals that conform to federal requirements (ARK. CODE ANN. § 6-15-404, 2011). State law defines levels of student achievement determined by raw scores on the Arkansas Augmented Benchmark Examination. The levels are classified in the hierarchy categories of advanced, proficient, basic and below basic (ARK. CODE ANN. § 6-15-2102, 2007). These defined performance indicators assist Arkansas teachers in proper placement of students in addition to serving as indicators of a school's AYP.

In Arkansas, all AYP calculations are made through the Office of Research, Measurement, and Evaluation at the University of Arkansas. Arkansas Department of Education (2003) reviews the data and then notifies each school of its final status. At that point, the schools are assigned one of the following categories: annual performance and annual improvement. Within the two categories, five rating levels exist: a Level 1 school is in need of immediate improvement, a Level 2 school is on alert, a Level 3 school meets standards, a Level 4 school exceeds standards, and a Level 5 school displays excellence (ARK. CODE ANN. § 6-15-2102 to -2103, 2007). As a result of continued improvement, the Arkansas School Recognition Program program provides financial awards to schools that reach at least Level 3 in improvement or Level 4 in performance, with the awards to be used for teacher bonuses or other non-recurring expenditures (ARK. CODE ANN. § 6-15-2107, 2011). If a school fails to meet AYP,

resulting in a rating of Level 1, for 2 or more years, its students have the option to transfer to a different public school (Arkansas Opportunity School Choice Act of 2004). If the failure continues for 4 years, the state establishes and implements a corrective plan. After 5 years of non-improvement, the state restructures the school (Arkansas Department of Education, 2003). At the district level, after just the first year of failing to meet AYP, the state can take actions ranging from reducing administrative funds to removing local control of individual schools up to and including completely disbanding the local school board and replacing the superintendent (Arkansas Department of Education, 2003). Therefore, schools and school districts have a strong incentive to maximize student achievement on high-stakes tests beyond the desire to educate their students well.

School Absenteeism and Student Achievement

Myers (2000a) found that even a small change in the attendance rate had a strong impact on student achievement as measured by standardized reading and mathematics tests. Lower attendance rates were a factor in lower test scores for all students, but most strongly for racial and ethnic minorities. The strongest attendance rate influence was on the mathematics scores. However, Myers found that attendance had a lesser influence on the lower end of the achievement distribution; at higher levels of achievement, higher attendance rates produced large effects on both reading and mathematics test scores. Although a student's individual attendance rate was related to achievement, overall attendance rates for schools did not have a significant effect on individual achievement.

Sheldon and Epstein (2004) found that chronic absenteeism, defined as missing 20 or more days of school during a school year, was a greater problem in secondary

schools compared to elementary schools. They also noted that the problem was greater in urban compared to rural areas. Schools serving lower SES students had higher rates of chronic absenteeism, and in addition to achievement, absenteeism was also related to dropout rates and substance abuse.

Gender and Student Achievement

Marks (2006), studying Australian15-year-olds, found that males were twice as likely as females to be low achievers on reading, but Marks found no significant gender difference in mathematics achievement. On the other hand, examining only mathematics, Shores, Smith, and Jarrell (2009) found that gender and SES, indicated by free-reduced lunch status, significantly contributed to differences in mathematics performance, with females doing better than males. In some studies, mathematics achievement may favor males, but the differences are generally not significant. To the extent there is any gender gap indicated by previous research, it appears to be closing.

SES and Student Achievement

Title I, II, III, and IV federal funding is currently received by all 243 public school districts in the state of Arkansas (Arkansas Department of Education, 2010a, 2010b). The amount of Title funds received is based on the percentage of students who are eligible for free and reduced lunch determined by their SES status. This percentage of eligible students is directly related to the number of families that complete free and reduced forms at the beginning of each year. The retrieval of the completed forms from parents or guardians can be a difficult process for school districts. The negative connotation that is sometimes associated with the form can serve as hindrance for public school districts as they attempt to retrieve pertinent information from the home to best

serve the child and school. However, students from lower SES backgrounds are not always at risk for underachieving on high-stakes tests. There is a need for identifying those students who are at risk.

According to Briggs, Reis, and Sullivan (2008), data suggested categories that contribute to the successful identification and participation of students in supplemental programs. These categories included modified identification procedures and program support systems, such as front-loading. Briggs et al. noted that front-loading identifies high-potential children and provides opportunities for advanced work prior to formal identification. They also described another identification procedure that selected curriculum or instructional designs to enable students to succeed. Helping students build the parent and home connections was found to be important, as well as using program evaluation practices designed to highlight avenues to students' success. Schools have seen that these identifications have been helpful in placing and keeping students in gifted and talented programs.

Shores et al. (2009) found that students who received free or reduced lunch scored lower on mathematics achievement tests compared to those who did not. They found that SES, as measured by lunch status, showed a significant relationship to mathematics. However, the locale of lower SES students may be significant. Hopkins (2005) found that low SES students in rural areas significantly outperformed low SES students in urban settings: "in schools with the Highest percentage of disadvantaged students, Rural locales outscore both Large Central City and Other Nonrural locales, across all grade levels tested" (p. 26). Therefore, although students receiving free or reduced lunch would

generally be expected to have lower achievement compared higher SES peers, the difference might be less significant in a rural community.

The significance of student absenteeism, gender, and SES indicated by lunch status on student achievement may or may not be great, but these factors have the advantage of being easily identifiable and ones for which corresponding testing data are available. By virtue of these factors being identifiable, studies could determine the extent of their relationship with academic achievement. In addition, if these factors were found to affect achievement negatively, schools or the school district might be able to implement programs targeting students at risk for lower achievement to provide additional support or instruction.

Hypotheses

Identifying significant factors that positively influence students' achievement is a complex task. The U.S. Department of Education (2002) noted some research indicates that students' achievement outcomes are based on the educational setting of the students. They also cited research focusing on personal traits that affect achievement, including the students' determination to succeed. Although this is a multifaceted topic, this study isolated three factors to determine their predictive influence on academic achievement in the areas of math and literacy. Therefore, the researcher generated the following null hypotheses.

1. No predictive effects will exist between school absences, gender, and lunch status on math achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas.

2. No predictive effects will exist between school absences, gender, and lunch status on literacy achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas.
3. No predictive effects will exist between school absences, gender, and lunch status on math achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas.
4. No predictive effects will exist between school absences, gender, and lunch status on literacy achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas.

Description of Terms

Arkansas Student Assessment and Educational Accountability Act of 2003, Arkansas Act 35. Because of the NCLB, Arkansas legislative policy Act 35 (2004) was passed to measure annual learning gains of all students. Students are measured through longitudinal tracking in order to improve the public schools and inform parents of the progress of their children. As amended in 2003, state law calls for rating schools based, in part, on their success in raising the achievement of individual students from year to year.

Achievement standards state of Arkansas 2009-2010. The Arkansas Department of Education (2010a) defined the following scores to determine student levels. The mathematic score ranges included Below Basic (408 and below), Basic (409-

499), Proficient (500-585), and Advanced (586 and above). The literacy score ranges included Below Basic (329 and below), Basic (330-499), Proficient (500-653), and Advanced (654 and above). For this study, the scaled scores were used for analysis and not the four categories.

Arkansas Augmented Benchmark Examination. Each year, Arkansas students in Grade 3-8 take the Arkansas Augmented Benchmark Exam to measure progress of students (Arkansas Department of Education, 2008). The Arkansas Augmented Benchmark Exam assesses the Arkansas Curriculum Frameworks and provides national criterion-referenced information.

Arkansas curriculum frameworks. The Arkansas Department of Education (2010a) defined frameworks as the set of standards provided by the Arkansas Department of Education. Frameworks are revised every 6 years is required by the state education reform initiatives mandated by the State Board of Education.

Augmented. Arkansas Department of Education (2010a) defined augmented as a combination of tests administered in one testing session.

Content knowledge. Arkansas Department of Education (2010a) defined content knowledge as the comprehensive knowledge of a specified subject area.

Criterion-referenced. Glass (2004) defined criterion-referenced as a test that translates test scores into a statement about the behavior to be expected of a person such as mastery over specified subject matter. The objective is to see if the student has learned the material.

Gifted. Marland (1992) defined gifted students as those who have outstanding abilities, are capable of high performance, and who require differentiated educational

programs (beyond those normally provided by regular school programs) in order to realize their contribution to self and society.

Highly qualified teacher. Arkansas Department of Education (2010a) defined a highly qualified teacher as one that must have at least a bachelor's degree, must be appropriately licensed to teach, and must demonstrate content knowledge in the subject area he or she teaches.

No Child Left Behind (NCLB). The U.S. Department of Education (2002) reauthorized the Elementary and Secondary Education Act, the main federal law affecting education from kindergarten through high school. Proposed by President Bush, NCLB was signed into law on January 8, 2002. NCLB is built on four principles: an accountability for results, more choices for parents, a greater local control and flexibility, and an emphasis on doing what works based on scientific research.

Norm-referenced. Glass (2004) defined norm-referenced as a type of test, assessment, or evaluation that yields an estimate of the position of the tested individual in a predefined population, with respect to the trait being measured. This estimate is derived from the analysis of test scores and possibly other relevant data from a sample drawn from the population. The term *normative assessment* refers to the process of comparing one test-taker to his or her peers.

Standardized Tests. Marland (1992) defined standardized tests as those administered and scored in a predetermined standard manner.

Significance

Research Gaps

The goal of this study was to evaluate the potential need for supplemental programs in K-12 education for a northwest Arkansas school district. This study focused on different elements that students possess as learners in the educational system including SES, gender, and absenteeism for students in fourth and eighth grades. The study will review the scores on the Arkansas Augmented Benchmark exam for fourth and eighth grade students. Results from this research will help determine if students in the participating school district benefit from supplemental instruction.

Possible Implications for Practice

This study was used to determine the benefit of supplemental services that a northwest Arkansas school district uses for student learning and achievement. The school district can use the results from this study to identify any groups of students that may need supplemental instruction or other services. State agencies and other funding entities can also use the results to determine where they should appropriate funds to get the largest return on their investment of educational funds.

Process to Accomplish

Design

A quantitative, multiple-regression strategy was used in this study. The independent or predictor variables for Hypothesis 1 were school absences, gender, and lunch status. The dependent or criterion variable was math achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. The independent or predictor variables for Hypothesis 2

were school absences, gender, and lunch status. The dependent or criterion variable was literacy achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. The independent or predictor variables for Hypothesis 3 were school absences, gender, and lunch status. The dependent or criterion variable was math achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas. The independent or predictor variables for Hypothesis 4 were school absences, gender, and lunch status. The dependent or criterion variable was literacy achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas.

Sample

The population for this study included students from a northwest Arkansas school district. The participants in this study consisted of fourth and eighth grade students. The students were enrolled in elementary and middle school. Student participation was based on the 2009-2010 enrollment data available at the time of the study.

The northwest Arkansas school district office is located in a rural town with an agriculture background consisting of sheep, poultry, cattle, hay fields, and other industries. At the time of the 2000 census, the town had a population of approximately 1,200 people. The population consisted of 96.6% Caucasian members, and 12.9% of the community members held a Bachelor's Degree as compared to the national average of 24.4%. The estimated median household income was $39,318 as compared to the national average of $41,994. The elementary school serves third through sixth grade

students, and the middle school serves seventh through eighth grade students in the area. There were approximately 1,200 students enrolled in the district at the time of this study.

Instrumentation

The researcher reviewed raw scores from all fourth and eighth grade students who participated in the Arkansas Augmented Benchmark Exam. Arkansas Department of Education score reports were received in two segments including literacy and mathematics. Both sets of scores were randomly selected, and a multiple regression was used to assess the predictive effects of three criteria including student absenteeism, gender, and SES on the criterion variables of literacy and mathematics achievement.

Data Analysis

To address the first hypothesis, a multiple regression was conducted using school absences, gender, and lunch status as the predictor variables and math achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. For the second hypothesis, a multiple regression was conducted using school absences, gender, and lunch status as the predictor variables and literacy achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. For the third hypothesis, a multiple regression was conducted using school absences, gender, and lunch status as the predictor variables and math achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas. For the fourth hypothesis, a multiple regression was conducted using school absences, gender, and lunch status as the predictor variables and

literacy achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas.

Each analysis examined the significance of the model as a whole and then examined each predictor variable within each model to determine how much it contributed to the overall formula. The null hypothesis was tested using a two-tailed test with a .05 level of significance.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

This chapter provides a discussion of existing research over the past two decades about the various factors that influence students' achievement. More specifically, the studies examined here analyzed student absenteeism, gender, and SES in relation to student performance on high-stakes, standardized tests. This chapter gives an overview of the current state of published research relevant to the current study.

Standardized testing has been around for decades, but since the passage of NCLB in 2001, such tests have become more important than ever to teachers and administrators. Aside from the direct benefits of increased achievement to individual students, the legal framework has made it critically important to schools and school districts. At the school and district level, low achievement averages can result in loss of funding or even complete reorganization of a school district. In this atmosphere, research into factors that can help or hinder achievement are more critical than ever.

Absenteeism, gender, and SES are being reviewed as possible significant factors that can be examined at the aggregate level in the rural school district located in northwest Arkansas, which is being researched in this study. A fourth factor, race and ethnicity, was the subject of some achievement-related research as well but was not reviewed in this study or examined in the subject school district.

Legal Mandates to Improve Student Achievement

After the passage of the federal NCLB Act of 2001, the Arkansas legislature amended the Arkansas Comprehensive Testing, Assessment, and Accountability Program Act of 1983 to add a requirement that Arkansas schools must meet AYP goals, which conform to federal requirements (ARK. CODE ANN. § 6-15-404, 2011). The object of NCLB is to improve AYP annually toward a goal of 100% proficiency by 2014. The measurement and method of calculating AYP is left to the individual states subject to various limitations (NCLB, 2002).

Schools where at least 35% of either the enrolled students or children in the school-attendance area are from low-income families are eligible to receive Title I funds (NCLB, 2002). That percentage is usually measured by the percent of students eligible for free and reduced-price lunch. Nationwide, more than half of all public schools receive funding under Title I. As of the 2009-2010 school year, 223 out of 239 Arkansas school districts received some Title I funds. However, regardless of the whether schools are categorized by the Title I designation, all public schools in Arkansas are subject to the testing and achievement requirements of Arkansas Comprehensive Testing, Assessment, and Accountability. Testing is required because in order for a state's schools to receive federal Title I funding, the state must comply with the provisions of NCLB, which requires testing from the state. In addition, under Arkansas law, failure to meet AYP can affect both federal and state funding, and can even result in restrictions on or loss of local control over the school (Arkansas Department of Education, 2003).

Arkansas state law defines levels of student achievement determined by raw scores on the Arkansas Augmented Benchmark Examination. The student achievement

levels are classified as advanced, proficient, basic and below basic (ARK. CODE ANN. § 6-15-2102, 2007). In Arkansas, all AYP calculations are made through the Office of Research, Measurement and Evaluation at the University of Arkansas. The data are reviewed by the Arkansas Department of Education, which then notifies each school of its final status (Arkansas Department of Education, 2003). The schools are assigned a level rating in two categories: one for annual performance and one for annual improvement. Then, from these two categories, schools are labelled with one of five different ratings: a Level 1 school is in need of immediate improvement, a Level 2 school is on alert, a Level 3 school meets standards, a Level 4 school exceeds standards, and a Level 5 school displays excellence (ARK. CODE ANN. § 6-15-2102 to -2103, 2007). Based on the rating of each school, the Arkansas School Recognition Program program provides financial awards to schools that are at least Level 3 in improvement or Level 4 in performance, with the awards to be used for teacher bonuses or other non-recurring expenditures (ARK. CODE ANN. § 6-15-2107, 2011).

If a school fails to meet AYP, resulting in a rating of Level 1, for 2 or more years, its students have the option to transfer to a different public school (Arkansas Opportunity School Choice Act of 2004). If the failure continues for 4 years, the state establishes and implements a corrective plan. If schools fail for 5 years, the state restructures the school (Arkansas Department of Education, 2003). At the district level, after only 1 year of a school district failing to meet AYP, the state can take actions ranging from reducing administrative funds to removing local control of individual schools, up to and including completely disbanding the local school board and replacing the superintendent (Arkansas Department of Education, 2003).

In addition to the express achievement-related targets of federal and state law, the Arkansas Supreme Court, in *Lake View School District No. 25 of Phillips County v. Huckabee* (*Lake View III*, 2002), has held that, under the state constitution, "a constitutionally adequate public education is a fundamental right" (p. 493). In fact, much of Arkansas's education legislation passed in the last 20 years was directly in response to the *Lake View III* litigation, which began in 1992. Lake View School District officials and residents filed suit against the state, arguing that the school-funding system in Arkansas was unconstitutional. The system was based in large part on property tax collections within districts; therefore, school districts in poorer areas received less funding.

The Arkansas legislature adjusted the funding provided by the state to make up the shortfall, but by 2002, the Arkansas Supreme Court decided that financial parity was not enough and that the state constitution also required the provided education to be adequate (*Lake View III*, 2002). The Arkansas constitution stated,

> Intelligence and virtue being the safeguards of liberty and the bulwark of a free and good government, the State shall ever maintain a general, suitable and efficient system of free public schools and shall adopt all suitable means to secure to the people the advantages and opportunities of education. (para. 14)

The *Lake View III* court found that this was not a right based on the needs of individuals, but rather a right held by the public to enforce a duty belonging to the state. "When an individual school or school district offers something less than educational adequacy…the root cause of the disparity will be examined by a standard of strict judicial scrutiny" (p.

494). The right, deemed by the court, was to a state-funded and constitutionally adequate education.

When an appellate court speaks of strict judicial scrutiny, it means that the state must prove that it has a compelling interest in the law in question that justifies and makes it necessary (Garner, 2004). Hence, there were no set numbers, goals, or guidelines set in *Lake View III*, but the court made it clear that it would consider scores from state-mandated high-stakes testing in measuring whether students were receiving an adequate education. In addition to school- and district-level consequences of low achievement rates after *Lake View III*, the state of Arkansas itself faced consequences when and if courts deemed that students were not receiving an adequate education.

School Absenteeism and Student Achievement

Lamdin (1996) conducted one of the few studies directly comparing student absenteeism and academic achievement. He stated in previous literature that attendance was positively and significantly related to performance, but only incidentally to the original focus of the study. Lamdin believed there was a gap in the literature specifically examining the relationship between absenteeism and achievement. His study used an economics-based production function approach and multiple regression analysis, considering the output to be performance on a standardized exam. This was the dependent variable, with several independent variables representing the school and student inputs in the function including absenteeism, SES as determined by lunch status, status as racial or ethnic minority, teacher/pupil ratio, professional staff/pupil ratio, and school operating expenditure per student. Lamdin stated that the standardized exam used was the California Achievement Test, which measured both reading and mathematics

achievement. The scores were from tests administered spring of 1989, in 97 public elementary schools in Baltimore, Maryland. Analysis of the scores revealed that, as expected, SES had a significant positive correlation with an achievement. As for the focus of the study, Lamdin found a statistically significant positive correlation between attendance and achievement: the results strongly suggested that student attendance had a direct effect on achievement. Lamdin did not find any significant statistical correlation between other school-input variables (such as student/teacher ratio) and achievement.

Lamdin (1996) cautioned, however, against attributing the positive relationship entirely to attendance, given that the attendance variable could also be a proxy for latent variables such as student motivation, parental concern, or teacher ability. He noted, "The nature of latent variables, and the inability of the analysts to measure such variables accurately, or at all, is inherent in this type of research. Although variables are a potential problem of interpretation, assessing their magnitude is not a simple task" (p. 158). Therefore, the existence of such variables was not accounted for in the analysis and could overstate the true influence of attendance.

Although the results showed that a school's average level of attendance had a positive influence on student performance, Lamdin (1996) suggested that devoting resources to increasing attendance rates might not be warranted without analyzing the likely success and cost effectiveness of any such policies or programs. At the time the study was conducted, there were no documented successes of such programs in improving attendance, even if such programs could in fact increase attendance to a significant degree. Lamdin argued that simply increasing attendance might not have the

expected result of directly increasing student performance due to the possible latent variables within the attendance measure.

Borland and Howsen (1998) criticized Lamdin for failing to model variables representing innate student ability, education market competition, and teacher unionization. Using a separate data set, which was an estimate of Lamdin's model, and using their own model including the extra variables, Borland and Howsen expected to find that Lamdin's approach had resulted in a clear upward bias in the significance of attendance on student performance. Based on their analysis, they reached two conclusions. First, researchers investigating student performance based on explanatory variables should include measures of competition and student innate ability. Their second conclusion was that not accounting for such variables "could lead one to the spurious conclusion that student attendance and expenditure per pupil have a positive and significant impact on student performance" (p. 196).

Lamdin (1998) replied to Borland and Howsen's comment, noting that the criticism regarding lack of a competition variable was misplaced because his data came from within a single school district, and there was, therefore, no variation in competition across the observations. Lamdin did agree, however, that, if a reliable measure of innate ability is available, it ought to appear in a model. Because such data were not available to him in his 1996 study, he used SES as a substitute measure of "what the student brings to school" (p. 198). Lamdin criticized Borland and Howsen, in turn, for omitting a measure of SES in their model and noted that their results could be interpreted as corroborating his finding that increased attendance has a positive correlation with increased achievement. Lamdin (1998) restated his earlier position that more study was

needed, preferably using data measured at the student level rather than aggregated data; or, even better if possible, controlled experiments. He also cautioned again that, even if it were proven that increased attendance improved performance and that attendance rates could actually be improved, the effort and funds needed to improve attendance rates might not be cost-effective compared to other policies, noting that such resource allocation might be a question of quantity of schooling versus quality of schooling.

Myers (2000a) examined data for students taking the Minnesota Basic Skills Test in 1999 and noted how scores had changed since his previous study in 1996. The purpose of the study was primarily to evaluate if racial disparities existed in the scores, the reasons for the disparities, and how the disparities changed over time. Myers used a large data set, from the entire state of Minnesota, with 6 dependent variables for achievement and improvement, and 23 independent variables including SES, racial and ethnic minority status, English proficiency, and school quality. One of the independent variables that received substantial discussion was attendance. Although to a lesser extent compared to the (1996) study, the 1999 study found that attendance accounted for a significant percentage of the explainable racial gaps in test scores. Myers, noting that there was disagreement about the relative effects of attendance on student performance citing Lamdin (1996, 1998) and Borland and Howsen (1998), argued that the question was not whether attendance had an effect, but rather how large that effect was. The study found significant impacts of attendance on test scores for nearly all groups.

Testing the extent of attendance's effects, Myers (2000a) cautioned that "the percentage change in the test score measure [was] a result of a one-percent change in the attendance rate" (p. 41). Therefore, he concluded that attendance was not always

statistically significant in predicting achievement. In this study, attendance effects were much larger on mathematics test scores compared to reading test scores, and much more for racial and ethnic minorities. Interestingly, he also found that the effects of attendance were more significant at higher levels of achievement; Myers noticed that a student scoring in the top 20 of test-takers had a dramatically increased chance of improved attendance. Myers found that individual student performance improved when attendance increased, but there was no significant evidence that schools as a whole improved as their attendance rate increased. In opposition to Lamdin (1996, 1998) and Borland and Howsen (1998), Myers (2000a) recommended, particularly to minorities, implementing programs to reduce absenteeism as a means to improve achievement.

Sheldon and Epstein (2004) did not study absenteeism as such, but rather studied the effectiveness of various school-initiated family and community involvement programs in reducing chronic absenteeism (defined as missing 20 or more days of school). Sheldon and Epstein noted, as a basis for their study, Lamdin (1996), Myers (2000a), and other previous research that had found attendance rates were connected to achievement, dropout rates, and even substance abuse. Their study used both survey results and attendance data to determine what programs implemented by the schools to involve families and community in reducing absenteeism were effective. The results of the study suggested that school efforts to connect with families and communities about attendance could help reduce truancy. Although they were not viewed in the surveys as particularly effective, parent orientation programs were one of the few programs that predicted a significant reduction in chronic absenteeism. At the school level, schools that implemented more attendance-focus practices were more likely to show a subsequent

decrease in absenteeism. In general, more partnership between schools, students, families, and communities should lead to a reduction in chronic absenteeism.

Gender and Student Achievement

Tate (2002) conducted a review of the literature with regard to achievement trends in mathematics for race-ethnicity, SES, gender, and language proficiency. Regarding gender, he found the same trends since his review; namely, some evidence exists of a small achievement gap between the genders, but any such gap is inconsistent and largely dependent on gender being combined with other factors such as SES and culture. Tate revealed that studies suggested a slight, likely insignificant gap in favor of females at the elementary level, with males having an edge on standardized tests at higher grade levels, particularly Advanced Placement and college entrance examinations. In addition, Tate proposed that there appeared to be little gender achievement difference when measuring basic skills, and any significant gender-based differences in mathematics achievement emerged in secondary school. Most of the research reviewed by Tate, however, did not allow for the examination of secondary variables to account for other demographic effects.

Ai (2002) conducted a study to evaluate gender differences in growth of mathematics achievement. This study was in conjunction with various social and psychological factors. Ai examined nationwide, longitudinal data for students in grades 7-10. She used a multilevel modeling approach to combine the advantages of longitudinal and cross-sectional models to describe the influence of individual, home, school, and community factors on mathematical achievement. Based on previous studies, Ai adopted "a social-psychological framework for studying factors predicting gender-

related differences in mathematics" (p. 3) because she concluded that social factors such as the influence of peers, parents, and teachers were important determinants of gender differences in mathematics achievement. To measure individual influence, Ai used variables for mathematics attitude, mathematics anxiety, and mathematics self-esteem. For home influence, the variable was parental academic encouragement; for school, the variables were peer math attitude and math teacher encouragement. Three other variables were also used: student behavior problems, home math and science resources, and mother's education. The values for these variables were obtained from survey data based on a nationwide cohort of over 3,000 students followed from Grades 7-10 in 52 randomly selected schools. The outcome variables were mathematics scores for each grade level, measured by a standardized test.

The first level of Ai's (2002) multi-level model was designed to describe each individual's growth in mathematical achievement. The second level model measured variations between students and within a school, and the third level model measured variations between schools. The data were divided into four groups for analysis, high (above median) initial mathematical achievement, low (below median) initial mathematical achievement, boy, and girl. A longitudinal and multilevel model allowed Ai "to draw on more than on perspective in our attempt to understand various factors that might be related to gender differences in mathematics achievement" (p. 3). The initial data revealed that, for the low initial status group, boys started slightly lower than in mathematics achievement than girls did, although the gap narrowed from Grades 7-10. In the high initial status group, boys performed slightly higher compared to girls, but the gap was statistically insignificant. Although all schools showed an achievement gap in

favor of girls for the low initial achievement group, there was a statistically significant difference in the achievement growth rate between schools. In some schools girls increased the achievement gap by outperforming the boys, and in other schools, boys caught up to girls and surpassed them. However, there was no such difference within the high initial status group.

Ai (2002) found that there was a significant gender gap in the effect of mathematics attitude on test scores, with mathematics attitude having a strong effect for boys but essentially none for girls. As for mathematics attitude itself, an increase in school resources predicted an increase in mathematics attitude in girls with high initial achievement. The mathematics attitude effect on achievement related to parent and teacher encouragement was much stronger for girls, indicating that encouragement from parents and teachers had a positive effect on girls' achievement. Boys' attitudes, in this study, seemed to be independent of teacher and parent encouragement. Ai stated, "teachers should be sensitized to realize that their behaviors and attitudes have an impact on students', especially girls', behaviors and attitudes toward mathematics" (p. 18). Ai also recommended that, in addition to the focus on curriculum, policies should be considered that target parent involvement in encouraging their children with respect to mathematics. Although she did not address it in her study, Ai noted that gender differences could also vary by mathematics topic.

Marks (2006) studied low student achievement in Australia, examining its causes and its consequences. He examined many factors including gender, SES, family type, geographic location, and ethnicity (whether the student was from an Indigenous people). Marks found that, at age 15, there was no significant difference between the genders in

mathematics achievement. However, he found, with respect to reading, that boys were twice as likely to be low achievers compared to girls. In the same vein, Shores et al. (2009) attempted to determine whether individual learner variables, such as gender and SES, contribute to differences in mathematics performance. They found that such variables could be meaningful predictors of student achievement. In their study, gender somewhat significantly contributed to mathematics achievement, as measured by grades received. Any such gender gap, however, compared to existing research, appeared to be narrowing.

SES and Student Achievement

Of the three factors to be examined in this study, SES has historically had the most significant correlation with student achievement. Despite that correlation, some doubt remains as to its ability to predict achievement. Further, it is possible that SES, especially as measured by lunch status, is merely a proxy for numerous latent variables such as parental encouragement and educational resources available in the home.

Lamdin (1996) found a correlation not only between student absenteeism and academic achievement, but also between SES measured by lunch status and absenteeism. In this study, SES was an important predictor of achievement. More specifically, Myers (2000b) found that, although the aggregate poverty of a given school did not matter much, individual poverty did have a statistically significant impact on test scores. Further, Myers noted that there was a larger impact for students who received free lunches compared to those that received reduced-price lunches.

Sirin (2005) conducted a meta-analysis of studies from 1990 to 2000 on the interrelation of SES and student achievement. He used this meta-analysis to examine

both the correlation between SES and achievement and the role of different methodologies in producing different results related to that correlation. He noted that SES is not an exact concept. In using it as a predictor of student achievement, Sirin argued that SES is generally defined as a measure incorporating parental income, parental education, parental occupation, and home resources. Sirin disclosed that SES is usually measured either at the aggregate level (from school-level free or reduced-price lunch numbers) or at the neighborhood level based on census data. Under NCLB, schools must report lunch status because data are readily available. However, Sirin cautioned that researchers using aggregate data must be careful not to fall into an ecological fallacy of misinterpreting the data by making an individual-level inference based on the aggregated data (e.g., using school-level data to make assumptions about within-school relationships).

Sirin (2005) designed his meta-analysis to study how the effects of SES on achievement were measured in previous literature and how that measure was affected by methodological characteristics. These characteristics included the type and source of SES data; the unit of analysis; and student characteristics such as grade level, minority status, and whether a school was urban, suburban, or rural. He selected 58 journal articles published between 1990 and 2000 and assigned codes and values for the various values to be analyzed. The meta-analysis found that, at the school level, there was a large degree of association between SES and academic achievement, but at the individual level, there was only a medium degree of association. Even at the individual level, however, family SES was one of the strongest correlates of academic performance. The overall finding "not only reflects the effect of resources at home but also may reflect the effect of

social capital on academic achievement" (p. 438). When researchers used an aggregate unit of analysis for measuring SES, the average effect size doubled in magnitude compared to what would be observed with a student-level measure. Sirin noted that studies that arbitrarily divided SES into high and low, using a dichotomous variable such as low SES or high SES, were less likely to find strong correlations. Sirin proposed that both SES and achievement lie on a continuum of values; artificially restricting the range of SES pushes the correlation closer to zero and the degree of attenuation increases as the skew of the dichotomy increases.

Sirin (2005) found that, when SES data were reported by students, as opposed to parents, the relationship between SES and achievement was the smallest. Parents were the most likely to report accurate SES data, followed by older students, students from two-parent households, and higher-achieving students. When achievement was measured based on individual academic subjects rather than general achievement, there was a significantly larger correlation with SES. For individual subjects, the correlation with SES was strongest with math achievement as compared to verbal and science achievement. Sirin's main finding was that school success is greatly influenced by students' family SES. He suggested that the problem might be partly due to the structure of school funding in the United States, where family SES via property taxes in a school district often determines the level of school financing. Therefore, students who come from lower family-SES backgrounds are more likely to be in school districts that do not receive a comparable level of funding as schools in more wealthy districts. Because of these additional, extra-school social inequalities, "policymakers should focus on adequacy—that is, sufficient resources for optimal academic achievement—rather than

equity as a primary education policy goal" (p. 446). Sirin concluded that students in poor school districts also might have to deal with problems associated with living in poorer areas, such as limited social services and more crime. Hopkins (2005) addressed a related question, comparing mathematics achievement in Large Central City (urban), Rural, and Other Non-Rural (suburban) schools. In these schools, SES was based on the percentage of students receiving free or reduced-price lunch, and schools were then categorized as to how disadvantaged they were (from low to moderate with less than 50%, to highest with over 75%). The Other Non-Rural schools scored highest across the board by a small margin over Rural, with Large Central City trailing behind. When controlling for SES, the results were less straightforward; but when comparing the high and highest disadvantaged schools, the Rural schools scored highest of all locales. "It is apparent there are characteristics of rural schools that improve achievement among the most disadvantaged schools versus other locales" (p. 26). Hopkins theorized that, for the most disadvantaged schools, those in rural areas possessed the most social capital, with community overcoming the lack of cultural capital. In other words, when students are not as able to take advantage of museums, libraries, and other cultural resources, the social fabric of small rural communities might help make up some of the difference in support and opportunity compared to students in urban or suburban settings.

Marks (2006) found that SES background had a moderate impact on being a low achiever, with a stronger effect on mathematics compared to reading. Despite the significant correlation, there was no deterministic relationship between SES and low achievement. Boon (2008) studied SES and other factors relating to achievement in the context of risk factors for dropping out of school. Boon noted that SES is correlated with

low achievement, and low achievement is a strong predictor of dropping out of school. Boon claimed that a student that has academic success despite SES and structural family factors that would predict failure is said to be resilient. In addition, parental attitudes and behavior promoting healthy adjustment, which makes a student resilient, may be more important than SES in predicting academic achievement. Boon summarized that a positive type of parental interaction, however, is less likely to be associated with low family SES.

Although studies have shown a correlation between SES and achievement, the reason for the connection and how to measure various elements of SES is much less clear. Lubienski and Crane (2010) examined whether SES measures other than lunch status, parent education level, income, and occupation were significant in predicting achievement. The study used the early childhood Longitudinal Study-Kindergarten Class of 1998-1999 to evaluate hundreds of variables reported by parents measuring students' home resources and experiences. The study followed a nationally representative sample of 22,000 students from 1,277 schools from kindergarten through fifth grade. Lubienski and Crane analyzed which home resource and climate measures were the most significant predictors of achievement at the start of kindergarten, which predicted gains from kindergarten to fifth grade, and how those measures compared to traditional SES measures such as lunch status and parent education level, income, and occupation. The outcome variables were kindergarten and fifth grade mathematics and reading achievement measured by standardized scores. The inputs, for kindergarten, were 230 variables measuring students' home resources and experiences; these were reduced through stepwise regression to 12 variables that Lubienski and Crane found to be

significant predictors of either mathematics or reading achievement at the start of kindergarten. Several variables were then used to examine the growth from kindergarten to fifth grade. Lubienski and Crane found that the number of children in the household was a significant predictor of kindergarten achievement, with each additional child lowering scores for both mathematics and reading, but more significantly for reading. This variable was also significant for kindergarten to fifth grade gains in reading, but not in mathematics. In addition, this relationship was stronger for lower SES families.

Similarly, Lubienski and Crane (2010) found that how many books a child has at home was significant for both mathematics and reading at kindergarten, but only for reading in kindergarten to fifth grade growth. How often parents read to a child was twice as significant in predicting kindergarten reading achievement compared to mathematics achievement. Lunch status, the degree a parent expected the child to obtain, and the student's participation in music lessons were significant in predicting gains from kindergarten to fifth grade in both reading and mathematics. How old the students' mothers were when the mothers' first gave birth and the children's hearing problems were statistically significant predictors of initial math and reading achievement and of K-5 gains in math but not in reading. Lubienski and Crane identified many additional variables that could predict achievement but also found that both a composite of traditional SES measures and, separately, lunch status predicted kindergarten achievement and gains from kindergarten to fifth grade in both reading and mathematics. They stated that researchers should collect additional data where "data, money and access to parents are plentiful" (p. 20). It must be stated that Lubienski and Crane did not explicitly compare lunch status and other traditional SES measures to their additional

variables to assess their comparative values as predictors of achievement or to analyze whether the additional measures are already fully or in part captured by the traditional measures. The study did suggest, however, that higher-SES parents tend to be older, have fewer children, spend more time reading with their children and being active in the schools, and invest more in educational resources and preschool. These attributes only served as a demographic snapshot, and it was not clear that accounting for these factors in studies of SES and achievement would increase reliability significantly.

Conclusion

Research into the factors that affect student achievement has been conducted for decades and will continue for the near future. Student absenteeism, gender, and SES have all been shown to have predictive value concerning mathematics or reading achievement, although the precision and magnitude with which they predict achievement is uncertain, and quite possibly varies by school locale. It is likely that there will never be a definitive, broadly applicable answer as to what exactly drives student achievement. It is worthwhile, however, to consider any steps policymakers, administrators, and educators could take to help students be more successful. The mandates of NCLB make high-stakes testing a focus, but increasing student achievement is a worthy goal in and of itself.

This study attempted to address some of the predictors that could affect students' mathematics and reading achievement on the Arkansas Augmented Benchmark Exam for fourth and eighth graders in a rural school district located in northwest Arkansas. It is an important factor that students in fourth grade will have experienced taking the Arkansas Augmented Benchmark for 1 year prior, and eighth grade students will have experienced

the exam for 5 years prior to the eighth grade exam. If one or more of these factors is significantly correlated with achievement, teachers or administrators might be able to take steps to, for example, combat absenteeism, make a point of giving extra encouragement in mathematics, or provide extra resources for students with lower SES backgrounds.

CHAPTER III

METHODOLOGY

Under the current system of standardized testing and achievement metrics, schools and school districts face drastic consequences if achievement goals are not met. Research into factors that affect student achievement is important in this context, allowing teachers and administrators additional insight into how to improve student education and test scores. More specifically, this study will be used to determine the predictive effects of particular school factors on academic achievement in a rural school district in northwest Arkansas for student learning and achievement. The participating school district could use the results from this study to identify any groups of students that may need supplemental instruction or other services. State agencies and other funding entities can also use the results to determine where they should appropriate funds to get the largest return on their investment of educational funds.

Absenteeism, gender, and SES were the factors analyzed in this study because they seem to be some of the most significant factors that can be examined at the aggregate level. First, although the size of the effect is not certain, research has shown that reduced student absenteeism shows a significant correspondence with higher achievement (Lamdin, 1996; Myers, 2000a, 2000b). Second, the relationship between gender and achievement is less certain. Although some studies have found gender gaps in achievement in mathematics, literacy, or both, those gaps tend to be small. More

helpful to teachers and administrators are data that indicate that gender may play a role in how students respond to encouragement or perform more strongly on standardized tests (Ai, 2002; Marks, 2006; Shores et al., 2009; Tate, 1997). Third, a student's family SES has generally been found to have the most significant correlation with achievement of the factors examined in this study. Although other, unmeasured factors are undoubtedly tied to SES (such as parental involvement and educational resources available at home), SES itself as measured by lunch status has been found to be moderately useful predictor of achievement at an individual level (Boon, 2008; Lamdin, 1996; Lubienski & Crane, 2010; Marks, 2006; Myers, 2000a; Sirin, 2005). There is also research that suggested that, because the subject school district is located in a rural area, low SES might have a less serious impact compared to suburban or urban environments (Hopkins, 2005).

The purpose of this study was to determine the predictive effects of school absences, gender, and SES (as measured by lunch status) on achievement for students in a rural northwest Arkansas school district. Achievement in both math and literacy was examined for Grades 4 and 8. In order to study this relationship between achievement and absenteeism, gender, and SES, the researcher generated the following hypotheses:

1. No predictive effects will exist between school absences, gender, and lunch status on math achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas.
2. No predictive effects will exist between school absences, gender, and lunch status on literacy achievement measured by the Arkansas Augmented

Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas.

3. No predictive effects will exist between school absences, gender, and lunch status on math achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas.
4. No predictive effects will exist between school absences, gender, and lunch status on literacy achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas.

In this chapter I describe the research design of the study, the sample tested, the instrumentation used to collect scores, how the data were collected and processed, the analytical methods of manipulating the data, and the study's limitations.

Research Design

A quantitative, multiple-regression strategy was used in this study. The independent or predictor variables for Hypothesis 1 were school absences, gender, and lunch status. The dependent or criterion variable was math achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. The independent variables for Hypothesis 2 were school absences, gender, and lunch status. The dependent variable was literacy achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. The independent variables for Hypothesis 3 were school absences, gender, and lunch status. The dependent variable

was math achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas. The independent variables for Hypothesis 4 were school absences, gender, and lunch status. The dependent variable was literacy achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas.

Sample

The population for this study consisted of students from a rural school district in northwest Arkansas. The participants were students in the fourth and eighth grades enrolled in the district's elementary and middle school during the 2009-2010 school year who took both the Arkansas Augmented Benchmark Exam for math and literacy.

The community in which the subject school district is located is rural with an agriculture background consisting of sheep, poultry, cattle, hay fields, and other industries. At the time of the 2000 census, it had a population of approximately 1,200 people. The population at that time was 96.6 Caucasian. At the time of the 2000 census survey, 12.9% individuals in the community held a Bachelor's Degree as compared to the national average of 24.4%. The estimated median household income of the community was $39,318 as compared to the national average of $41,994. The elementary school serves third through sixth grade students in the area and the middle school serves seventh through eighth grade students in the area. There were 1,159 students enrolled in the school district at the time of this study. Students in the Northwest Arkansas sample included 189 participants.

Instrumentation

The Arkansas Augmented Benchmark Exam, taken yearly by students in Grades 3-8, is part of the Arkansas Comprehensive Testing, Assessment, and Accountability Program Act. The Arkansas Department of Education (2010a) noted that the Arkansas Comprehensive Testing, Assessment, and Accountability program includes both criterion-referenced test and norm-referenced test components. The Arkansas Department of Education developed the Augmented Benchmark Examinations based on the Arkansas Mathematics, Science, and English Language Arts Curriculum Frameworks. They transfer the test booklets in a secure manner to the school districts and then returned securely after testing for scoring. To complete the process, the Arkansas Department of Education reports scores back to the districts and schools.

The Augmented Benchmark Exam consists of multiple-choice and open-response questions covering mathematics, reading, and writing (Arkansas Department of Education, 2010a). There are also prompts to which the student must give a written response, which is used to directly assess student writing. The 2010 examination for both Grades 4 and 8 consisted of 62 multiple-choice and 3 open-response questions for reading; 38 multiple-choice questions, 1 open-response question, and 2 writing prompts for writing; and 60 multiple-choice and 6 open-response questions for mathematics. The exam was administered in multiple sessions over a 4-day period beginning April 12, 2010, with five sessions the first day and three each of the other days. Each day's testing lasted approximately two and one half hours.

Data Collection Procedures

After scoring by a private contractor, the Arkansas Department of Education (2010a) provides the test scores to school districts. The score reports are received in two segments including literacy and mathematics. The Arkansas Department of Education stores data and permits authorized removal by users through the Arkansas Department of Education Data Center Triand Support. Triand Support provides information concerning student data to authorized users. The data include student sensitive information including social security numbers and demographic student information. Student information was requested and obtained through the Triand Support Center after documentation of the University's Institutional Review Board approval and the Dissertation Approval Form (Appendix A) was provided by the researcher. At that point, a secure authorized provider downloaded the information from the fourth and eighth grades students from the rural district in Northwest Arkansas. They removed all identifiable student information and replaced it by with a specific research number. The information was delivered via a password protected secure website. Student data were exported to a spreadsheet where duplicate student identifiers were eliminated and each hypothesis was organized. Students with missing values were excluded from the potential participants. The total number of students with all data for Hypothesis 1 was 104 for Hypothesis 2 was 85, for Hypothesis 3 was 104, and for Hypothesis 4 was 104. After exporting, cleaning, and eliminating missing variables, the data were analyzed using the Statistical Package for the Social Sciences™. (SPSS, version 17) to determine if any predictive effects occurred.

Analytical Methods

Data from this study were subjected to statistical analysis. The sets of scores for the fourth and eighth graders for literacy and math were randomly selected, and multiple regression was used to analyze the three predictors: student absenteeism, gender, and SES status. Each analysis examined the significance of the model as a whole and then examined each predictor variable within each model to determine how much it contributed to the overall formula. The null hypothesis was tested using a two-tailed test with a .05 level of significance. All variables were analyzed using descriptive techniques appropriate to the level of measurement for each variable and SPSS 17™ was used to analyze the variables. Before conducting a regression analysis, the data were examined to determine if assumptions for multiple regression were met. A scatter plot was generated to determine if variables had a linear relationship. Residual plots were conducted to determine linearity, normality, and homoscedasticity. Possible outliers were identified and deleted if necessary. Collinearity statistics were used to determine if variables met the necessary requirements for tolerance and VIF of less than one or greater than 10 (Mertler & Vannatta, 2010).

Limitations

In most research studies, limitations need to be noted to help the reader determine how to interpret the results of the studies. At least four limitations were associated with this study. First, this study only included one rural school district in northwest Arkansas. Because of the limited scope of the sample, therefore, generalizability is limited, and readers cannot make general conclusions about achievement, gender, attendance, or SES. Second, because the study was completed in a rural setting, comparisons to other similar

rural school districts might or might not apply because of the unique cultural and social environments of small, rural settings. In addition, other possibly latent variables could differ even between two superficially similar rural school districts.

Third, the sample size was very small. Because the study was conducted in a relatively small school district, the sample sizes are necessarily small. This limitation also negatively affects the generalizability of the study and prevents readers from making general conclusions about the relationship of achievement and gender, attendance, or SES. The final limitation was that student SES is federally protected information and thus could not be used in this study to provide further specificity.

CHAPTER IV

RESULTS

This study examined the predictive effects of school absences, gender, and SES on math and literacy achievement for students Grades 4 and 8 in a rural, northwest Arkansas school district. Achievement was measured using the Arkansas Augmented Benchmark Exam, taken yearly by students in Grades 3-8. The scores and other data were subjected to statistical analysis. The sets of scores for fourth and eighth graders for literacy and math were randomly selected, and a multiple regression was used to analyze three predictors: student absenteeism, gender, and SES status. Each analysis examined the significance of the model as a whole and then examined each predictor variable within each model to determine how much each contributed to the overall formula. The null hypothesis was tested using a two-tailed test with a .05 level of significance ($p \leq .05$). The results of this analysis are discussed in this chapter

Hypothesis 1

The first hypothesis stated that no predictive effects will exist between school absences, gender, and lunch status on math achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. Before conducting a regression analysis, the data were examined in order to determine that assumptions for multiple regression were met. Initial data screening revealed no missing values or significant outliers. Descriptive analysis revealed

that the assumptions of normality were met for math scaled scores (Kolmogorov-Smirnov statistic [*KS*] = .089, *df* = 85, *p* = .091) but not for absences (*KS* = .181, *df* = 85, *p* = .001). To address the moderate positive skew in absence scores, a Log10 transformation was conducted that resulted in an improvement in the shape of the distribution (*KS* =.106, *df* =85, *p* = .019; skewness = -.216 [.261]; kurtosis = -.589 [.517]). An examination of histogram also confirmed the improvement in the shape of the distribution. Furthermore, a standardized residual plot of the predictors on the dependent variable showed appropriate clustering around 0 with no indication of marked heteroscedasticity or nonlinear patterns. A review of scatterplots and intercorrelation tables indicated weak correlations between the predictors and the criterion variable. Finally, an examination of the collinearity statistic revealed that multicolinearity was not an issue among the predictors as they all had a tolerance value greater than 0.1 and a variance inflation factors (VIF) under 10 (Mertler & Vannatta, 2010). A standard multiple regression was then conducted to determine how well gender, lunch status, and absences predicted math achievement for fourth grade students (see results in Table 1).

Table 1

Coefficients for Predictors for Fourth Grade Math Achievement

	B	*β*	*SE*	*t*	*p*
(Constant)	681.66	20.68		32.96	.001
Lunch Status	-14.28	23.55	-0.066	-0.61	.546
Gender	-19.12	17.91	-0.114	-1.07	.289
Absence_Lg10*	-46.95	22.81	-0.224	-2.06	.043

Regression results indicate that the overall model did not significantly predict math achievement: $R^2 = .073$, $R^2_{adj} = .039$, F (3, 81) = 2.130, $p = .103$. However, the model accounted for barely 7% of the variance in mathematics achievement for the fourth grade students. A summary of the coefficient indicates that only absences significantly contributed to the model. The contributions of the other predictors in the model were not statistically significant.

Hypothesis 2

The second hypothesis stated that no predictive effects will exist between school absences, gender, and lunch status on literacy achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. Initial data screening revealed no missing values or significant outliers. Descriptive analysis revealed that the assumptions of normality were not met for literacy scaled scores ($KS = .119$, $df = 85$, $p = .004$) or for absences ($KS = .181$, $df = 85$, $p = .001$). To address the moderate negative skew in literacy scale scores, a reflect-square root transformation was conducted on literacy scaled scores. This led to an improvement in the shape of the distribution ($KS = .080$, $df = 85$, $p = .200$). To correct the positive

skew in absence scores, a Log10 transformation was conducted, which resulted in an improvement in the shape of the distribution (*KS* =.106, *df* = 85, *p* = .019; skewness = -.216 [.261]; kurtosis = -.589 [.517]). An examination of histogram also confirmed the improvement in the shape of the distribution. Furthermore, a standardized residual plot of the predictors on the dependent variable showed appropriate clustering around 0 with no indication of marked heteroscedasticity or nonlinear patterns. A review of scatterplots and intercorrelation tables indicated weak correlations between the predictors and the criterion variable. Finally, an examination of the collinearity statistic revealed that multicolinearity was not an issue among the predictors as they all had a tolerance value greater than 0.1 and VIF under 10 (Mertler & Vannatta, 2010). A standard multiple regression was then conducted to determine the how well gender, lunch status and absences predicted literacy achievement of fourth grade students. Table 2 displays the predictor coefficients for literacy achievement.

Table 2

Coefficients for Predictors for Fourth Grade Literacy Achievement

	B	*β*	*SE*	*t*	*p*
(Constant)	13.01	1.10		11.88	.000
Lunch Status	2.28	1.25	0.19	1.83	.071
Gender	0.36	0.95	0.04	0.38	.703
Absence_Lg10*	3.01	1.21	0.26	2.49	.015

Regression results indicate that the overall model significantly predicted literacy achievement, R^2 = .127, R^2_{adj} = .095, F (3, 81) = 3.935, p = .011. The model accounted

for approximately 13% of the variance in literacy achievement. A summary of the coefficient indicates that only absences significantly contributed to the model. The contributions of the other predictors in the model were not statistically significant.

Hypothesis 3

The third hypothesis stated that no predictive effects will exist between school absences, gender, and lunch status on math achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas. Initial data screening revealed no missing values. However, two values were identified as significant outliers on the variable absence (z score = 3.37) and excluded from the analysis. Descriptive analysis revealed that the assumptions of normality were met for math scaled scores, (KS = .063, df = 102, p = .200) but not for absences,(KS = .249, df = 102, p =.001). To address the moderate positive skew in absence scores, a Log10 transformation was conducted which resulted in an improvement in the shape of the distribution, (KS =.148, df =102, p = .001; skewness = -.282 [.239]; kurtosis = -.501 [.474]). An examination of histogram also confirmed the improvement in the shape of the distribution. Furthermore, a standardized residual plot of the predictors on the dependent variable showed appropriate clustering around 0 with no indication of marked heteroscedasticity or nonlinear patterns. A review of scatterplots and intercorrelation tables indicated weak correlations between the predictors and the criterion variable. Finally, an examination of the collinearity statistic revealed that multicolinearity was not an issue among the predictors as they all had a tolerance value greater than 0.1 and a VIF under 10 (Mertler & Vannatta, 2010). A standard multiple regression was then conducted to determine the how well gender, lunch status and

absences predicted math achievement for eighth grade students. The results for Hypothesis 3 are detailed in Table 3.

Table 3

Coefficients for Predictors for Eighth Math Achievement

	B	*β*	*SE*	*t*	*p*
(Constant)	787.41	19.23		40.94	.000
Lunch Status	9.27	23.36	0.04	0.40	.693
Gender	10.41	15.46	0.06	0.67	.502
Absence_Lg10*	-72.49	20.15	-0.34	-3.60	.001

Regression results indicate that the overall model significantly predicted math achievement, $R^2 = .127$, $R^2_{adj} = .101$, $F(3, 100) = 4.85$, $p = .003$. The model accounted for approximately 13% of the variance in mathematics achievement. A summary of the coefficient indicates that only absences significantly contributed to the model. The contributions of lunch status and gender, on the other hand, were not statistically significant.

Hypothesis 4

The fourth hypothesis stated that no predictive effects will exist between school absences, gender, and lunch status on literacy achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas. Initial data screening revealed no missing values. However, two values were identified as significant outliers on the variable absence (*z* score = 3.37) and excluded from the analysis. Descriptive analysis revealed that the assumptions of

normality were not met for literacy scaled scores (*KS* = .240, *df* = 102, *p* = .001) or for absences (*KS* = .249, *df* = 102, *p* = .001). To address the moderate negative skew in literacy scale scores, a reflect-square root transformation was conducted on literacy scaled scores. This led to an improvement in the shape of the distribution (*KS* = .245, *df* = 102, *p* = .001, skewness = -.972 [.474], kurtosis = .676 [.037]). To correct the positive skew in absence scores, a Log10 transformation was conducted, which resulted in an improvement in the shape of the distribution (*KS* = .148, *df* = 102, *p* = .001, skewness = -.282 [.239], kurtosis = -.501 [.474]). An examination of histogram also confirmed the improvement in the shape of the distribution. Furthermore, a standardized residual plot of the predictors on the dependent variable showed appropriate clustering around 0 with no indication of marked heteroscedasticity or nonlinear patterns. A review of scatterplots and intercorrelation tables indicated weak correlations between the predictors and the criterion variable. Finally, an examination of the collinearity statistic revealed that multicolinearity was not an issue among the predictors as they all had a tolerance value greater than 0.1 and a VIF under 10 (Mertler & Vannatta, 2010). A standard multiple regression was then conducted to determine the how well gender, lunch status and absences predicted literacy achievement of eighth grade students. Table 4 details the predictor coefficients for eighth grade literacy achievement.

Table 4

Coefficients for Predictors for Eighth Grade Literacy Achievement

	B	*β*	*SE*	*t*	*p*
(Constant)	6.57	1.22		5.37	.000
Lunch Status	0.48	1.49	0.03	0.32	.750
Gender*	-3.96	0.98	-0.35	-4.03	.000
Absence_Lg10*	5.26	1.28	0.36	4.11	.000

Regression results indicate that the overall model significantly predicted literacy achievement, $R^2 = .264$, $R^2_{adj} = .242$, $F(3, 100) = 11.99$, $p = .001$. The model accounted for approximately 26 % of the variance in literacy achievement. A summary of the coefficient indicates gender (favoring females) and absences significantly contributed to the model. The contribution of lunch status was not statistically significant.

CHAPTER V

DISCUSSION

NCLB (2002) and similarly supporting state requirements provide mandates to schools and school districts to improve achievement, as measured by standardized tests, every year or potentially face drastic consequences. These consequences in Arkansas could include assistance from the Arkansas Department of Education (2003). When projected targets are not reached following initial assistance, schools are placed on school improvement lists. Arkansas school districts could ultimately be placed by the Arkansas State Board of Education under a classification of academic distress allowing the Commissioner of Education to implement a new process to conduct business and learning within the school district. Thus, administrators continually seek to control factors that predict student achievement.

The purpose of this study was to determine the predictive effects of school absences, gender, and lunch status on math and literacy achievement. Student data were collected from the Arkansas Department of Education Triand system from students in a rural school district located in northwest Arkansas. Achievement in both math and literacy was examined via scaled scores from Grades 4 and 8. Arkansas students do not begin taking the mandated Arkansas Augmented Benchmark Exam until their third grade school year and continue to take the high-stakes exam each year through eighth grade. The population of fourth grade students was selected to allow a year of previous high-

stakes testing to occur prior to collection. The population of eighth grade students was included to reflect students who have experienced the high-stakes exams for 5 previous years.

This chapter reflects on the results from the data collection and analysis in the context of related published literature. Based on the results of this analysis, recommendations are made for school, school district, and state leaders to improve or consolidate gains in achievement in the subject rural school district in northwest Arkansas. This chapter also includes a discussion of the significance of this study and its possible implications.

Conclusions

A quantitative, multiple regression was used in this study. The test scores for fourth and eighth graders in math and literacy were randomly selected, and the independent or predictor variables were student absenteeism, gender, and SES (measured by lunch status). Each analysis examined the significance of the model as a whole and then examined each predictor variable within the model to determine how much it contributed to the overall prediction.

Hypothesis 1

Hypothesis 1 stated that no predictive effects will exist between school absences, gender, and lunch status on math achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. Before conducting a regression analysis, the data were examined in order to determine that assumptions for multiple regression were met. A standard multiple regression was then conducted to determine the how well gender, lunch status, and

absences predicted math achievement for fourth grade students. Regression results indicated that the overall model did not significantly predict math achievement. Therefore, there was not enough evidence to reject the null hypothesis for the model. The model accounted for barely 7% of the variance in mathematics achievement. A summary of the coefficients indicated that only absences significantly contributed to the model. The contributions of the other predictors in the model were not statistically significant.

Hypothesis 2

Hypothesis 2 stated that no predictive effects will exist between school absences, gender, and lunch status on literacy achievement measured by the Arkansas Augmented Benchmark Exam for fourth grade students in a rural school district located in northwest Arkansas. Before conducting a regression analysis, the data were examined in order to determine that assumptions for multiple regression were met. A standard multiple regression was then conducted to determine the how well gender, lunch status, and absences predicted literacy achievement for fourth grade students. Regression results indicated that the overall model did significantly predict literacy achievement. Therefore, the researcher rejected the null hypothesis for the model. The model accounted for approximately 13% of the variance in literacy achievement. A summary of the coefficients indicated that only absences significantly contributed to the model. The contributions of the other predictors in the model were not statistically significant.

Hypothesis 3

Hypothesis 3 stated that no predictive effects will exist between school absences, gender, and lunch status on math achievement measured by the Arkansas Augmented

Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas. Before conducting a regression analysis, the data were examined in order to determine that assumptions for multiple regression were met. A standard multiple regression was then conducted to determine the how well gender, lunch status, and absences predicted math achievement for eighth grade students. Regression results indicated that the overall model did significantly predict math achievement. Therefore, the researcher rejected the null hypothesis for the model. The model accounted for approximately 13% of the variance in mathematics achievement. A summary of the coefficients indicated that only absences significantly contributed to the model. The contributions of lunch status and gender were not statistically significant.

Hypothesis 4

Hypothesis 4 stated that no predictive effects will exist between school absences, gender, and lunch status on literacy achievement measured by the Arkansas Augmented Benchmark Exam for eighth grade students in a rural school district located in northwest Arkansas. Before conducting a regression analysis, the data were examined in order to determine that assumptions for multiple regression were met. A standard multiple regression was then conducted to determine the how well gender, lunch status, and absences predicted literacy achievement for eighth grade students. Regression results indicated that the overall model did significantly predict literacy achievement. Therefore, the researcher rejected the null hypothesis for the model. The model accounted for approximately 26 % of the variance in literacy achievement. A summary of the coefficients indicated that gender (favoring females) and absences significantly contributed to the model. The contribution of lunch status was not statistically significant.

Recommendations

First, student absences in this study showed a predictive effect on both math and literacy achievement in all four hypotheses. This finding seemed to agree with the findings from Borland and Howsen (1998), Lamdin 1996, Myers (2000a), and Sheldon and Epstein (2004). One conclusion could be made from these data, along with other research, that excessive absenteeism generally has a negative effect on students' educational experiences and attainment of required information later in their educational career. As absenteeism increases, negative effects seem to increase. In addition, negative effects might increase as students continue through the educational process toward graduation. Although the predictive effect of absenteeism was the only area identified by the multiple regression that significantly contributed to the outcome, it is important to note that this study used only one rural school district in northwest Arkansas. Additional student records may need to be studied to generalize this information throughout Arkansas. Further research could be beneficial to determine the greater extent student absence predicts achievement on state-mandated exams. This may indicate a need for further predictive analysis on students in other states that administer high-stakes exams.

Second, in this study, gender only contributed significantly in predicting eighth grade literacy achievement (Hypothesis 4). Much like the mixed results of other research studies (Ai, 2002; Marks, 2006; Shores et al., 2009; Tate, 2002), gender did not play a significant part in predicting math achievement for Grade 4 or 8. Although females were favored in Hypothesis 4, the mean difference was not great.

Third, SES measured by lunch status did not significantly contribute in any prediction model. Contrary to the previous research of Hopkins (2005), Lamdin (1996),

Marks (2006), Myers (2000b), and Sirin (2005), SES did not significantly predict math or literacy achievement in Grades 4 and 8. The students included in the free and reduced lunch classification, in this study, were only the students whose parents completed the federal aid form. It had been noted prior to the study that the rural district in northwest Arkansas had difficulty in the collection process of the federal aid forms because of the parent concerns of students' privacy and income inclusions. This concern significantly limited those students appropriately identified with the free and reduced lunch classification.

Implications

Potential for Practice/Policy

This study was designed to evaluate the predictive effects of student absences, gender, and SES on math and literacy achievement for students in Grades 4 and 8. This study was limited to a rural school in northwest Arkansas. Although student absences was the only predictor variable that was significant in all four hypotheses, this study has implications on educational policies and practices related to math and literacy in at least four ways.

First, schools need to find alternative ways to test through multiple measures throughout the entire school year. Much information is missed with high-stakes tests that provide only a one-time assessment of students' work and efforts. Because some students are absence for multiple days throughout the school year, not only do they miss needed material, but they also miss valuable opportunities to assess what they do know. Multiple measures could assist in providing the scope and sequence for what students know and are able to achieve on assessment tasks. The review of current assessment

policies should address the areas of redundancy to allow students to move seamlessly from assessment tasks to learning tasks instead of as events in isolation. In this study, students were assessed with a one-time standardized assessment. Educators, parents, and students should be allowed to reduce the amount of time exerted on isolated mandated testing. Emphasis should be placed in other areas to assist in the seamless transition between assessment, instruction, and learning. This transition process should assist in producing students who are career or college ready to assist as productive member of society.

Second, because some students have high absenteeism, schools miss valuable funding to help remediate all students who need extra help. The Arkansas Department of Education as funded through budgetary planning through the state of Arkansas provides funds to administer high stakes testing. These funds are used for the Qualls Early Learning Inventory test for kindergarten students; the Arkansas Augmented Benchmark Exam for third through eighth grade students; the Arkansas End of Course exams for Algebra I, Geometry, and Biology; and the Literacy exam for 11th grade students. Additionally, it can include funds from the National School Lunch Act to assist with payment of the English, math, reading, and science EXPLORE tests for eighth and ninth grade students; the PLAN test for 10th grade students; and the American College Testing for 11th and 12th grade students.

Third, school districts must individually review the amount of rigor offered to students in the learning process. All students regardless of their days missed, gender, or SES should be challenged to achieve and reach for higher goals. Reviewing the current curriculum allows districts to determine the level of proficiency needed, which might not

always be defined by a letter grade of A, B, C, D, or F. In addition, the current grading scale might need altering to provide students and their parents with a comprehensive view of the students' progress. This comprehensive view should accurately reflect what skills students have achieved and what skills are deficient. This specific information would allow parents to assist their children at home to improve their deficiency areas. The information would also allow children to have additional information on their report other than merely a letter to describe their level of achievement.

Fourth, schools should have a systematic way of getting parents to fill out the lunch status paperwork. In this study, the Arkansas Augmented Benchmark Exam was not found to be significantly predictable of the impact of SES on educational achievement. This particular area should be reviewed on a larger scale. SES is largely dependent on the parent participation. School districts are not allowed to encourage or persuade parents to complete the required paperwork even if the district is aware that the child would qualify for a reduced meal. Students do not always make it home with the appropriate paperwork; parents do not always complete the paperwork; students do not always return the paperwork; and in some communities, there is a stigma associated with accepting additional federal assistance. This reluctance or lack of follow through to accept assistance greatly affects the number of students that would be included in this particular group.

Future Research Considerations

The findings from this study and others support the examination of absences, gender, and SES in attempting to improve math and literacy achievement for all students.

To evaluate the effect of these variables in closing the achievement gaps, the researcher recommends that the following studies be considered:

1. Further research would be beneficial to determine the extent lunch status predicts achievement on state-mandated exams. Even though SES was not a significant factor in this study, the unique features of the school district might have been a limiting factor. In addition, future researchers should determine if differences exist between free, reduced, and full price lunch students.
2. Research on gender and the impact on literacy achievement should be expanded and should include additional districts in the state of Arkansas. The expanded research could include additional student records, which may indicate the ability to generalize this study throughout Arkansas. Literacy attainment and the direct connections to the included predictors could be reviewed including student records from specific grade levels and how those might affect the educational attainment for students in grades other than fourth and eighth grade.
3. Additional research should be conducted to include additional student records in Arkansas to determine the amount of class time missed and how the missed instruction affects overall student achievement. This should later include research on the amount of retention that is available after students have been out of school for summer break.
4. Additional research should be completed in other school districts in the state of Arkansas who participate in the Arkansas Augmented Benchmark Exam to obtain a better understanding of the extent the predictors of gender, lunch

status, and school absences on educational achievement. Examination of supplementary programs offered to free and lunch status students could assist in determining the types of programs that could have a positive effect on student achievement as determined by the Arkansas Augmented Benchmark Exam.

The state mandated tests that were examined in this study showed predictive implications in some areas including gender and absenteeism. Further research should be conducted to determine if a better evaluation tool other than the current state mandated testing is a better predictor of student achievement. This should include other states and their testing processes, procedures, and policies. The Arkansas Augmented Benchmark Exam is completed during a week in the spring each year. Testing areas are completed in one school day. This completion timeline does not allow students multiple opportunities to demonstrate what they know or are able to do on a longitudinal basis.

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APPENDIX

APPENDIX A

HARDING UNIVERSITY
INSTITUTIONAL REVIEW BOARD

Status of Request for Exemption from IRB Review

(For Board Use Only)

Date: July 6, 2012

Proposal Number: 2012 - 071

Title of Project: Predictive Effects of Absence, Gender and Lunch Status on Math and Literacy Achievement

Name and Contact information for the Principal Investigator: Megan Witonski, witonski@elkinsdistrict.org

■ Research exempted from IRB review.

☐ Research requires IRB review.

☐ More information is needed before a determination can be made. (See attachment.)

I have reviewed the proposal referenced above and have rendered the decision noted above.
This study has been found to fall under the following exemption(s):

1 ☐ 2 ☐ 3 ☐ 4 ■ 5 ☐ 6 ☐

In the event that, after this exemption is granted, this research proposal is changed, it may require a review by the full IRB. In such case, a ***Request for Amendment to Approved Research*** form must be completed and submitted.

This exemption is granted for one year from the date of this letter. Renewals will need to be reviewed and granted before expiration.

The IRB reserves the right to observe, review and evaluate this study and its procedures during the course of the study.

Rebecca O. Weaver

Chair
Harding University Institutional Review Board