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Relationships Between Student Attendance and Test Scores  
on the Virginia Standards of Learning Tests

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A dissertation  
presented to  
the faculty of the Department of Educational Leadership and Policy  
Analysis  
East Tennessee State University

In partial fulfillment  
of the requirements for the degree  
Doctor of Education

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by  
Jeffrey D. Cassell  
December 2007

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Dr. Jim Lampley  
Dr. Eric Glover  
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Keywords: No Child Left Behind, Standards of Learning, Criterion-  
Reference Tests, Student Attendance,  
Student Performance, Subgroup Performance

## ABSTRACT

### Relationships Between Student Attendance and Test Scores on the Virginia Standards of Learning Tests

by

Jeffrey Cassell

This study examines the relationship between student attendance and student test scores on a criterion-referenced test, using test scores of all 5<sup>th</sup> graders in Virginia who participated in the 2005-2006 Standards of Learning tests in reading and mathematics. Data collection for this study was performed with the cooperation of the Virginia Department of Education using a state database of student testing information. Pearson correlation coefficients were determined for the overall student population and for the subgroups of economically disadvantaged, students with disabilities, limited English proficient, white, black, and Hispanic. The results of this study indicate that there is a significant positive correlation ( $p < .01$ ) between student attendance, as measured by the number of days present, and student performance on the Virginia SOL test, a criterion-referenced test.

Positive correlations were found between student attendance and student test scores for all subgroups. The correlation between student attendance and student performance on the SOL mathematics test was higher than the correlation for the same variables on the English test. The correlation for the overall student population on the English SOL test was higher than the correlation for any subgroup on the English SOL test. Only the LEP and Hispanic subgroups had higher correlations on the mathematics test than the overall student population. This study will contribute to a growing body of research resulting from the

enactment of the No Child Left Behind legislation and the national attention that this legislation has focused on student attendance and student performance on standardized tests.

## DEDICATION

I dedicate this study to my family:

To my parents, Otho and Anne, from whom I learned the values of education and hard work,

To my sister, Melanie, who supported my efforts in ways too numerous to count,

To my daughter, Emily, who has read and studied countless hours alongside Dad and who has shown patience and understanding beyond her years during Dad's academic endeavor.

Most importantly, I dedicate this study to Kathy Johnson, whose friendship, support and encouragement grew into love, support, and encouragement that I cherish every day.

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Sam Hambrick and David Helms, the best mentors a principal could have, and the best friends anyone could have.

Dr. Michael Robinson, my current superintendent, and Dr. Marvin Winters, my former superintendent, for their support and the opportunities they provided me.

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## CHAPTER 1

### INTRODUCTION

The No Child Left Behind Act of 2001 (NCLB) has focused attention on student achievement in reading and mathematics and on student attendance and graduation rates (Lehr, Johnson, Bremer, Cosio, & Thompson, 2004; Railsback, 2004). One issue of great concern for many public school administrators in this country is meeting the Adequate Yearly Progress (AYP) requirements of the No Child Left Behind Act which requires the identification of states, schools, and school divisions making and not making AYP (Greene-Wilkinson, 2006; Schwartzbeck, 2005; Virginia Department of Education [VDOE], 2006). AYP measures school progress in reading, mathematics, graduation rates, and attendance rates, with participation rates of at least 95% required for all students and all subgroups for each assessment (United States Department of Education [USED], 2006; VDOE). A participation rate of less than 95% for the overall student population or for any of the subgroups will result in a school or school division not making AYP, regardless of the percent of students who achieve proficient scores on the standardized tests (VDOE). All benchmarks must be met by all subgroups of students - students with disabilities (SWD), economically disadvantaged students (ED), limited English proficient students (LEP), and major racial or ethnic groups (USED; VDOE). The performance of these subgroups is an area of ongoing concern for many schools and districts; many schools have significantly lower test scores for the subgroups than for the overall student population and these lower subgroup scores will prevent these schools from achieving or maintaining their "making AYP" status (Farmer et al., 2006; Greene-Wilkinson; Neill, 2003; Novak & Fuller, 2004). In Virginia, "for a

school, school division, or the Commonwealth to make AYP, it must meet or exceed 29 benchmarks for participation in statewide testing, achievement in reading and mathematics, and attendance or science (elementary and middle schools) or graduation (high schools)" (VDOE, p.3). Maintaining an individual school's AYP status and the school division's AYP status are areas of increasing focus as the benchmarks for achieving AYP rise each year (Shaul, 2006). As Shaul explains, making AYP is based on students' performance for one year, generally without consideration of improvements or regressions from previous years. Thus, a school could make significant improvement in student achievement but fail to make AYP because too few students, or even a single subgroup of students, fail to meet a predetermined level of proficiency (Kane & Staiger, 2001; Novak & Fuller). "Missing a single benchmark may result in a school or school division not making AYP" (VDOE, p.3). The success of schools and school divisions is measured by making AYP, regardless of the implementation of new strategies, improved teaching methods, increased engagement of students and parents toward higher student achievement, or other evidence of educational reforms designed to help schools meet the needs of every student (Ferrandino & Tirozzi, 2004; Greene-Wilkinson).

The No Child Left Behind legislation specifies attendance as an "other academic indicator" for elementary and middle schools (USED, 2006). Attendance has long been regarded as one of the key factors affecting student achievement, but its inclusion as an indicator of AYP has focused renewed attention on student attendance (Atkinson, 2005; Epstein & Shelton, 2002; Railsback, 2004). Several studies have shown a correlation between student attendance and academic performance in the classroom (Klem & Connell, 2004; Moore, 2005; Truby, 2001). In order to meet the requirements of No Child Left Behind, criterion-referenced

tests are used by most states to determine student achievement in reading and mathematics (Education Week, 2007, January 3; National Center for Education Statistics [NCES], 2007b). Virginia uses criterion-referenced tests, specifically the Virginia Standards of Learning tests, to meet the student assessment requirements of No Child Left Behind (VDOE, 2006).

#### Statement of the Problem

This study will examine the relationship between individual student attendance and individual student performance on the Virginia Standards of Learning tests in English and mathematics at the fifth grade level (VDOE, 2006). Additionally, this study will examine the relationship between individual student attendance and individual student performance on the Virginia Standards of Learning tests in English and mathematics at the fifth grade level for the six subgroups of NCLB that are identified in Virginia (VDOE).

#### Research Questions

##### Question 1

Is there a correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level?

##### Question 2

Is there a correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level?

##### Question 3

Does the correlation between student attendance and student test scores differ among the six subgroups of NCLB on the SOL English test at the 5<sup>th</sup> grade level?

#### Question 4

Does the correlation between student attendance and student test scores differ among the six subgroups of NCLB on the SOL math test at the 5<sup>th</sup> grade level?

#### Significance of the Study

This study will be of significance to policy makers who are interested in the results and implications of No Child Left Behind and who consider attendance and student performance on standardized assessments to be appropriate indicators of Adequate Yearly Progress. Educational practitioners will be interested in the results of this study because attendance is a factor more within their realm of influence than many other factors, such as socioeconomic status. The performance of the subgroups is of interest to many practitioners; therefore, any factor that may affect the performance of any of these groups will be of significance.

#### Definition of Terms

Subgroups of No Child Left Behind - The No Child Left Behind legislation requires that states report results for subgroups of students -- students with disabilities, economically disadvantaged students, limited English proficient students, and major racial or ethnic groups (USED, 2006). In Virginia, three racial or ethnic groups -- white, black, and Hispanic -- were determined to each comprise more than 5% of the student population and, therefore, were identified as a subgroup whose results are required to be reported (VDOE, 2003).

Standards of Learning - "Standards of Learning for Virginia Public Schools (SOL) describe the Commonwealth's expectations for student learning and achievement in grades K-12 in English, mathematics, science, history and social science, technology, the fine

arts, foreign language, health and physical education, and driver education" (VDOE, 2006, p. 11).

Student Attendance - The Virginia Department of Education requires that schools report aggregate days present, aggregate days absent, and aggregate days of membership for every student (VDOE, 2005b). "The aggregate days present represents the cumulative number of days the student had been present in the school from the beginning of the current school year to the time of the report (VDOE, 2007a, p. 31).

#### Delimitations

This study is delimited to the Commonwealth of Virginia public school system which has 132 school divisions. The results of this study may be generalized to states with similar demographic characteristics.

#### Limitations

Some students who meet the criteria for economically disadvantaged may not be identified because they have not applied for services due to reasons such as parents' unwillingness to apply or difficulty completing the application process. Students identified as economically disadvantaged are determined based on their eligibility for free or reduced lunch, Temporary Assistance for Needy Families (TANF), or Medicaid. Participation in any of these programs is determined through an application process.

Students are required to make a selection from the choices for the data field of race or ethnicity, but one of the choices is "unspecified". Therefore, a student who is white, African-American, or Hispanic could have chosen "unspecified" and is not counted in any of the three reported racial or ethnic subgroups.

#### Overview of the Study

This study is organized and presented in five chapters. Chapter 1 contains an introduction, the statement of the problem including

research questions, and the significance of the study. Additionally, Chapter 1 presents limitations and delimitations of the study along with the definitions of terms used in the study. Chapter 2 contains a review of the literature related to student attendance and student achievement on high-stakes assessments. Chapter 2 consists of a section pertaining to attendance and student achievement and a section pertaining to attendance and student achievement on high-stakes assessments, with a concluding section that relates the first two sections to the No Child Left Behind legislation. Chapter 3 provides a discussion of the methodology and data collection procedures for the study. Chapter 4 presents the data and describes the data analysis used for the study. Chapter 5 presents a summary of the study, a summary of the findings, conclusions, recommendations for practice, and recommendations for further research.

## CHAPTER 2

### REVIEW OF LITERATURE

#### Introduction

Chapter 2 contains a review of the literature relevant to student attendance, student achievement, and the No Child Left Behind legislation. This literature review is composed of three main sections beginning with the examination of the relevance of attendance to student achievement. The second section concentrates on attendance and high-stakes assessments with a focus on criterion-referenced tests. The third section relates attendance and high-stakes assessment to the goals of No Child Left Behind with an emphasis on the determination of Adequate Yearly Progress and achievement of students in the NCLB subgroups. Chapter 2 concludes with a summary of the literature reviewed in the three sections.

#### Attendance and Student Achievement

Attendance has long been considered a key component of a successful school experience for all students, although there has been surprisingly little research conducted on this topic (Atkinson, 2005; Epstein & Shelton, 2002). Epstein and Shelton noted that reducing the rates of student truancy and excessive absenteeism continued to be a goal of many schools and school divisions. Corville-Smith (1995) asserted that the issue of student attendance has received relatively little attention from educational researchers despite a history of concern. Atkinson commented on the lack of national truancy data, even though some metropolitan areas report thousands of unexcused absences each day. She suggested that truancy is a much more profound problem than might at first be obvious. Atkinson agreed with Garry (1996) that there is a clear and powerful link between truancy and numerous risk factors and risk behaviors among young people. Garry referred to

truancy as "the first step in a lifetime of problems" (p. 1), noting that truancy in this country had become a major problem creating negative influences on the future of our youth and resulting in huge social costs.

Sanderson, Dugoni, Rasinski, and Taylor (1996) prepared a descriptive summary report of The National Education Longitudinal Study of 1988 in which they discussed the six risk factors that were identified in order to define at-risk students for the original study and were subsequently used as the standard for a follow up study conducted in 1994, as well as used as the standard for other studies. The six risk factors identified were: "lowest socioeconomic quartile, single-parent family, older sibling dropped out of school, changed school two or more times from first to eighth grade, lower than average grades (C or lower), and repeating an earlier grade from first to eighth grade" (Horn & Chen, 1998, p.3). Noticeably absent from the report of Sanderson et al. was any discussion of student attendance as a risk factor. Horn and Chen offered an explanation for this lack of focus on student attendance as having "to do with the correlation between attendance behavior and achievement. Higher achieving students are more likely to report higher levels of attendance. Thus, once achievement is controlled for, there is little variation for attendance" (p.26). Railsback (2004) maintained that it is well known and widely accepted that having children attend school on a regular basis is a key component of their academic success.

The research on the topic of student attendance has increased in recent years, due at least in part to the NCLB legislation (Atkinson, 2005; Klem & Connell, 2004). Truby (2001) cited

a study by the Minneapolis public school district that suggested that attendance has a dramatic effect on achievement scores.

According to the study, students who attended class 95% of the time were twice as likely to pass state language arts tests as students with attendance rates of 85% (p. 8).

Moore (2005) also found that high rates of attendance correlate strongly with high grades and that low rates of attendance correlate strongly with low grades.

Several researchers have established a positive relationship between attendance rates and graduation rates (Beem, 2002; Burley & Harding, 1998; Epstein & Shelton, 2002; Garry, 1996; McNeely, Nonnemaker, & Blum, 2002). Epstein and Shelton cite cross-sectional and longitudinal studies that indicate students who are absent more often beginning as early as first grade are those students who eventually drop out of school. The findings of several studies suggest that the pattern of absenteeism increases throughout a student's school experience and that truancy in elementary schools is a strong predictor of truancy in high school (Burley & Harding; Epstein & Shelton; Garry). McNeely et al., through a national adolescent health survey of more than 90,000 7<sup>th</sup> to 12<sup>th</sup> grade students in 134 schools, found that frequent problems with school work is a common trait among truant youth. Beem reported results from a study conducted in a school district in Kentucky that showed graduation rates could be radically improved by addressing truancy effectively. This small school district achieved a 100% graduation rate three concurrent years, attributing the success to a truancy reduction program that started in elementary school.

Dougherty (1999) presented a particularly interesting point in discussing the effect of cultural values on attendance. He noted that punctuality and good attendance are generally regarded as common values in American society. However, not all cultures place such importance on

punctuality and consistent attendance. Dougherty suggested that as the American culture becomes more diverse, the need to communicate the high regard of such values becomes increasingly important. Such acculturation by parents and educators helps young people cross cultural boundaries in order to adopt values that lead to success in a given culture.

Atkinson (2005) proposed that there is a critical link between effective educational strategies and student attendance rates. She also noted that NCLB requires the development and implementation of a uniform information and reporting system in every state, as attendance rates are a key performance indicator required to be reported at the state level and on a school-by-school basis. The National Research Council (2003) acknowledged that

although assessing proximal goals such as increasing attendance and reducing dropout rates can mark progress that reassures us that we are moving in the right direction, ultimately we need to achieve the more ambitious goal of promoting deep cognitive engagement that results in learning (p. 32).

Tretter and Jones (2003) examined relationships between inquiry-based teaching and standardized test scores. One aspect of this study focused on three measures of student participation in physical science classes. The three measures were attendance, likelihood of "giving up" (not completing all course requirements), and taking the End of Course (EOC) standardized test. They indicated that a positive relationship does exist between higher attendance, less likely to give up, and more likely to take the EOC standardized test (Tretter & Jones).

Klem and Connell (2004) studied the link between teacher support and student engagement and achievement. All of the factors they used to define levels of student engagement were dependent upon the students

being present at school; students who were not present simply could not be engaged. Klem and Connell used factors previously used by Marks (2000) to determine levels of student engagement. Marks "conceptualizes engagement as a psychological process, specifically, the attention, interest, investment, and effort students expend in the work of learning" (p. 154). She asserts that this definition of engagement implies both affective and behavioral participation in the learning experience.

Klem and Connell (2004) determined that attendance and test scores were strongly associated with a high level of engagement. They asserted that even with factors other than attendance and test scores used for defining student engagement, higher levels of engagement were linked with improved performance. They further argued that student engagement was a robust predictor of student achievement in school regardless of socioeconomic status. Students engaged in school were more likely to have higher grades and test scores and lower dropout rates, while students with low levels of engagement were more likely to suffer adverse consequences such as chronic absenteeism and dropping out of school. Klem and Connell suggested that creating more personalized educational environments resulted in more student engagement, higher test scores, and better attendance. The National Research Council (2003) reported similar findings from several studies that support the importance of promoting engagement because it is a strong motivator for students to attend school regularly and to stay in school until graduation.

#### Attendance and Student Achievement on High-Stakes Assessments

Tretter and Jones (2003) noted that educational accountability has become a very high profile issue in recent years in the United States. They maintained that this attention led to the increased

emphasis on standardized testing as a means to improve public schooling and to hold accountable the various parties involved. Mitchell (2006) asserted that assessment is the essential ingredient of accountability and accountability is the key word in education today. He noted that NCLB requires accountability for academic progress, using statewide assessments to monitor student progress toward the goal of 100% proficiency for all students by 2014.

Statewide assessments gauge student progress toward the annual goals set by the state and measure Adequate Yearly Progress in an effort to meet the requirements of NCLB (USED, 2006; VDOE, 2006). These achievement tests are generally standardized within a given state, but across different states they may vary in the knowledge they test, whether they measure minimum competency or a degree of achievement, the style of their questions, and whether they are referenced to a pre-defined standard or to the relative performance of other students (NCES, 2007b). "A standardized test is any assessment that is administered and scored in a predetermined, standard manner" (Popham, 1999, p.8). Students take the same test at the same time under the same testing conditions, if possible, so that the results can be attributed to actual student performance and not to differences in the testing conditions, the administration of the test, or the form of the test (USED, 2003; Wilde, 2004). Because of the standardized nature of these tests, results can be shared across schools, districts, and states (Mitchell, 2006).

State testing to document AYP in accordance with NCLB is considered "high-stakes" testing because of the consequences to schools and students that fail to reach certain benchmarks or to make improvements in achievements for the subgroups of the schools (Mitchell, 2006). Consequences to students in Virginia who fail to meet

the proficient benchmark on a test include mandatory remediation in the subject area at all grade levels (VDOE, 2006). High school students in Virginia must meet the proficient benchmark on six End of Course SOL tests in order to receive the verified credits necessary for a standard diploma (VDOE, 2004). Consequences for schools that do not make AYP become increasingly severe each year, ranging from implementing a school improvement plan to a complete reorganization of the school. Other consequences could include providing school choices for students with transportation provided, providing supplemental educational services, replacing school staff, or implementing a new curriculum (VDOE, 2005a).

#### Criterion-Referenced Assessment

The term 'criterion-referenced measurement' appears to have been used first in 1962 by Glaser and Klaus, although the use of criterion-referenced scales can be found in studies dating to the late 19<sup>th</sup> and early 20<sup>th</sup> centuries (Hambleton & Jurgensen, 1990). Glaser (1963/1994) defined the differences in norm-referenced and criterion-referenced assessments of achievement and established criterion-referenced tests as legitimate alternatives to norm-referenced tests. Glaser maintained that the primary difference between the two types of assessments could be found in the standard used as a reference; criterion-referenced tests depended upon an absolute standard, whereas norm-referenced tests depended upon a relative standard. Hambleton and Jurgenson maintained that Glaser's description of the differences between norm-referenced and criterion-referenced tests generated considerable debate over the merits of the two types of tests, as well as how criterion-referenced tests should be defined and even what they should be called.

Norm-referenced tests are designed to compare individual students' achievements to a representative sample of his or her peers,

referred to as the "norm group". The design of all norm-referenced tests is driven by the goal of spreading out the results on the normal or bell-shaped curve (Mitchell, 2006; NASBE, 2001; Zucker, 2003). Mitchell explained that the curve-based design of norm-referenced tests means that these tests do not compare students' achievement to what they should know or be able to do; rather, they compare students to other students in the same "norm group". Because these tests are designed to spread students' scores across the bell-shaped curve, the test questions do not necessarily represent the knowledge and skills that students have been expected to learn (Mitchell). During the test development process, test items answered correctly by 80% or more of the test takers typically do not make it into the final version of the test (Popham, 1999).

Criterion-referenced tests are designed to measure a level of mastery according to a clearly defined set of standards (Zucker, 2003). Since the enactment of NCLB in 2001, these standards are usually state standards (Mitchell, 2006; NASBE, 2001; Wilde, 2004; Zucker). Collins and Cheek (1993) defined criterion-referenced tests as "tests based on objectives that contain the specific conditions, outcomes, and criteria that are expected for satisfactory completion of the task" (p. 446). Unlike norm-referenced tests, all students could possibly reach a very high standard on a criterion-referenced test, because the students are not being compared to a reference group, only to their knowledge of the content (NASBE; Zucker). Mitchell pointed out that it is theoretically possible for all students to achieve the same score (possibility the highest score or the lowest score) on a criterion-referenced test because the test items are not chosen to rank students but to determine if they have learned the knowledge and skills of the standards on which the test is based. Assessment results are typically reported according

to a level of performance, such as the not proficient, proficient, and advanced ratings used on the Virginia SOL tests (NASBE; VDOE, 2006). According to Darling-Hammond (2004) criterion-referenced tests often use an underlying norm-referenced logic in selecting items and setting cut scores, although in theory, the target could at least remain fixed on these tests.

Mitchell (2006) noted that the implementation of No Child Left Behind in 2001 caused a dramatic increase in the number of criterion-referenced tests used at the state level because these tests measure the achievement of knowledge and skills required by state standards. Currently, 44 states use criterion-referenced tests as a part of their state assessment program, with 24 states including Virginia using only criterion-referenced tests for their state assessment program (Education Week, January 3, 2007; NCES, 2007b). NCES reported that in addition to the 24 states using only criterion-referenced tests, 17 states use both criterion-referenced tests and norm-referenced tests, 10 states use hybrid tests, and one state uses only a norm-referenced test. A hybrid test is a single test for which results are reported both as norm-referenced (in percentiles or stanines) and as criterion-referenced (in basic, proficient, and advanced levels) (Mitchell). Iowa is the only state to use only a norm-referenced test; Iowa is home to the Iowa Test of Basic Skills (a norm-referenced test) and is the only state in the country that does not have state standards, although Iowa does have state-developed standards that may be voluntarily adopted by school districts (Education Week).

#### No Child Left Behind Legislation

The No Child Left Behind Act of 2001, approved by Congress in December 2001 and signed into law by President George W. Bush on January 8, 2002, is the reauthorization of the Elementary and Secondary Education Act of 1965, although its official subtitle is the No Child Left Behind Act of 2001 (Hess & Petrilli, 2006; USED, 2005). This legislation was the most significant and controversial change in federal education policy since the federal government assumed a major role in American education 4 decades ago with the enactment of the Elementary and Secondary Education Act (Sunderman & Kim, 2004). Unquestionably the most comprehensive educational reform effort undertaken by the federal government in American history, it was a dramatic departure from the traditional federal educational policy of this country (Hess & Petrilli; Sunderman & Kim; USED). McGuinn (2006) stated that "the passage of the No Child Left Behind Act in 2002 signaled the beginning of a new era of federal education policy and a significantly transformed and expanded national role in our country's schools" (p. 196). Beyond widespread agreement on the unprecedented, comprehensive nature of this federal involvement in public education, there was little agreement about any other aspect of the No Child Left Behind Act (Popham, 2004).

Viewpoints about the NCLB legislation varied greatly. Supporters described NCLB as a path to educational transformations; critics denounced it as a plot to undermine public education (Sunderman & Kim, 2004).

Some proponents viewed it as perhaps the grandest achievement of the U.S. Department of Education in its 29-year history (because) it signified a clear shift from the department's early role as data keeper and dispenser of student-aid funds to its emergent

role as leading education policy maker and reformer (Dodge, Putallaz, & Malone, 2002, p.674).

Detractors with an opposing view described the legislation as "a historic, even breathtaking, intrusion by the federal government into the rights of states to control the education enterprise within their borders" (Owens, 2004, p.24).

Regardless of one's opinion about NCLB, the extraordinary attention that was given to the implementation of the law by school officials, parents, politicians, and the media at the local, state, and federal levels signified the comprehensive nature of the new law, both in terms of the extensive scope of its goals and the federal expectations for states and school divisions to meet these goals (McGuinn, 2006). As Sunderman and Kim pointed out, the issues associated with NCLB were not only educational but also political and ideological; therefore, this law deserved the most careful attention and should have been scrutinized in terms of facts and not assumptions.

The No Child Left Behind Act is an extensive document totaling 1,184 pages, with the phrase "scientifically based research" occurring 111 times within the text of this law according to Susan B. Neuman, Assistant Secretary of Elementary and Secondary Education. She proclaimed that legislators and educators are no longer debating whether scientifically based research and scientifically based evidence is important; they know it is important and they know it is critical (Neuman, 2002).

No Child Left Behind required that decisions made and results reported about education at all levels (school, division, and state) be research-based and justifiable by scientifically accepted methods of data collection (Reyna, 2002; USED, 2006). Within this context, the Virginia Department of Education defined scientifically based research

as "research that involves the application of rigorous, systemic, and objective procedures to obtain reliable and valid knowledge regarding the effectiveness of educational activities and programs" (VDOE, 2006, p.11). The implications of these requirements foretold a new era for educational leaders in the making of decisions and the formulating of policies (Feuer & Towne, 2002). Owens (2004) asserted that the quality of research in education has been and continues to be imbalanced and is hindered by the fact that education is not recognized as a bone fide scholarly discipline. "By definition, a scholarly discipline includes a well-defined body of knowledge that arises from recognized theory and the use of research methods accepted as being appropriate to study the questions under investigation" (Owens, p.26).

The purpose of the No Child Left Behind Act was to close the achievement gap between student subgroups with accountability, flexibility, and choice (USED, 2006; VDOE, 2006). The achievement gap referred to the differences in academic performance among low-income and minority children compared to their non-low income, non-minority peers as measured by their achievement on standardized tests (USED, 2003; VDOE). For many years, low income and minority children have lagged behind their white peers in terms of academic achievement (Sheldon & Epstein, 2005; USED, 2003).

The five performance goals that No Child Left Behind set for states could be summarized as:

- All students will reach high standards, at a minimum attaining proficiency or better in language arts/reading and mathematics by 2013-2014.
- All limited English proficient students will become proficient in English and reach high academic standards, at

a minimum attaining proficiency or better in reading/language arts and mathematics.

- All students will be taught by highly qualified teachers by 2005-2006.
- All students will learn in schools that are safe and drug free.
- All students will graduate from high school. (VDOE, 2005a, Welcome section, ¶ 1)

These goals for student achievement, teacher performance, and school performance must be met by all states. However, most of the responsibility for achieving these goals fell to the local school divisions, referred to in the No Child Left Behind Act as the local educational agency (USED, 2006).

As previously stated, Railsback (2004) maintained that it is well known and widely accepted that having children attend school on a regular basis is a key component of their academic success. She concluded the federal government included attendance as an "additional indicator" for elementary and middle schools in the No Child Left Behind legislation in order to emphasize the importance of attendance to a child's educational experience.

#### Determination of Adequate Yearly Progress

The USED (2004) explained that Adequate Yearly Progress, most often referred to as AYP, is an individual state's measure of yearly progress toward achieving state academic standards. AYP is the minimum level of improvement that states, school districts, and schools must achieve each year. Erpenpach, Forte-Fast, and Potts (2003) described how AYP status is determined through a series of mathematical calculations used to evaluate schools based on standardized test

scores. Under NCLB, all schools receiving federal funds are required to reach 100% passing rates on state standardized tests for all students in all student groups by the end of the 2013-14 school year (Erpenpach et al., 2003; Popham, 2004; VDOE, 2006). The goal of this benchmark was to demonstrate that all students have met the standards of NCLB and eliminated academic achievement gaps (Karp, 2004; VDOE). Even though the law mandated that states must close achievement gaps, it did not specify annual targets to measure progress toward this goal. Therefore, states had flexibility in the rate at which they closed these gaps (Shaul, 2006).

Beginning with the passage of NCLB in 2002, most states established starting points, annual measurable objectives (AMO), and intermediate goals that applied at the state, district, and school level. "Annual measurable objectives are the minimum required percentages of students determined to be proficient in each content area" (VDOE, 2006, p.10). Virginia submitted a proposal to establish separate starting points and intermediate goals for the different subgroups of NCLB, but the USED rejected this proposal (Erpenpach et al., 2003) In many cases, the AMO and intermediate goals were set quite high in an effort to achieve 100% passing rates by 2014 (Darling-Hammond, 2004).

Many educational practitioners, as well as other informed and interested parties, argued that the progression rate of the standard is unrealistic (Darling-Hammond, 2004). Using a definition of proficiency developed by the National Assessment of Educational Progress (NAEP), Linn (2003) calculated that it would take some schools more than 50 years to reach 100% proficiency in all content areas even if they continued the fairly rapid rate of progress they were making prior to, and during, the initial implementation of NCLB.

Sizer (2004) noted that NCLB centralizes, through the federal approval of state plans, the definition of standards and the acceptable means of assessing these standards. The determination of standards and their assessment has historically been a key element of local and state school operation.

The range of options available to states in the selection of indicators for AYP calculations is limited. States are required to use five kinds of indicators for AYP:

- Separate summary indicators for proficiency in reading or language arts;
- Separate summary indicators for proficiency in mathematics;
- Separate indicators of participation in reading or language arts assessments;
- Separate indicators of participation in mathematics assessments; and
- At least one other academic indicator at the elementary and middle school levels and at least graduation rate at the high school level (Erpenbach et al., 2003, p.14).

According to the VDOE (2006), in Virginia the "other academic indicator" for elementary and middle schools could be attendance rate or science assessment. So for AYP calculations, in addition to having met AMO in reading and mathematics, elementary and middle schools must have met AMO for attendance or science and high schools must have met AMO for graduation, or have shown improvement. As Railsback (2004) pointed out, even though high schools used graduation rate as the AYP indicator, attendance is just as important for high school students as it is for younger students. In fact, a student's attendance history is

one of the best predictors of whether a student will graduate from high school (Baker, Sigmon, & Nugent, 2001; Garry, 1996).

Most states chose to use attendance rate as the other academic indicator at the elementary and middle school levels, although a few states chose instead to use results from other assessments, such as writing or science (Erpenpach et al., 2003). Schools in Virginia must decide prior to the beginning of the school year whether to use attendance or science as the AMO for elementary and middle schools (VDOE, 2006). Even though Virginia allows schools to choose between attendance rates or science test scores, a majority of schools (65% in 2006) chose to use attendance rate as the other academic indicator (VDOE, 2007b).

#### Student Achievement of NCLB Subgroups

With the enactment of the NCLB legislation in 2001, states were required to accept greater responsibility for a wide range of student populations (Zucker, 2003). Sunderman and Kim (2004) described how the new law specified the amount of progress schools must make annually for every subgroup of student and mandated goals that have rarely been achieved on any scale in high poverty school districts. In addition to economically disadvantaged students, NCLB required that students with limited English proficiency and special education students perform at these same high levels (Sunderman & Kim). Schools, school divisions, and states initially were concerned with overall student achievement, attendance, and graduation rates (Farmer et al.; Linn, 2003). Many schools found that they were performing adequately in these areas and many other schools quickly made significant progress in these areas (Farmer et al., 2006; Neill, 2003; Novak & Fuller, 2004). However, states must also report student achievement disaggregated by gender, ethnicity, disability, economic disadvantage, English proficiency, and

migrant status (Zucker). These subgroups were expected to make progress each year as was the general student population (Neill; Novak & Fuller). Many, if not most, schools found that the student achievement of these subgroups did not progress at the rate of the general student population and continued to lag far behind in many schools (Farmer et al.; Neill; Novak & Fuller; Sheldon & Epstein, 2005). Sheldon and Epstein cited several studies that showed in the United States minority students had lower achievement in mathematics than white students and that the achievement gap between racial subgroups was not narrowing. Novak and Fuller (2004) found that most schools labeled as "failing schools" were designated as such not because tests had shown their overall achievement levels to be low, but because a single student group -- disabled learners or Hispanic students, for example -- had fallen short of a targeted goal. Consequently, the chances that a school failed to make AYP increased in proportion to the diversity of the demographic groups served by the school (Batt, Kim, & Sunderman, 2005; Kane & Staiger, 2001).

Neill (2003) argued that many states and communities have failed to provide adequate educational resources and high quality learning opportunities for their students, often creating unequal education systems based on class, race, language, and ability (or disability) and he supported a means of verifying that schools are providing a high-quality education for all students. However, he expressed concern that few schools serving large numbers of children who were identified with a subgroup would meet the arbitrary benchmarks of AYP. He explained that even high-quality schools serving diverse populations would have trouble meeting the AYP requirements of NCLB because their programs were not designed to focus on improving standardized test scores. Musher, Musher, Graviss, and Strudler (2005) supported the idea that

tests can be used to document educational success, citing the results of their study that showed providing a quality educational experience for a diverse group of students can lead to significant improvement in standardized test scores.

The lack of achievement for the subgroups is of great concern to educators not only because of AYP requirements but, more importantly, because research into the impact of schools on their pupils has demonstrated the schools' value in providing support and sanctuary to children, especially of diverse backgrounds (Payne, 2005). Rutter (1989) concluded that good school experiences are probably socially helpful to all children, but they are critically important to subgroups under stress and with a lack of other positive experiences. While there are clearly many factors that affect the performance of students within the subgroups, as there are with all students, educators must emphasize the indicators that define what is valued. Schmoker (2001) pointed out that once these indicators are determined, they help educators know where to aim limited amounts of time and resources. Daily school attendance is one performance factor that meets these criteria and may be more easily influenced by educators than other factors.

Osterman (2000) studied students' need for belonging in the school community. She noted that the nationwide emphasis on standardized achievement tests had led to academic accomplishment becoming the main priority of schools, to the detriment of the affective needs of students. She subscribed to the idea that achievement and mastery are more important than a sense of belonging and that belonging is not a precondition for engagement but a reward for compliance and achievement. She cited several studies supporting her assertion that peers tend to associate with those they define as "friends" and these friends tend to be like themselves in terms of

race, class, gender, and most interestingly, in terms of perceived academic ability. This association with a certain group is often a determining factor in a student's level of engagement and commitment in school. Osterman concluded that there is strong and consistent evidence that students who experience acceptance are more motivated and engaged in learning and more committed to school. She also concluded that commitment and engagement in school is closely linked to student performance and to the quality of student learning.

Batt et al. (2005) suggested that the LEP subgroup deserved special attention for two reasons. First, LEP students comprised the fastest growing subgroup in the country. Second, these students were at a huge disadvantage to all other students because by definition they are considered to have limited proficiency in English, the language of nearly all standardized tests. According to Menken (2000) these tests designed for English speaking students tend to measure LEP students' language proficiency rather than accurately assessing their content knowledge of the subject being assessed. However, as Batt et al. pointed out, NCLB requires that the test scores of LEP students be used for accountability purposes regardless of their level of language proficiency. For this reason, schools with large numbers of LEP students will face significant challenges in achieving AYP under the current regulations of NCLB.

Burley and Harding (1998) cited a study of student attendance at high schools in the Minneapolis and St. Paul area that found the two strongest variables impacting attendance were the percent of minority students in school and the percent of students who go on to attend a 4-year college. As the percent of minority students increased, attendance decreased in all high school grades; as the percent of students planning to attend 4-year colleges increased, attendance increased

(Burley & Harding). Numerous studies have noted findings that indicate that economically disadvantaged students have lower attendance rates, are less likely to graduate from high school, and are less likely to attend college (Horn & Chen, 1998; Lehr, Johnson, Bremer, Cosio, & Thompson, 2004; Payne, 2005).

Engec (2006) maintained that poverty alone does not lead to failure in school or failure as an individual. He listed several environmental characteristics of poor children (lack of parental involvement, inadequate housing, health problems, lack of educational stimulation in early years, lack of academic support, and high student mobility) that are contributing factors to low academic achievement. Student attendance was not mentioned as a factor affecting student achievement; Engec focused on the relationship between student mobility and student performance but did not explore any relationship between mobility and student attendance.

Differences in attendance rates for subgroups have been documented by the NCES (2007a). NCES reported attendance for 4<sup>th</sup> and 8<sup>th</sup> grade students by race or ethnicity, disability status, and school-wide school lunch eligibility, with the latest data being from 2005. Black and Hispanic students were more likely to have missed 3 or more days of school in the last month than white students (21%, 21%, and 18% respectively in 4<sup>th</sup> grade and 24%, 23% and 19% respectively in 8<sup>th</sup> grade) (NCES). Students classified as having a disability were more likely than students without a disability to have missed 3 or more days of school in the past month (24% versus 19% in 4<sup>th</sup> grade and 29% versus 20% in 8<sup>th</sup> grade) (NCES). Students attending schools where more than 75% of the students were classified as economically disadvantaged were more likely to have missed 3 or more days of school in the past month than students attending schools where 10% or less of the students are

classified as economically disadvantaged (22% versus 16% for 4<sup>th</sup> graders and 25% versus 17% for 8<sup>th</sup> graders) (NCES). English language learners, previously reported as limited English proficient, were more likely to have missed 3 or more days of school in the past month than English proficient students (21% versus 19% for 4<sup>th</sup> graders and 23% versus 20% for 8<sup>th</sup> graders) (NCES). Railsback (2004) concluded that NCLB has resulted in particular attention being focused on increasing attendance and lowering the dropout rate of culturally and linguistically diverse students and students from low-income homes, who historically have had higher dropout rates than middle class white students.

#### Summary

The No Child Left Behind legislation has resulted in significant changes to the American education system since its passage in 2002 (Greene-Wilkinson, 2006; Schwartzbeck, 2005; Shaul, 2006). Schools, school divisions, and states are now identified as making AYP or not making AYP based on student achievement in reading, mathematics, and another academic indicator that can be attendance rates or science achievement for elementary and middle schools (USED, 2006; VDOE, 2006). Not only must the overall student population achieve a certain level of proficiency, but all subgroups of students must meet the same standards (USED; VDOE). Virginia, like many other states, uses criterion-referenced tests to meet the student assessment requirements of NCLB; many schools in Virginia choose to use attendance as the other academic indicator (VDOE). The use of attendance as the other academic indicator is indicative of Virginia's efforts to emphasize student attendance as an important facet of a school's overall improvement plan (Atkinson, 2006; VDOE). The federal and state attention given to attendance demands that schools and school divisions focus on student attendance, as well as the core academic areas of reading and

mathematics, as the primary components of an effective program designed to ensure a successful educational experience for all students.

## CHAPTER 3

### METHODS AND PROCEDURES

#### Introduction

This quantitative study was designed to determine if a relationship existed between student attendance and student achievement on the Virginia Standards of Learning tests in English and mathematics at the 5<sup>th</sup> grade level. The study further examined if this relationship differed among the six subgroups of No Child Left Behind as identified by the Commonwealth of Virginia.

Chapter 3 describes the methodology and procedures used in this study. This chapter contains sections that address the areas of research design, population, procedures, research questions, data analysis, and a summary.

#### Research Design

Attendance is generally considered to be a key component of student success in general classroom achievement. This quantitative study compared individual student attendance with individual student test scores on the Virginia SOL tests for English and mathematics to determine if a relationship existed between these variables. Analysis of this relationship was conducted for the overall student population as well as for each of the six subgroups identified in Virginia in order to determine if the relationship differed among these groups.

#### Population

The population for this study consisted of all fifth grade students who participated in the Standards of Learning state testing program in the state of Virginia for the 2005-2006 school year. There were 97,929 individual students involved in the study. Of these students, 32,279 were identified as economically disadvantaged, 9,187 were identified as Limited English Proficient, and 13,168 were

identified as students with disabilities. In the racial and ethnic subgroups, 58,208 were identified as white, 23,454 were identified as black, and 8,892 were identified as Hispanic. The remaining 7,375 students were identified with other racial or ethnic subgroups or did not identify their race or ethnicity.

#### Procedures

Data collection for this study was performed with the cooperation of the Virginia Department of Education using a state database of student testing information. Individual students were never identified in any way or at any time in this study. Data sets for fifth graders in Virginia were generated using a database query of the state's student records. This query generated a data set for each student that contains aggregate days present, aggregate days absent, SOL score for English, SOL score for math, and indicates membership in any of the subgroups. This database query and the subsequent production of the data set were performed by an employee of the Virginia Department of Education at the direction of the Director of Educational Information Management who approved the request for these data.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) Version 15.0 software package. Data summaries and results of the data analysis are presented in Chapter 4.

#### Research Questions

##### Question 1

Is there a correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level?

H<sub>0</sub>1: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level.

##### Question 2

Is there a correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level?

H<sub>02</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level.

Question 3

Does the correlation between student attendance and student test scores differ among the subgroups of NCLB on the SOL English test at the 5<sup>th</sup> grade level?

H<sub>031</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for economically disadvantaged students.

H<sub>032</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for students with disabilities.

H<sub>033</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for Limited English Proficient students.

H<sub>034</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for white students.

H<sub>035</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for African-American students.

H<sub>036</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for Hispanic students.

Question 4

Does the correlation between student attendance and student test scores differ among the subgroups of NCLB on the SOL mathematics test at the 5<sup>th</sup> grade level?

H<sub>041</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for economically disadvantaged students.

H<sub>042</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for students with disabilities.

H<sub>043</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for Limited English Proficient students.

H<sub>044</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for white students.

H<sub>045</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for African-American students.

H<sub>046</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for Hispanic students.

#### Data Analysis

The Statistical Program for the Social Sciences (SPSS) was used to analyze these data, using descriptive and inferential statistics. Statistical tests were performed to determine Pearson correlation coefficients.

Question 1: The null hypothesis was analyzed using descriptive statistics and tested using a Pearson correlation coefficient.

Question 2: The null hypothesis was analyzed using descriptive statistics was tested using a Pearson correlation coefficient.

Question 3: The null hypotheses were analyzed using descriptive statistics and were tested using Pearson correlation coefficients.

Question 4: The null hypotheses were analyzed using descriptive statistics and were tested using Pearson correlation coefficients.

#### Summary

Chapter 3 presents the research design of the study, the population studied, the procedure used for data collection, and the research questions and null hypotheses and describes the statistical procedures used to test the data. The study used quantitative procedures to determine if a correlation existed between student attendance and student test scores on criterion-referenced tests. The population used for this study was 97,929 fifth graders in Virginia. The study consists of four research questions with 14 null hypotheses. An analysis of the data will be provided in Chapter 4. Chapter 5 will present a summary of the study, a summary of the findings, conclusions, recommendations for practice, and recommendations for further research.

## CHAPTER 4

### ANALYSIS OF DATA

After the passage of the No Child Left Behind legislation in 2002 many states began using criterion-referenced tests to meet the student assessment requirements of this law (Education Week, 2007, January 3; NCES, 2007b). In Virginia, these tests are known as the Standards of Learning tests (VDOE, 2006). Student attendance at the elementary level was the "other academic indicator" chosen by many schools in Virginia to meet the requirements of NCLB (VDOE, 2007b). The increased level of accountability and subsequent focus on standardized test scores in reading and mathematics and on student attendance was the impetus for this study.

The purpose of this study was to examine the relationship between SOL test scores and student attendance. This study uses test scores from the reading and mathematics SOL tests given to fifth graders in the spring of 2006, as well as the student attendance data for these fifth graders for the 2005-2006 school year. The relationship between SOL test scores and student attendance for the overall student population and for the six subgroups of students in Virginia was also examined.

The four research questions presented in Chapter 1 were used to guide the study. The 14 hypotheses presented in Chapter 3 were used to test the data.

The 97,929 students who participated in the SOL testing program were comprised of three major ethnic or racial groups and three service groups. The largest ethnic or racial group was white students comprising 59.4% of the participating population followed by black students and Hispanic students, comprising 24.0% and 9.1% of the population respectively. Students of other ethnic or racial groups,

including students who did not identify their race or ethnicity, comprised 7.5% of the participating population. Economically disadvantaged students comprised the largest service group of students representing 33.0% of the participating population. Students with disabilities accounted for 13.4% of the participants, while limited English proficient students represented 9.4% of the participating population. Table 1 provides a summarization of this demographic information.

Table 1

*Demographic Profile of the Study*

Service Group	<i>N</i>	%
Economically Disadvantaged	32,279	33.0
Students With Disabilities	13,168	13.4
Limited English Proficient	9,187	9.4
Racial or Ethnic Group	<i>N</i>	%
White	58,208	59.4
Black	23,454	24.0
Hispanic	8,892	9.1
Other or Unspecified	7,375	7.5

A total of 97,929 students participated in the mathematics test and 94,526 students participated in the reading test. The explanation for the difference of 3,403 participating students is that Virginia allowed testing exemptions or alternative assessment procedures for students with disabilities and limited English proficient students who met certain criterion (VDOE, 2005a; VDOE, 2006). Students who did not participate in either the reading or the mathematics SOL test were not

counted as a participant in this study. There were 3,403 students who did not participate in the reading test because of an exemption but who did participate in the mathematics test, so they are included in this study. These students' scores were reported as DNA (did not attempt) for the reading test. An analysis of student test scores for the subjects of mathematics and reading reveals that 87% of students scored proficient on the mathematics test and 82% scored proficient on the reading test. Table 2 provides a summarization of students who scored proficient or not proficient on the reading and mathematics tests.

Table 2

*Students Scoring Proficient on the SOL Tests*

SOL Test	Participating Students					
	Proficient		Not Proficient		Totals	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Reading	82,376	87.1	12,150	12.9	94,526	100.0
Mathematics	80,656	82.4	17,273	17.6	97,929	100.0

Research Question 1

Is there a correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level?

H<sub>0</sub>1: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL English test at the 5<sup>th</sup> grade level. The correlation between days present and SOL English test scores was significant,  $r(94501)=.132$ ,  $p<.001$ , with an effect size of  $r^2=.02$ . This finding of a positive correlation results in the rejection

of the null hypothesis. Table 3 provides a summarization of data related to this research question.

Table 3

*Pearson Correlation Coefficients for Student Attendance and Test Scores on the SOL English Test at the 5<sup>th</sup> Grade*

Group	English Scores			Days Present			Correlation
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>r</i>
All Students	480.48	69.81	94,526	163.13	33.16	97,905	.132**

\*\* Correlation is significant at the .01 level (2-tailed).

#### Research Question 2

Is there a correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level?

H<sub>0</sub>2: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level. The correlation between days present and SOL mathematics test scores was significant,  $r(97905)=.182$ ,  $p<.001$ , with an effect size of  $r^2=.03$ . This finding of a positive correlation results in the rejection of the null hypothesis. Table 4 provides a summarization of data related to this research question.

Table 4

*Pearson Correlation Coefficients for Student Attendance and Test Scores on the SOL Mathematics Test at the 5<sup>th</sup> Grade*

Group	Math Scores			Days Present			Correlation
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>r</i>
All Students	480.97	87.55	97,929	163.13	33.16	97,905	.182**

\*\* Correlation is significant at the .01 level (2-tailed).

### Research Question 3

Does the correlation between student attendance and student test scores differ among the subgroups of NCLB on the SOL English test at the 5<sup>th</sup> grade level?

H<sub>031</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for economically disadvantaged students.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL English test at the 5<sup>th</sup> grade level for economically disadvantaged students. The correlation between days present and SOL English test scores for economically disadvantaged students was significant,  $r(32255)=.080$ ,  $p<.001$ , with an effect size of  $r^2=.01$ . This finding of a positive correlation results in the rejection of the null hypothesis.

H<sub>032</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for students with disabilities.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL English test at the 5<sup>th</sup> grade level for students with disabilities. The correlation between days present and SOL English test scores for students with disabilities was significant,  $r(13164)=.123$ ,  $p<.001$ , with an effect size of  $r^2=.02$ . This finding of a positive correlation results in the rejection of the null hypothesis.

H<sub>033</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for Limited English Proficient students.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL English test at the 5<sup>th</sup> grade level for Limited English Proficient students. The correlation between days present and SOL English test scores was significant for Limited English Proficient students,  $r(8187)=.098$ ,  $p<.001$ , with an effect size of  $r^2=.01$ . This finding of a positive correlation results in the rejection of the null hypothesis.

H<sub>034</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for white students.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL English test at the 5<sup>th</sup> grade level for white students. The correlation between days present and SOL English test scores for white students was significant,  $r(58198)=.117$ ,  $p<.001$ , with an effect size of  $r^2=.01$ . This finding of a positive correlation results in the rejection of the null hypothesis.

H<sub>035</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for black students.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL English test at the 5<sup>th</sup> grade level for black students. The correlation between days present and SOL English test scores for black students was significant,  $r(23441)=.112$ ,  $p<.001$ , with an effect size of  $r^2=.01$ . This finding of a positive correlation results in the rejection of the null hypothesis.

H<sub>03g</sub>: There is no correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level for Hispanic students.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL English test at the 5<sup>th</sup> grade level for Hispanic students. The correlation between days present and SOL English test scores for Hispanic students was significant,  $r(8892)=.092$ ,  $p<.001$ , with an effect size of  $r^2=.01$ . This finding of a positive correlation results in the rejection of the null hypothesis. Table 5 provides a summarization of data related to this research question.

Table 5

*Pearson Correlation Coefficients for Subgroup Attendance and Test Scores on the SOL English Test at the 5<sup>th</sup> Grade*

Subgroup	English Scores			Days Present			Correlation
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>r</i>
ED	452.38	66.92	30,046	156.11	40.25	32,255	.080**
SWD	437.38	69.22	12,206	160.88	35.03	13,164	.123**
LEP	460.39	62.34	6,359	156.57	41.62	9,187	.098**
White	493.60	67.88	57,709	165.93	28.23	58,198	.117**
Black	449.21	66.37	23,021	159.18	39.36	23,441	.112**
Hispanic	463.70	65.33	6,993	155.12	42.06	8,892	.092**

\*\* Correlation is significant at the .01 level (2-tailed).

#### Research Question 4

Does the correlation between student attendance and student test scores differ among the subgroups of NCLB on the SOL mathematics test at the 5<sup>th</sup> grade level?

H<sub>04</sub><sub>1</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for economically disadvantaged students.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for economically disadvantaged students. The correlation between days present and SOL mathematics test scores for economically disadvantaged students,  $r(32255)=.145$ ,  $p<.001$ , with an effect size of  $r^2=.02$ . This finding of a positive correlation results in the rejection of the null hypothesis.

H<sub>04</sub><sub>2</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for students with disabilities.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for students with disabilities. The correlation between days present and SOL mathematics test scores for students with disabilities was significant,  $r(13164)=.156$ ,  $p<.001$ , with an effect size of  $r^2=.02$ . This finding of a positive correlation results in the rejection of the null hypothesis.

H<sub>04</sub><sub>3</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for Limited English Proficient students.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for Limited English Proficient students. The correlation

between days present and SOL mathematics test scores for Limited English Proficient students was significant,  $r(9187)=.197$ ,  $p<.001$ , with an effect size of  $r^2=.04$ . This finding of a positive correlation results in the rejection of the null hypothesis.

H<sub>04</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for white students.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for white students. The correlation between days present and SOL mathematics test scores for white students was significant,  $r(58198)=.171$ ,  $p<.001$ , with an effect size of  $r^2=.03$ . This finding of a positive correlation results in the rejection of the null hypothesis.

H<sub>04</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for black students.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days present) and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for black students. The correlation between days present and SOL mathematics test scores for black students was significant,  $r(23441)=.141$ ,  $p<.001$ , with an effect size of  $r^2=.02$ . This finding of a positive correlation results in the rejection of the null hypothesis.

H<sub>04</sub>: There is no correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for Hispanic students.

A Pearson correlation coefficient was computed to determine whether there is a correlation between student attendance (days

present) and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level for Hispanic students. The correlation between days present and SOL mathematics test scores for Hispanic students was significant,  $r(8892)=.187$ ,  $p<.001$ , with an effect size of  $r^2=.03$ . This finding of a positive correlation results in the rejection of the null hypothesis. Table 6 provides a summarization of data related to this research question.

Table 6

*Pearson Correlation Coefficients for Subgroup Attendance and Test Scores on the SOL Mathematics Test at the 5<sup>th</sup> Grade*

Subgroup	Mathematics Scores			Days Present			Correlation
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>r</i>
ED	446.39	86.88	32,279	156.11	40.26	32,255	.145**
SWD	423.03	88.96	13,168	160.88	35.03	13,164	.156**
LEP	445.77	92.24	9,187	156.57	41.66	9,187	.197**
White	496.06	83.65	58,208	165.93	28.23	58,198	.171**
Black	448.97	84.20	23,454	159.18	39.36	23,441	.141**
Hispanic	447.09	91.41	8,892	155.12	42.06	8,892	.187**

\*\* Correlation is significant at the .01 level (2-tailed).

## CHAPTER 5

### FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to determine if a correlation existed between student attendance and student performance on the 5<sup>th</sup> grade SOL scores in English and mathematics in Virginia. The correlation between student attendance and student performance was also examined for each of the six subgroups of NCLB identified in Virginia. Statistical procedures were used to determine correlations between the variables of student attendance and student test scores. Chapter 5 contains a summary of the study, a summary of the findings, conclusions, recommendations for practice, and recommendations for further research.

#### Summary of the Study

This quantitative study examined the English scores and mathematics scores of 5<sup>th</sup> grade students on the Virginia Standards of Learning tests and the attendance of these students to determine if there was a correlation between individual student attendance and individual student scores on these criterion-referenced tests. This study further examined the same data for the six subgroups of No Child Left Behind as identified by state of Virginia to determine if a correlation existed for each of the subgroups. The population for this study consisted of 97,929 fifth grade students who participated in the Standards of Learning state testing program in the state of Virginia for the 2005-2006 school year. Pearson correlation coefficients were calculated to determine the correlation between variables. The results showed a statistically significant correlation between student attendance and student test scores for both English and mathematics SOL tests at the 5<sup>th</sup> grade level. The results also indicated a statistically significant correlation between student attendance and student test

scores for all subgroups on both the English and the mathematics test. The strength of the correlation varied among subgroups on both the English and the mathematics test.

#### Summary of Findings

The statistical analyses for this study focused on four research questions. Each question examined the correlation between student attendance and student performance on the Virginia SOL tests. The differences among the questions resulted from the examination of test scores on the English SOL test and the mathematics SOL test, as well as the examination of the overall student performance and the performance of the six subgroups. Each research question is reiterated and summary of the related results are presented in this section.

#### Question 1

Is there a correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level?

The Pearson correlation coefficient of .132 indicated that there was a significant positive correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level. The effect size indicated that 2% of the variance in test scores could be accounted for by student attendance. The null hypothesis was rejected.

#### Question 2

Is there a correlation between student attendance and student test scores on the SOL mathematics test at the 5<sup>th</sup> grade level?

The Pearson correlation coefficient of .182 indicated that there was a significant positive correlation between student attendance and student test scores on the SOL English test at the 5<sup>th</sup> grade level. The effect size indicated that 3% of the variance in test scores could be accounted for by student attendance. The null hypothesis was rejected.

### Question 3

Does the correlation between student attendance and student test scores differ among the six subgroups of NCLB on the SOL English test at the 5<sup>th</sup> grade level?

The Pearson correlation coefficients indicated that a significant positive correlation existed between student attendance and student test scores for all six subgroups on the SOL English test at the 5<sup>th</sup> grade level, although this correlation differed in relative strength among the subgroups. All null hypotheses related to this question were rejected. The subgroup of students with disabilities had the highest correlation with a Pearson correlation coefficient of .123. The next four subgroups in order of correlation strength were: white students with a Pearson correlation coefficient of .117, black students with a Pearson correlation coefficient of .122, LEP students with a Pearson correlation coefficient of .098, and Hispanic students with a Pearson correlation coefficient of .092. The subgroup of economically disadvantaged students had the lowest correlation with a Pearson correlation coefficient of .080. The effect sizes for these subgroups indicated that less than 2% of the variance in test scores could be accounted for by student attendance. The correlations for all subgroups of students on the SOL English test were lower than the correlations for the subgroups on the SOL mathematics test.

### Question 4

Does the correlation between student attendance and student test scores differ among the six subgroups of NCLB on the SOL mathematics test at the 5<sup>th</sup> grade level?

The Pearson correlation coefficients indicated that a significant positive correlation existed between student attendance and student test scores on the SOL mathematics test for all six subgroups, although

this correlation differed in relative strength among the subgroups. All null hypotheses related to this question were rejected. The subgroup of Limited English Proficient students had the highest correlation with a Pearson correlation coefficient of .197. The next four subgroups in order of correlation strength were: Hispanic students with a Pearson correlation coefficient of .187, white students with a Pearson correlation coefficient of .171, students with disabilities with a Pearson correlation coefficient of .156, and economically disadvantaged students with a Pearson correlation coefficient of .145. The subgroup of black students had the lowest correlation with a Pearson correlation coefficient of .141. The effect sizes for these subgroups indicated that at most 4% of the variance in test scores could be accounted for by student attendance. The correlations for all subgroups on the SOL mathematics test were higher than the correlations for the subgroups on the SOL English test.

#### Conclusions

The results of this study indicated that there was a significant positive correlation between student attendance, as measured by the number of days present, and student performance on the Virginia SOL test, a criterion-referenced test. These results may not be particularly surprising to anyone because as Railsback (2004) acknowledged, it is well known and widely accepted that having children attend school on a regular basis is a key component of their academic success. However, Corville-Smith (1995) noted that the issue of student attendance has received relatively little attention from educational researchers despite a history of concern. Several researchers (Atkinson, 2005; Klem & Connell, 2004, Truby, 2001) documented that research on the topic of student attendance has increased in recent years due, at least in part, to the NCLB legislation. However, this

researcher found that a void still exists in research examining the relationships between attendance and student performance on criterion-referenced tests. The use of criterion-referenced tests has increased dramatically since the enactment of NCLB, with these tests being used by a large majority of states as a part of their state assessment program (Mitchell, 2006; NCES, 2007b). Therefore, the findings of this study will contribute to a growing body of research resulting from the enactment of the No Child Left Behind legislation and the national attention that this legislation has focused on student attendance and student performance on standardized tests. Possibly the most important implication of the results of this study was the research based support that is provided to the widespread belief that student attendance is directly related to student achievement.

The correlation between student attendance and student performance on the SOL mathematics test was higher than the correlation for the same variables on the English test. These higher correlations were true for all subgroups as well as the overall student population. Correlations for the subgroups on the mathematics test ranged from a high of  $r=.197$  to a low of  $r=.141$ , while the correlations for the subgroups on the English test ranged from a high of  $r=.123$  to a low of  $r=.080$ . Of particular noteworthiness were the correlations of the LEP and the Hispanic groups ( $r=.197$  and  $r=.187$ , respectively) which were the highest correlations on the mathematics test. These results are interesting when considered within the context of other research findings discussed in the literature review of Chapter 2. Several studies have found that economically disadvantaged and minority children fall behind their white peers in academic achievement (Farmer et al., 2006; Neill, 2003; Novak & Fuller, 2004; Payne, 2005; Sheldon & Epstein, 2005; USED, 2003). Likewise, numerous studies have reported

lower attendance rates from economically disadvantaged and minority children (Horn & Chen, 1998; Lehr et al., 2004; NCES, 2007a; Payne). While a causal relationship cannot be established between attendance and achievement, the results of this study indicate that improving student attendance for these subgroups could result in improved student performance on the SOL tests. The effect sizes found in this study are low, ranging from 1% to 4%. However, Witte and Witte (2004) noted that large values of  $r^2$  are not generally expected in behavioral and educational research. Therefore, they suggest that values of  $r^2$  close to zero merit attention in many studies.

The correlation for the overall student population on the English SOL test was higher than the correlation for any subgroup on the English SOL test. Only the LEP and Hispanic subgroups had higher correlations on the mathematics test than the overall student population. This particularly interesting finding can possibly be explained by the factor common to the two groups -- their level of language proficiency. The study of mathematics does not require the level of language proficiency that the study of reading requires for Hispanic students and many LEP students because the Arabic number system used in American schools is the same system used in their native cultures. These students do not have to overcome a language barrier during their daily instruction in mathematics; therefore, they are able to focus on learning the mathematics material during the time they are present. Perhaps this opportunity to focus on the material presented rather than focusing on crossing the language barrier results in the higher correlations between student attendance and student achievement on the mathematics test.

### Recommendations for Practice

Mitchell (2006) asserted that assessment is the essential ingredient of accountability and accountability is the key word in education today. Student test scores and student attendance are used as measures of accountability and are specified as measures of accountability for NCLB (Lehr et al., 2004; Railsback, 2004; USED, 2006). Because of the level of accountability in public education today, all educators are concerned with student performance on statewide standardized tests. The results of this study suggest that improving student attendance could result in improved student achievement on standardized tests. Educational practitioners can potentially double the positive effects of their efforts toward improved accountability results by focusing their efforts on student attendance. Educators should develop and implement programs that encourage, support, and recognize improved and sustained student attendance. In addition to incentive programs that reward good attendance, schools may implement deterrent programs with consequences for poor attendance. Improved student attendance resulting in improved student achievement provides improved accountability results in two major categories as the result of a single effort directed at improving student attendance.

Atkinson (2005) proposed that there is a critical link between effective educational strategies and student attendance rates. Klem and Connell (2004) documented the link between teacher support and student engagement and achievement. Educators must recognize the importance of teacher efficacy in improving student attendance and student achievement. Rutter (1989) concluded that good school experiences are probably socially helpful to all children, but they are critically important to subgroups under stress and with a lack of other

positive experiences. Administrators and teachers must ensure that all students, but especially those students with the greatest educational needs, have a positive school experience. The classroom teacher is the critical component of a positive classroom experience, especially at the elementary level where a student usually has the same teacher all day. Teachers must embrace educational strategies and employ best practices that assure positive learning environments and differentiated instruction for all students. Students who experience success in the classroom and feel that they are an important part of the school community want to attend school. Only when students are present at school can teachers effectively address their educational needs.

Improving student attendance is an area of educational accountability that may be more easily influenced by educators than many other factors. However, educators cannot adequately address this topic without support from parents and community members. Educators should develop public education campaigns that emphasize the importance of good student attendance. Research based information that supports the importance of good attendance should be disseminated to students, parents, and the community as part of a community wide campaign to improve student attendance. When parents, community groups, businesses, and industries supplement the limited time and resources of educators in encouraging improved student attendance, progress can be made at an improved rate. Comprehensive attendance improvement programs supported by educators, parents, community groups, and businesses have the potential to impact student attendance at an unprecedented level. Railsback (2004) maintained that it is well known and widely accepted that having children attend school on a regular basis is a key component of their academic success. Improved attendance may be the

first step to improved educational opportunities and personal achievement for many students.

#### Recommendations for Further Study

No Child Left Behind required that decisions made and results reported about education at all levels (school, division, and state) be research-based and justifiable by scientifically accepted methods of data collection (Reyna, 2002; USED, 2006). Feuer and Towne (2002) predicted that the implications of these requirements foretold a new era for educational leaders in the making of decisions and the formulating of policies. Many of these policies, such as state testing requirements, have increased the availability of data available for educational research (Mitchell, 2006). Further research using both quantitative and qualitative methods should be conducted as an extension of this study, as the possibilities for both are extensive.

Mitchell (2006) noted that the implementation of No Child Left Behind in 2001 caused a dramatic increase in the number of criterion-referenced tests used at the state level because these tests measure the achievement of knowledge and skills required by state standards. This study focused on the Standards of Learning tests in Virginia but could be replicated in other states using a different assessment instrument. The possibilities for replicating the study in Virginia are extensive just by changing variables such as grade level or subject area.

Additional research could be conducted by examining the relationships among groups of students who are grouped by test scores or attendance. Individual student test scores on the SOL tests are reported as advanced, proficient, or not proficient, so the attendance of these groups could be examined. Students could be grouped by attendance (i.e., good attendance, average attendance, and poor

attendance) and the test scores of each group analyzed in relation to the attendance of the group.

One of the findings of this study was that the correlations of the LEP and the Hispanic groups ( $r=.197$  and  $r=.187$ , respectively) were the highest correlations on the mathematics test. Batt et al. (2005) verified that LEP students, the majority of which were Hispanic, comprised the fastest growing subgroup in the country. Research should be conducted to further validate these results and to determine the reasons for these high correlations.

The correlation between student attendance and student performance on the SOL mathematics test was higher than the correlation for the same variables on the English test. These higher correlations are true for all subgroups as well as the overall student population. Additional research to examine these findings and present an explanation or reasons for these differences is needed.

With the notable exceptions of the correlations of the LEP and the Hispanic groups on the mathematics test, the correlations of all subgroups were lower than the correlations for the overall student groups on both the English and the mathematics tests. These results may not be surprising because they are consistent with a large body of research that documents the lack of achievement for subgroup populations (Farmer et al., 2006; Neill, 2003; Novak & Fuller, 2004; Payne; Sheldon & Epstein, 2005). However, these results should be of great concern to all educators because research into the impact of schools on their pupils has demonstrated the schools' value in providing support and sanctuary to children, especially of diverse backgrounds (Payne, 2005). Extensive research is justified to determine the possible causes of these achievement deficits. Researchers should not assume that there are common factors among subgroups. Research

should be conducted to identify unique subgroup characteristics that may contribute to the differences in achievement or attendance among the subgroups.

Osterman (2000) studied students' need for belonging in the school community and concluded there is strong and consistent evidence that students who experience acceptance are more motivated and engaged in learning and more committed to school. She also concluded that commitment and engagement in school is closely linked to students' performance and to the quality of student learning. Additional research conducted among students, teachers, and school administrators on the topic of student engagement with the goal of improving student engagement and teacher efficacy is paramount to improving the educational experiences of all students.

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