1-1-2015

The Impact of Teacher Absenteeism and Teacher Characteristics on Third through Eighth Grade Achievement in Language Arts and Mathematics

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By

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A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in Elementary, Middle, and Secondary Education Administration
in the Department of Leadership and Foundations

Mississippi State, Mississippi

May 2015

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Title of Study: Impact of teacher absenteeism and teacher characteristics on third through eighth grade achievement in language arts and mathematics

Pages in Study: 87

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This study examined the relationship between teacher absenteeism and teacher characteristics on third through eighth grade achievement as measured by the Mississippi Curriculum Test 2 (MCT2) language arts and mathematics assessment. School year 2012-2013 yearly assessment scores for 3rd, 4th, 5th, 6th, 7th, and 8th grade students in 1 school district in the State of Mississippi were analyzed to determine if teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification influenced student academic achievement.

This study was guided by 5 research questions and employed 2 research designs. Correlational research was used to answer research question 1, 4 and 5. Question 1 sought to determine the differences in the magnitude of the relationships between teacher absences and student achievement across schools and grade levels. Questions 4 and 5 sought to determine how accurately teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predicted 3rd through 8th grade student achievement in language arts and mathematics.

Questions 2 and 3 were answered using a causal-comparative research design to determine the differences in MCT2 scores of students in Grades 3-8 whose teachers missed 5 or fewer days and students whose teacher missed more than 5 days of school. The findings of this study indicated that there was a small relationship between teacher absences and achievement across grade levels and schools. In addition findings indicated that teacher absences did not impact student achievement in language arts; however; findings revealed that teacher absences had a negative impact in student achievement in mathematics. Finally, age, degree and certification were predictors of student achievement in language and mathematics. The study concludes with recommendations for future research.

DEDICATION

First, giving honor, praise and glory to my Lord and Savior, Jesus Christ from whence all my help and strength cometh from- To You, I dedicate this degree. You have sustained me through this educational pursuit.

Next, I dedicate this degree to my parents David and Thelma Cocroft who instilled in me the love, joy and importance of a quality education. I truly appreciate the love, guidance, and support that you have given me my entire life. Thank you, Dad and Mom for always encouraging and supporting me through all my educational endeavors. You both have always been my # 1 supporters and for that I Thank You!!

I dedicate this degree to my brother, David and sister, Shunda. Thank you for your love, support and words of encouragement. I love you!!!

I dedicate this degree to my nieces and nephew, Dori, Gabriella, and David George. I pray that you will truly value the importance of education. Continue to always keep the faith and remember with God all things are possible.

I dedicate this work to my grandparents, Lorene G. Cockroft, and the late David Cockroft and Erskine and Edna Marie Boddy. All you have set a good example for me and taught me the value of hard work. I especially want to thank my grandmother, Lorene G. Cockroft who encouraged all her children and grandchildren to always "Trust in the Lord". Your prayers gave me the strength to endure and not give up on completing this degree.

To Willie Anderson thank you for always being a constant source of support for me throughout this process. You shared valuable resources with me that made this journey a little easier. Thank you for cheering me along the way.

ACKNOWLEDGEMENTS

The completion of this dissertation has been both rewarding and challenging. I would like to take this opportunity to thank the people who have supported me, who have guided me, and who have helped make this experience a positive one. I would like to acknowledge and extend my gratitude to my chairperson Dr. Debra Prince, for her time, encouragement, patience, guidance, and continuous support. Thank you for persevering with me as my advisor throughout the time it took me to complete this dissertation. I can never say thank you enough. I acknowledge my dissertation committee, Dr. Brocato, Dr. Coats, and Dr. Davis for your support. A special thank you to my classmate, Cheryl Smith, for being a constant source of encouragement and support throughout this process.

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CHAPTER I

INTRODUCTION

Throughout the public schools in the United States, a great emphasis has been placed on improving education for all students. With the passage of the No Child Left Behind Act of 2001(NCLB; United States Department of Education, 2004), public schools have been immersed in a system of educational reform to improve student achievement. NCLB required schools meet stricter levels of performance from the students, teachers, and educational leaders. As educational leaders continue to meet the demands of NCLB, it is paramount to find a unique combination of curriculum, instruction, and assessment that produces higher student outcomes. According to research conducted by Miller (2008) and Sanders and Horn (1998), teachers are one of the most important factors of student achievement and considering this fact, it is essential that educational leaders explore teacher characteristics that affect student achievement.

Multiple researchers (Clotfelter, Ladd, & Vigdor, 2007; Wobmann, 2003) have examined the relationship between student achievement and teacher characteristics such as age, gender, years of teaching experience, degree and certification and found meaningful relationships. For example, Clotfelter et al. (2007) performed a longitudinal analysis of the effects of teacher characteristics on student achievement. Their study included teacher characteristics such as: age, gender, experience, degree level, certification status, and type of licensure. The findings revealed that teacher degree level

was not a significant predictor of student achievement in either reading or mathematics. However, experience, certification test scores, type of licensure, and National Board Certification were significant predictors of student achievement.

Wobmann (2003) conducted a study on the relationship between specific teacher characteristics on performance of 260,000 students in 39 countries. This analysis included teacher characteristics of age, gender, experience, and education. The researcher concluded that students of female teachers significantly outperformed students of male teachers in the subject areas of mathematics and science. Further, years of teaching experience had a significantly positive effect on student performance while teachers' age had a significant negative effect. Moreover, degree level was the teacher attribute with the most statistically significant positive effect on students' performance, with the greatest effects recognized in science.

Another variable, teacher absenteeism, has also been examined by scholars (Miller, Murnane, & Willet, 2008; Roby, 2013; Tingle, Schoeneberger, Wang, Algozzine, & Kerr, 2012; Woods & Mantagno, 1997) to identify potential relationships with student achievement. According to Miller (2008), on a daily basis, approximately five million children enter into classrooms nationwide to find a substitute teacher. Miller (2008) found that having substitute teachers were associated with a number of negative outcomes for students. Miller (2008) also found that substitute teachers often instruct students at much lower academic levels than regular classrooms teachers and that they do not have the knowledge or skill to differentiate classroom assignments to meet the learning needs of individual students. Not only does teacher absenteeism create academic concerns, but it also creates a financial burden on school districts. In a 2012

report, Miller revealed that school districts were spending approximately 4 billion dollars yearly for substitute teachers to cover the cost of teacher absences. Nevertheless, despite the frequency of occurrence and the negative associations of teacher absenteeism, the literature on the subject of teacher absenteeism is rather fragmented.

A recent search of the literature revealed two streams of research associated with the relationship between specific teacher characteristics and student achievement. One stream of research focused on the relationship between teacher quality characteristics and student achievement (Clotfelter et al., 2007; Croninger, King, Rathbun, & Nishio, 2007; Darling-Hammond, 2000; Jepsen, 2005). The other stream of research focused on the relationship between teacher absenteeism and student achievement (Miller et al., 2008; Roby, 2013; Tingle et al., 2012; Woods & Mantango, 1997). However, in reviewing the related literature, only one study in the last five years was identified that investigated teacher absenteeism in a way that combined the two streams. Colquitt (2009) examined the predictive ability of six teacher variables, including measures of absenteeism, to predict fifth grade mathematics achievement and found that teacher absenteeism was not a reliable predictor of fifth grade mathematics achievement. Consequently, one of the conclusions Colquitt(2009) made was that the relationship between teacher absenteeism and student achievement may be context and content specific.

Statement of Problem

Classroom teachers are the foundation for student achievement and the key to school improvement. They are responsible for delivering quality instruction to students, and when instructional time is interrupted by teacher absences, student achievement has been found to be negatively impacted (Pitkoff, 2003). During the 2009-2010 school year,

over a third (36%) of the nation's teachers missed at least 10 days of school (Office of Civil Rights, 2012). This indicates that teacher absenteeism is a legitimate problem in the field of education.

Although teacher absenteeism has been noted as a financial problem in the field of education for some time, its effect on student achievement did not appear to be a matter of concern until the last three decades. The majority of research on teacher absenteeism within the last 30 years focused primarily on understanding and explaining teachers' absenteeism in terms of teacher demographics and the financial costs to school districts. However, with the passing of NCLB, new emphasis was placed on the relationship between teacher absenteeism and student achievement (Brouilette, 2012; Clay, 2007; Clotfelter et al. 2009; Miller et al., 2008). Nonetheless, the research examining the relationship between student achievement and teacher absenteeism has been inconsistent and narrowly focused.

While several researchers (Clotfelter et al., 2009; Miller et al., 2008; Roby, 2013; Tingle et al., 2012) have found negative and robust relationships between student achievement and teacher absenteeism, others (Brouillete, 2012; Clay, 2007; Colquitt, 2009) have found the relationship between student achievement and teacher absenteeism to be insignificant. However, this inconsistency may be attributed to the fact that the relationship is very context oriented and situational. It may be that the relationship between student achievement and teacher absenteeism is moderated by other pertinent variables.

Because of NCLB, greater emphasis was placed on teacher quality. As a result, multiple definitions and ways to measuring teacher quality were developed. To date,

there is still inconsistency and a lack of causal evidence to conclude whether specific characteristics of age, gender, years of teaching experience degree and certification are significant predictors of student achievement (Buddin & Zamarro 2009; Croninger et al., 2007; Huang & Moon, 2009; Phillips, 2010). Moreover, there is a void in the literature that examines the variables of teachers' age, gender, years of teaching experience, degree and certification as they relate to teacher absenteeism and student achievement in a single analysis (Brouillette, 2012; Clay, 2007, Miller et al., 2008). In addition to these identified gaps in the literature regarding teacher absenteeism, there appears to be significant geographical gap.

The majority of research examining the relationship between teacher absenteeism and student achievement has been conducted in urban school districts (Clay, 2007; Clotfelter et al., 2009; Miller et al., 2008; Roby, 2013; Tingle et al., 2012). If the relationship between teacher absenteeism and student achievement is in fact contextual, then the relationships observed in urban settings may be very different than those observed in rural or suburban districts. Brouillete (2012) suggests that investigations are needed in other settings in order to further define the relationship between teacher absenteeism and student achievement.

Purpose

One of the most essential factors of student achievement is the teacher (Miller, 2008; Sanders & Horn, 1998). In congruence with this theory was the mandate of NCLB that every student be taught by a highly qualified teacher. According the Office of Civil Rights (2012), teacher absenteeism is a problem in the United States with over one-third of the nation's teachers missing 10 or more days of school per academic year. Therefore,

the purpose of this study was to determine the relationship between teacher absenteeism and teacher characteristics that influence student achievement in a rural setting.

Research Questions

To fulfill the purpose of this study, the following five research questions were developed:

1. Are there differences in the magnitude of relationships between teacher absences and student achievement across schools and grade levels in one rural school district?
2. Are there differences in MCT2 language arts achievement scores of students in Grades 3-8 whose teachers missed five or fewer days and students whose teachers missed more than five days of school?
3. Are there differences in MCT2 mathematics achievement scores of students in Grades 3-8 whose teachers missed five or fewer days and students whose teachers missed more than five days of school?
4. How accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in language arts as measured by the MCT2?
5. How accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in mathematics as measured by the MCT2?

Theoretical Framework

Bandura's (1977) Social Cognitive Theory provided a theoretical basis for this study. Social Cognitive Theory places great significance on teachers and their impact on student achievement. Teachers impart cognitive skills that impact student achievement. Therefore, an important aspect of Bandura's social cognitive theory related to teacher absenteeism is observational learning. Miller et al. (2008) suggested that one of the primary means of student learning is through effective modeling. Bandura stated, "Most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action" (p. 22). Moreover, students acquire new knowledge and behaviors by simple observing a model. This theory is involves three types of modeling: (a) live models, (b) symbolic models, and (c) verbal descriptors or instruction. However, from an educational standpoint, verbal descriptions or instruction are related to the content, factual knowledge teachers provide to their students.

Teachers, their characteristics, and their preparation are important aspects in the learning process because they help to transfer cognitive skills to students. Although there is an increase usage of computer based instruction, technology will never eliminate the need for human teacher (Bandura, 1997).

Definitions of Key Terms

The terms listed below are technical in nature; subject to multiple interpretations, and/or unique to this study are defied as follows:

1. *Rural School Districts* are districts located in a county where 60 % or more of the population live in communities of 5,000 or fewer or where the

population density is “less than 1,000 inhabitants per square mile” (National Center for Education Statistics, 2000).

2. *Suburban school districts* are school districts which are attached to or by a city with 150,000 people or more (National Center for Education Statistics, 2000).
3. *Urban school districts* are school districts in which 75% more of the households served are in the central city of a metropolitan area (National Center for Education Statistics, 2000).

Significance

School systems are continually searching for methods to enhance student achievement. Therefore, it is essential for school administrators to understand whether or not teacher absenteeism and other teacher characteristics of age, gender, years of teaching experience, degree and certification are predictors of student achievement. Moreover, prior research has found harmful consequences associated with teacher absenteeism. These would include but are not limited to the financial burden placed on school districts, increased discipline concerns, and most importantly, decreased student achievement. It is paramount that this topic receives attention not only to curtail the issue of teacher absenteeism, but to help alleviate the aforementioned issues. Therefore, this study seeks to address the void in the literature in several ways: First, this study adds to the body of literature by examining the relationship between teacher absenteeism and student achievement in varying contexts (subject and grade level). Secondly, the significant contribution of this study was accomplished by examining the relationship between teacher absenteeism and student achievement in a rural, as opposed to urban, school

district. The final stream of literature that this study contributed to is the literature that seeks to explain the predictive ability of a combination of variables to predict student achievement.

This study identified specific teacher characteristics that affect third through eighth grade students' achievement in language arts and mathematics in a rural setting. Pitkoff (2003) reported that students in the United States spend an entire school year, from kindergarten to graduation, without their regular teacher, with that in mind, identifying the impact of teacher absenteeism and other teacher characteristics on student achievement will assist school districts and educational leaders to determine the teacher characteristics that may result in higher student achievement in language arts and mathematics.

Limitations of Study

The limitations of a study are those elements in which the researchers cannot control. Moreover, there were certain aspects of this study that will limit the generalization of the results. The first limitation was the accuracy with which teacher absenteeism is maintained throughout the school district. Another limitation was that the researcher did not take into consideration that students are exposed to multiple teachers during their education; therefore, student achievement may be attributed to other teacher characteristics.

Delimitations

This study was limited in three significant ways: only elementary and middle school students in one Mississippi school district participated; the only measure of student achievement was the MCT 2; only regular education teachers who were

employed during the 2012-2013 school year were included. Consequently, the results cannot be generalized to other school districts.

Summary

The purpose of this study was to determine the relationship between teacher absenteeism and teacher characteristics that influence student achievement in a rural setting. As administrators are searching for unique and creative ways to improve student achievement in America's public schools, decreasing teacher absenteeism could be one way to accomplish this goal. Absenteeism is a concern that challenges the field of education in many aspects. First, the financial cost associated with paying substitute teachers can cause a burden for school districts. Secondly, teacher absenteeism impacts student achievement (Clotfelter et al., 2009; Miller, 2008 et al.; Roby, 2013). Miller (2008) reported that during a student's K-12 experience, he/she will be taught by a substitute teacher for a number of days that is equal to one instructional school year. Current literature indicates that teacher absenteeism tends to be much greater in low-socioeconomic areas (Clotfelter et al., 2009; Miller et al., 2008; Miller, 2012). If there is any hope in improving student academic achievement across the nation's schools, educational leaders must have a sense of urgency to address absenteeism and must know which teacher characteristic of age, gender, years of teaching experience, degree and certification produce the best result in student academic performance.

This research dissertation was organized into five chapters. Chapter I presented the introduction, statement of the problem, purpose of the study, research questions, definition of key terms, theoretical framework of the study, limitations of the study, delimitations of the study, significance of the study, and organization of the proposal.

Chapter II presented a review of literature regarding teacher absenteeism and specific teacher characteristics associated with student achievement. Chapter III presented the general methodology, described the research design, research questions, participants, instrumentation, data collection procedures, data analysis and a summary. Chapter IV presented the results of the study and Chapter V presented the summary, conclusions and recommendations.

CHAPTER II

REVIEW OF LITERATURE

Since the passage of the NCLB in 2001, the primary focus of all stakeholders in the educational process is accountability. The passage of NCLB placed tremendous pressure on teachers, school administrators, superintendents, and school boards to seek innovative and creative interventions to increase student achievement on standardized assessments. Classroom teachers are generally considered to be the foundation of student achievement as they are responsible for delivering quality instruction to students (Pikoff, 2003). Therefore, it is crucial that school districts explore specific teacher characteristics of absence, age, gender, years of teaching experience degree and certification and to determine how these characteristics may impact student performance.

The first section of the literature review explains teacher absenteeism in terms of individual characteristics such as gender, age, years of teaching experience and the types of schools to which teachers are assigned. The second section of the literature review focuses on multiple teacher characteristics (age, gender, years of teaching experience, degree and certification) and their effect on student achievement. The final section provides a comprehensive analysis of investigations that have examined the effects of teacher absenteeism on student achievement.

Teacher Absenteeism

Describing the absent teacher has been much of the focus while examining the phenomenon of teacher absenteeism. Among other attributes, research has examined teacher absenteeism through the lens of gender (Al-hassan, 2009; Clotfelter et al., 2009; Miller et al., 2008), age (Gaziel, 2004; Pitts, 2010; Rosenblatt & Shirom, 2005), years of teaching experience (Clotfelter et al., 2009; Miller et al., 2008, Speas, 2010) and even the type of school where teachers are employed (Clotfelter et al.,2009; Miller, 2008; Speas, 2009; Tingle et al., 2012).

Prior research suggests that gender may influence teacher absenteeism in ways that are specific to cultural norms and expectations. Clotfelter et al. (2009), in a longitudinal study spanning 10 years of North Carolina Public Schools, examined the influence of gender on teacher absenteeism. With a sample of 285 elementary school teachers and over four hundred thousand data points, the authors found that female teachers were absent from school more often than their male counterparts. Specifically, the authors found that female teachers missed 3.2 more days of school per year than male teachers. However, the authors also reported that as the teachers got older, the difference in their rates of absenteeism decreased. In a similar study, conducted in a large urban school district in the Northern part of the U. S., Miller et al. (2008) also found that female teachers were absent from school more often than male teachers. Consistent with the finding of Clotfelter et al. (2009) that as teachers got older, the difference between the rates of absenteeism of female and male teachers decreased, Miller et al. suggested that their findings support gender roles in which female teachers, and working women in general, are still expected to fulfill societal roles of childcare – including being the parent

to stay home from work to care for sick children and dependent adults or staying home if daycare issues arise. However, inconsistent with the findings of Clotfelter et al. (2009) and Miller et al. (2008), Al-hassan (2009) conducted a study in Ghana that found that while societal roles such as childcare were still the primary reason why female teachers were absent from school, their rates of absenteeism were lower than the rates of absenteeism for male teachers. According to Al-hassan, the societal roles associated with male teachers' absences were related to economics, technical or other administrative duties. Nevertheless, the findings of Al-hassan's study in Ghana contradicted the findings of Clotfelter et al. (2009) and Miller et al. (2008) in the U. S. Moreover, in addition to the differences in rates of absenteeism between male and female teachers in the U. S. and Ghana, another glaring difference is the gender composition of the elementary school teachers in the two locales. While the majority of elementary school teachers in the U. S. are female, the opposite was true for Al-hassan's study in Ghana where male teachers dominate the teaching field at all grade levels. Consequently, this may explain why female teachers are less likely to be absent from school in Ghana. Regardless of their societal roles, female teachers in Ghana may feel less secure in their positions as teachers in general. Together, the findings of Clotfelter et al. (2009), Miller et al. (2008), and Al-hassan (2009) suggests that gender does influence teacher absenteeism if for no other reason than fulfilling societal expectations.

Research studies also suggest that age may influence teacher absenteeism. For example, Pitts (2010) examined the patterns and predictors associated with teacher absenteeism in a large school district in Virginia. Absence data for 1,198 teachers were collected from school years 2005-2008. A linear regression was performed that

combined age, years of experience, and gender. The research found statistically significant effects between age and absences in that younger teachers had a higher rate of absenteeism. Gaziel (2004) conducted an international study that examined the predictors of absenteeism among primary school teachers in a West Jerusalem school district. Teachers were randomly selected from each of 20 the selected primary schools. Participants were asked to complete a questionnaire to determine the attendance patterns of teachers based on gender, age, and seniority. With a response rate of 74%, the author found that younger teachers and those with less seniority took significantly more voluntary absences, such as vacation and uncertified illness, during the school year than older teachers (Gaziel, 2004). The findings from Pitts (2010) and Gaziel (2004) were consistent with Rosenblatt and Shirom (2005). During the 2000-2001 school year, Rosenblatt and Shirom (2005) conducted an international study that focused on predicting teacher absenteeism by personal background factors of the teachers. The sample for this research included 51,000 elementary and secondary teachers in an Israeli educational system. Data for this study were obtained from the personnel files located through the Israeli Ministry of Education. In addition to examining age, researchers gathered data regarding salary, education, school assignment, and number of children for each participating teacher. Hierarchical regression analysis was employed to determine whether a relationship existed between age and teacher absenteeism. The findings revealed that higher rates of absenteeism were greater among teachers who were younger than 35 years old. Additionally, the findings indicated greater rates of absenteeism were discovered among teachers with the lowest level of certification. Moreover, the findings

from Pitts (2010), Gaziel (2004) and Rosenblatt and Shirom (2005) suggest that age does influence teacher absenteeism.

Another stream of research has indicated that years of teaching experience may influence teacher absenteeism. Clotfelter et al. (2009) found that teachers with less than 5 years of experience averaged 4.8 sick days per year whereas, teachers with 5 to 10 years of experience took an average of 8 sick days per year. Miller (2008) investigated teacher absenteeism in a large northern school district in the United States by examining the relationship between and teacher absenteeism. The data included absences taken by 5,189 teachers in 106 schools during a period of 4 school years. The findings revealed that teachers with the least or most experience were absent less than their colleagues with middle levels of experience. However, when explored from a job security angle, teachers with tenure took .8 more discretionary days of absence than their untenured colleagues. Speas (2010) investigated the relationship between teaching experience and teacher absenteeism. The researcher reviewed teacher data across 153 schools during the 2007-2008 school year. The researcher acquired teacher attendance data and teacher demographic data from the Human Resource department of the Wake County Public School System to determine if there was a relationship between teacher absenteeism and number of years of experience. Findings revealed that teachers with less than three years of experience were absent the least, missing an average of 7.96 days. Teachers with 4 to 9 years of teaching experience had the highest average of days absent at 10.65. Teachers who had 10 to 19 years of teaching experience missed an average of 9.97 days, while teachers with 20 years of experience or more missed an average of 9.66 days. The researcher attributed this finding to the fact that leave time was accrued at higher rate

commensurate with experience. Therefore, experienced teachers were more likely to take advantage of this benefit (Speas, 2010).

Research studies suggest that the type of school in which a teacher is employed, such as elementary, middle, and high may influence absenteeism. Tingle et al. (2012) conducted a study examining teacher absenteeism across school types. The researchers utilized archived data on teacher absences where findings concluded that there was a statistical significantly difference in teacher absence across school types. Results indicated that high school teachers absences' (Mean equals 7.36 days) were significantly lower than teacher absences' at the elementary level (Mean equals10.29 days) and the middle school level (Mean equals11.17). The researchers also found that middle school teachers' rates of absenteeism were statistically higher than the elementary teachers. Similar to the research of Tingle et al. (2012) research, Speas (2010) investigated the rate of teacher absenteeism across schools and grade levels in a North Carolina School District. Teacher attendance data were collected during the 2007-2008 school year across 153 schools within the school district. The data included dates and reasons from 101,971 teacher absences accumulated by 9,305 teachers. Findings indicated that high school teachers averaged 8.8 days of absences compared to 10.7 days for elementary teachers and 10.8 days for middle school teachers. Miller et al. (2008) and Clotfelter et al. (2009) studies revealed different findings. Findings from these studies revealed that elementary teachers were absent from school most often, followed by middle school teachers and high school teachers being absent the less frequently (Clotfelter et al., 2009; Miller et al., 2008). Together, the findings of Clotfelter et al. (2009), Miller et al. (2008), Speas (2010), and Tingle et al. (2012) suggest that school type does influence teacher

absenteeism. Moreover, the differences in the research findings may be attributed to organizational factors (e.g. school level leadership, school culture, and work environment).

Teacher Characteristics and Student Achievement

There is a general agreement that teachers make a difference in student achievement, but there is a lack of consensus regarding which characteristics of teacher quality matters the most. While many researchers have studied teacher characteristics that have affected student outcomes in math and reading/language arts; their studies have produced varying results (Clofelter et al., 2007; Darling-Hammond, 2000; Jepsen, 2005; Kane, Rockoff, & Stagier, 2008). Darling-Hammond (2000) conducted a comprehensive examination of teacher quality and teacher effectiveness based on student outcomes. The purpose of the analysis was to investigate how teacher characteristics, student characteristics, and school characteristics affect student achievement in schools across the U.S. Relevant teacher qualifications and school-level data were collected from the 1993-1994 Schools and Staffing Surveys (SASS) as well as student achievement and demographic data from the reading and math sections of the 1990-1996 NAEP examination. Teacher quality was defined in terms of certification and degree. A multivariate analysis was utilized and controlled for student poverty and limited English proficiency. Findings indicated that degree and certification were powerful predictors of student achievement in reading and mathematics.

The relationship between of teacher quality and student achievement was investigated by Harris and Sass (2011). The purpose of this research was to examine the effects of various types of education and training on the productivity of teachers in

promoting student achievement. Teacher characteristics included: experience, educational attainment, in-service professional development, and undergraduate education. Data for this research included all public school students throughout the state of Florida and included student-level achievement test data for both math and reading in Grades 3-10 for the years of 1999-2000 through 2004-2005. For this study, the authors matched students and their teachers to specific classrooms at all grade levels. By using this approach, Harris and Sass (2011) were able to determine the specific classroom assignments of the middle and high school students. The authors employed the use of an econometric model and estimation strategies as the unit of analysis. The results indicated that experience enhances the productivity of both elementary and middle school teachers, but not high school teachers.

Jepsen (2005) performed an analysis that examined the effects of multiple teacher characteristics on student achievement in first and third grades. Teacher characteristics included in the study were experience, degree level, and certification status. Student achievement data were collected from Prospects, a national, government-mandated investigation of Title I programs. The data were derived from two cohorts of first and third grade students. Each of the cohorts was drawn from 200 schools and included approximately 10,000 students. Over a 4-year period, multiple forms reading and mathematics assessments were administered. Jepsen (2005) utilized the fixed effects as a method of analysis to control for the effects of teacher and peer effects on academic growth. Four separate regression analyses were used based on subject area and cohort. Findings revealed that teacher characteristics of experience, degree level, and certification status were not statistically significant predictors of student achievement.

However, the author determined that classroom-level fixed effects accounted for 25% to 40% of within-student variation in academic growth.

Similar to Jepson (2005), Clotfelter et al. (2007) conducted a longitudinal analysis of the effects of teacher characteristics on student achievement with controls for fixed effects. The researchers acquired data from the North Carolina Education Research Center from 1993-1994 and 2003-2004 school years. Reading and mathematics scores for third, fourth, and fifth grade students were examined. However, this research study differed from Jepsen (2005) because it included both teacher (gender and age) and student (race, gender, and age) fixed characteristics. Other teacher characteristics included experience, degree level, certification type, and licensure type. The authors employed a regression analysis to determine the relations between teacher characteristics and student achievement. Findings revealed that teacher degree level was not a significant predictor of student achievement in either reading or mathematics. However, experience, certification test scores, type of licensure, and National Board Certification were significant predictors of student achievement.

Croninger et al. (2007) conducted a study, which utilized data from the Early Childhood Longitudinal Study (ECLS) to investigate the possible relationship between teacher characteristics and student achievement in reading and mathematics. Teacher quality variables included the specific teacher characteristics of degree level, degree type, certification status, coursework related to teaching and experience. For the purpose of the study, kindergarten data was collected from the 1998-99 school year for approximately 23,000 kindergarteners, with follow-up first grade data collected in 2000. The data examined by the Croninger et al. (2007) were divided into four areas: student

achievement; measures of individual teacher quality variables; measures of the qualifications of teachers employed by local school board systems; and measures of student, teachers, and school characteristics, which were used as controls in the regression analysis. The authors determined that teacher degree type and experience had positive effects on student's achievement in reading. Students whose teachers held an elementary education degree and had five or more years of teaching experience significantly outperformed their peers in reading. The emphasis of subject-specific education coursework in the teacher's degree program was a significant predictor of student achievement in both reading and mathematics (Croninger et al., 2007). Similar to the results of the findings from the study conducted by Croninger et al. (2007) are the results of the research study conducted by Phillips (2010).

Phillips (2010) examined the relationship between first graders' achievement gains and policy relevant to teacher quality indicators. Data for this study were drawn from a cohort of kindergarten students who entered school during the fall of 1998. The primary sampling units consisted of geographic areas throughout the state of Florida. Data was drawn from 1,277 public and private school that offered a kindergarten program. Sample for mathematics included 4, 021 first grade students assigned to 1,078 teachers within 431 schools and the population for reading included 3,897 first grade students assigned to 1,078 teachers from 431 schools (authors noted that fewer students participated in the reading assessments). Data collection methods included: adaptive cognitive tests of skills in literacy and mathematics, parent interviews, telephone interviews, teacher surveys, and school questionnaires. Teacher characteristics included consisted of certification, education, competency, and experience. Student characteristics included: gender, race, age and home

environment. Phillips (2010) employed a quasi-experimental research design with fixed-effect regression models. Six separate fixed-effects analyses were conducted. Three models predicted gains in mathematics and three models predicated gains in reading. Results from this study revealed teacher certification was the only teacher characteristic that showed a statistically significant relationship association with first grade achievement gains in mathematics. Secondly, a statistically significant relationship was found between first grade reading achievement gains and degree level. Like Croninger et al. (2007), Phillips (2010) discovered that subject-specific graduate degrees, in this case elementary education or early childhood education, were positively related to students' reading achievement gains. The author suggested that this finding is contributed to the existing teacher quality literature by concluding that advanced, subject-specific degrees positively impact student achievement. Finally, the study emphasized that teacher quality has more impact on at-risk students' achievement gains in reading and mathematics than on the achievement gains of their non-at-risk counterparts.

Huang and Moon (2009) performed a multi-level analysis of teacher characteristics and student achievement in low performing schools. Teacher characteristics consisted of teacher certification, educational attainment, experience, and attendance at professional development workshops. The authors employed value-added models using three level hierarchical linear modeling to analyze data in reading and math from 1,544 students, 154 teachers, and 53 schools. Results indicated that traditional teacher qualification characteristics such as licensing status, educational attainment, and experience were not statistically significant in producing student achievement gains. However, the authors noted that teaching at particular grade levels was significant predictor of increased student

achievement. Like Huang & Moon (2009), Buddin and Zamarro (2009) also conducted a study which examined the relationship between teacher characteristics and student achievement.

Specifically, Buddin and Zamarro (2009) conducted a research study, which examined the relationship between students' language arts and mathematics achievement and the background of the teachers. The study was conducted in the Los Angeles Unified School District and consisted of 300,000 students in third, fourth, and fifth grades. Teacher background information included teacher certification, degree level, and years of experience. Student language arts and mathematics achievement data were derived from the California Achievement Test. Teacher data were generated from central office personnel files. The researchers utilized a regression analysis to determine if a relationship existed between teacher certification, levels of education, and years of teaching experiences. Major findings indicated that certification and degree level did not impact student achievement. Buddin and Zamarro (2009) discovered that the years of teaching experience were weakly associated to student achievement in language arts and mathematics. The researchers concluded that the results of the study were skewed by deficiencies resulting from teachers in their first 2 years of teaching. The authors discovered differences in student achievement throughout the school district but concluded that the background of the teacher could not explain the variations.

The study conducted by Buddin and Zamarro (2009) and the aforementioned students indicate that teacher quality is a great concern in the United States. Teacher quality is also a global concern. However, some international studies have focused on teacher characteristics associated with higher achievement gains. Wobmann (2003) examined the relationship between specific teacher characteristics and student

achievement. The author acquired data from an international database to examine over 260,000 students in more than 39 countries, including the U.S. Data for this study was secured from the Third International Mathematics and Science Study (TIMSS). Wobmann (2003) included the teacher characteristics of age, gender, experience, and education. The researcher determined that students of female teachers significantly outperformed students of male teachers in the subject areas of mathematics and science. Moreover, years of teaching experience had a significant positive effect on student performance while the age of a teacher had a negative effect. The researcher noted that teacher degree level was the most significant predictor of student academic performance.

Kosgei, Mise, Odera, and Ayugi (2012) performed a study on the influence of teacher characteristics on students' academic achievement. The authors conducted this research in Nandi South District in Kenya, Africa. The sample for the study included teachers from 20 secondary schools within the school district. Teacher characteristics included certification and years of teaching experience. The researchers employed random sampling to select teachers from each of the schools. Kosgei et al. 2012 utilized a casual-comparative research design. A questionnaire was used as the instrument for data collection. The study found that 65% of teachers were degree holders, 25% had diploma certificates while only 10% were untrained. Cross tabulation results indicated that there was no difference in performance between teachers who had degrees or diploma, suggesting that teacher certification did not lead to increased student academic achievement. Similar to Wobmann (2003), results revealed that teachers with three years or more of teaching experience had higher levels of student achievement. This finding led the authors to reject the null hypothesis that there was no significant relationship

between teacher experience and student achievement (Kosgei et al., 2012). In line with much of the research conducted on teacher characteristics and student performance is the study conducted by Wayne and Youngs (2003).

Wayne and Youngs (2003) targeted the degree level and certification status of teachers in their research. Their study consisted of a review of 20 studies that investigated the relationship between teacher characteristics and student achievement. The authors discovered an association between certification status and higher level degrees attained by teachers in the subject area of mathematics. Findings revealed that high school students had higher outcomes in mathematics when their teachers held a degree in mathematics or had taken additional coursework in mathematics. The study did not find a relationship between teacher degrees and student achievement in elementary school settings.

Hill, Rowan, and Ball (2005) sought to examine the impact of teachers' mathematical knowledge on student outcomes in mathematics. The sample included 1,190 first grade students, 334 first grade teachers 1,773 third grade students, and 365 third-grade teachers. Student mathematical achievement data were acquired from the following assessments: Terra Nova Complete Battery, the Basic Battery, and the Survey. Teacher data were collected from two instruments: an annual questionnaire and a teacher log that included 60 entries regarding time spend on math, covered content and instructional strategies. Linear mixed models were employed to determine the effect of teachers' mathematical knowledge on student achievement. The researchers discovered that teachers' mathematical knowledge for teaching was a positive predictor for student gains in mathematics in both first and third grades (Hill et al., 2005).

Goe and Stickler (2008) reviewed several research studies that examined the relationship between specific teacher variables and student achievement. Goe and Stickler (2008) discovered that there was a positive relationship between stronger mathematics backgrounds that attributed to increased student achievement on test scores at the secondary level. A study of middle school mathematics revealed that students of fully certified mathematics teachers experienced considerably larger gains in achievement than those taught by teachers not certified in mathematics. Therefore, the authors concluded that teachers with some type of advanced degrees have a positive impact on student achievement at the secondary level, especially in the mathematics subject area.

Kane, Rockoff, and Stagier (2008) focused on the relationship between teacher certification status and fourth through eighth grade student mathematics and language arts achievement in New York City Public Schools for the 1998-2005 school years. The teacher sample consisted of 50,000 teachers. Of those teachers, approximately 46% were certified; 34% were uncertified; and 20% were alternatively certified. Regression equations were used to determine the relationship between student achievement and teacher certification. The findings showed that the certification status of the teacher had a small effect on student achievement but a wide variations of student achievement existed among teachers with the same experience and certification status (Kane et al., 2008). Angrist and Guryan (2008) also conducted a study which focused on teacher certification and student achievement.

Angrist and Guryan (2008) investigated whether certification status was a predictor of student achievement. The authors examined data from the Schools and

Staffing Survey that was administered throughout the United States during the 1987-1988, 1993-1994, and 1999-2000 school years. The survey consisted of information regarding teacher salaries and teacher backgrounds. Teacher demographic information included: teacher level of education, teacher certification status, teacher subject assignment, and credentials from the educational institution that the teacher attended. The authors discovered that increases in teacher certification requirements resulted in increases in revenues in testing and teacher salaries. However, the increases in teacher certification requirements did not result in improved teacher quality and may not be a strong predictor of student achievement.

Some studies have specifically focused on the relationship between teacher gender and student achievement (Dee, 2005; 2006; Holmlund & Sund, 2008). According to Dee (2005), a teacher's gender may affect students of different genders differently. Dee investigated the effects of teacher gender and its impact on student achievement. The author utilized the NELS of 1988, which included data from 25,000 eighth graders in 1988. The results from this study indicated that the racial, ethnic, and gender dynamics between students and teachers have large effects on teacher perceptions of student performance. The author concluded that students who share the same gender as the teacher performs better academically and is less likely to be disruptive in the classroom.

Dee (2006) continued to examine the effects of gender on student gender. The researcher utilized data from the NELS. Results from this study confirmed that a teacher's gender does have large effects on student test performance. The author found that girls have better educational outcomes when taught by female teachers and boys have better academic outcomes when taught by male teachers. Further, Dee (2006)

discovered that in science, social studies, and English, having a woman teacher increased the educational outcomes of female students nearly 4% of a standard deviation and lowered the achievement of male students by 4%.

Outside of the United States, Holmlund and Sund (2008) performed a study to determine whether a teacher of the same gender as the student impacts student achievement. The authors examined the achievement of students who graduated between 1997 and 2004 from the 69-school municipality of Stockholm, Sweden. Student achievement data were obtained from grades received in mathematics, Swedish, and English. The authors employed two separated regression analysis to determine the causal relationship between the achievement of males and females. The first regression model used student grade point averages and the second regression controlled for a variety of student characteristics, the influence of past teacher characteristics, and teacher sorting. The findings revealed that the performance gap between females and males was significant in subjects that were predominately taught by females and that same sex teacher student pairing did not affect student achievement.

Teacher Absenteeism and Student Achievement

The greatest impact of teacher absenteeism is the possible impact teacher absenteeism can have on student achievement. Consequently, limited studies exploring the impact of teacher absenteeism on student achievement exist (Clay, 2007; Colquitt, 2009). Within the limited existing literature, conflicted findings regarding the impact of teacher absenteeism on student academic achievement has been reported (Clay, 2007, Miller et al., 2008). Consequently, teacher absenteeism have been found to be the highest and most common in elementary schools, schools with lower student academic

achievement and schools with primarily economically disadvantaged and minority students. Hence, schools serving predominately low-income families experience teacher absences at a much higher rate than students in more affluent communities (Miller et al., 2008; Clotfelter et al., 2009).

Woods and Mantagno (1997) is one of the seminal research studies that specifically addressed teacher absence and the effect of lost student-teacher contact on student achievement utilized data from Indiana and Wyoming. The Woods and Mantagno (1997) examined the relationship between student achievement and teacher absenteeism. This study was conducted using the achievement data of students from both Elkhart, Indiana and Gillette, Wyoming. The sample population included 817 third grade students and 45 third grade teachers. The purpose of the study was to measure the academic progress made in one academic school year. Students were studied during their third and fourth grade school years. In order to assess academic progress, students were administered the Iowa Test of Basic Skills twice. The assessment was given once in the fall of their third grade year, and once in the fall of their fourth grade year.

Woods and Montagno (1997) discovered a number of chief findings regarding the impact of teacher absenteeism on student academic achievement. Teachers who were absent less than four days had a student grade equivalency change of one grade, meaning that the students had met all the standards for the third grade and were ready to progress to the fourth grade. Teachers who were absent 5 to 11 days of school had a student grade equivalency change of 0.69. Teachers who were absent 12 to 29 days had a student grade equivalency change of 0.79. Based on their findings, the researchers determined that teacher attendance has a negative impact on student achievement.

Tingle et al. (2012) gathered archived data regarding teacher absences and student achievement across elementary, middle, and high schools and academic subject areas was examined in a large public urban school district. Data for a single year were obtained from 81,927 student records and 2,934 teacher records from 165 schools. Student ethnic distribution included: 41% African American, 33% White, 16% Hispanic, 5% Asian, and 5% Native American or Multi-Racial. The authors determined several impacts to student achievement based on teacher absenteeism. The study revealed that there was a statistical significantly difference in teacher absence by grade level. High school teachers absences (M=7.36 day) was significantly lower than teacher absences at the elementary level (M=10.29 days) and the middle school level (M=11.17). The researchers also found that middle school teachers' rates of absenteeism were statistically higher than the elementary teachers.

The relationships found between teacher absences and student achievement were very low (-.16 to .07) with small effect sizes (.00 to .03). Student performance was measured by the end of year standardized test scores. Hierarchical linear modeling was employed to examine the relationship between teacher absence and student achievement between and within schools with differentiated levels of teacher absences. According to the authors, there appeared to be a small, statistically significant relationship between teacher absences and student achievement. When the authors combined and averaged teacher absences by school, they discovered a statistically significant negative relationship. Additionally, the findings revealed that when teachers were absent more, students scored lower on standardized tests. This result was more evident in a building

where basically teacher absence rates were low but isolated incidents of high absenteeism occurred within classrooms.

Roby (2013) investigated the relationship between teacher absenteeism and student academic achievement in the state of Ohio. Using data from the Ohio Department of Education website, the author gathered teacher and student attendance data, adequate yearly progress data; school ratings, number of standards met, and school type for the 2010-2011 academic years. The author selected 60 schools for comparisons to represent the 30 schools with the lowest rates of teacher absences and the 30 schools with the highest rates of teacher absences. For the 60 schools selected, 41 were elementary (17 lowest rated school, 24 highest attendance rates school), 2 middle school (both lowest attendance rates schools) and 17 high schools (11 low rates school and 6 high rates attendance schools).

Roby (2013) revealed several findings. Findings indicated that attendance rates between high rate and low rate attendance were significantly different. On average, schools with attendance rates that were considered high (M=97.83) had rates of attendance that were statistically significantly higher than schools with attendance rates that were considered low (M=87.28). Using the same grouping system (30 high teacher attendance rate schools and 30 low teacher attendance rate schools), the authors compared student attendance rates. Similar to the results of attendance rates by teachers, students attending high attendance rate schools (M=95.90%) had higher rates of school attendance than students attending low attendance rate schools (M=92.73). Interesting to note; however, is the fact that at the low attendance rate schools, students had higher rates of attendance than that of the teachers (92.73 compared to 87.28). Moreover, the

performance index scores of high teacher attendance rate schools was statistically significantly higher (M=103.28) than the performance index scores of low teacher attendance rate schools (M=73.80). Nevertheless, the authors discovered a statistically significant difference in the percentage of standards met between the two types of schools, high teacher attendance schools met 91.33% of standards compared to low teacher attendance school meeting 20.11% of standards.

When examining the impact of teacher attendance on student achievement through fixed effect models, Clotfelter et al. (2009) discovered that teacher absenteeism resulted in a reduction of student mathematics and language arts achievement. Data for this study were generated from the North Carolina Department of Public Instruction and consisted of a 10 year time period, from 1994 to 2004. This study consisted of teacher absence data and included teachers who had worked at least ten months during an academic school year. The number of sick and personal days taken by teachers and the end-of-grade tests were used to determine if there was a statistically significant difference in the math and English scores of students. Findings revealed that for every 10 days of sick leave used by a teacher, student mathematic achievement decreased 2.3% of a standard deviation and student language arts achievement decreased 1% of a standard deviation.

The importance of teacher attendance was researched by Miller et al. (2008). This research was conducted in a large, urban school district. Miller et al. (2008) specifically focused the attention of the study on the impact of teacher absenteeism on fourth-grade students. The sample consisted of nearly 80 elementary schools with approximately 200 teachers and 4,000 students. Teacher data for the study were obtained

from the central office personnel files and consisted of the following information: age, gender, race, number of absences, certification status, and employment status of the teacher. This investigation included 86% of female teachers and 33% of African-American and Hispanic teachers. Approximately 80% of the student population consisted of student of color. Student data for the study were derived from mathematics portion of the Stanford Achievement Test (Series 9). Information was collected from three consecutive school years. Following regression analyses of the data, the researchers recommended that a teacher's absentee rate of 10 days per school year would decrease student fourth-grade mathematics achievement by 3.2% of a standard deviation (Miller et al., 2008).

The impact of teacher absenteeism on student achievement was the focus of an international study. Das, Dercon, Habyarimana and Krisham (2007) conducted a research study between teacher absences and student achievement. The researchers surveyed 182 schools in four provinces of the country. In order to gather data about their demographics, personal characteristics, absenteeism and classroom condition, questionnaires were administered to teachers and head teachers. Data were collected on the identity of each student's teacher for both the 2000-2001 and 2001-2002 school years. The questionnaires were administered to all of the matched teachers, resulting in a sample of 541 teachers in 182 schools. Student achievement results were collected by administering math and English achievement tests to a maximum of 20 students who were randomly selected in Grade 5 at each school in 2001. The same tests were administered to the same students one year later. By focusing on those students who remained with the same teacher in two consecutive years, the researchers correlated each

student learning gains with the absence of their teacher. Moreover, it was concluded that teacher absences had a surprising large effect on the academic achievement of students. The findings revealed that for each additional 5 % in teacher absences reduced student academic achievement in English and mathematics by 4 to 8% (Das et al., 2007).

Nevertheless, there have been studies conducted that have not shown any correlation between teacher absenteeism and student achievement (Brouillette, 2012; Clay, 2007; Colquitt, 2009). Clay (2007) examined the relationship between teacher absence and student achievement data over three school years, 2002-2003, 2003-2004, and 2004-2005, in the St. Louis County School District. Teacher absence data for first through fourth grade teachers were gathered over a 3-year period. The absence data were recorded as total days absent per school year and were analyzed to determine if such absences had an effect on the Missouri Assessment Program (MAP) and Terra Nova tests. The researcher employed both *t*-tests and analysis of variance utilized to investigate the relationship between teacher absences and student achievement. Findings revealed that there was no statistical significance between student scores and teacher absences for communication arts and mathematics as measured by the MAP assessment or reading and mathematics as measured by the Terra Nova tests. However, the researcher hypothesized that a high quality of substitute teachers and the decision to not categorize number of absences may have attributed to the findings of the study. Other than teacher absences, Clay did not consider any other teacher demographic variables (Clay, 2007).

Colquitt (2009) examined the relationship between teacher absenteeism and fifth grade student achievement in mathematics, but unlike Clay, he controlled for other

teacher characteristics including age, gender, degree level, certification status, and experience on student achievement. Participants consisted of 3,141 fifth grade students and 135 fifth grade teachers in one suburban Georgia school district. The demographic of the student population consisted of 46.4% White, 41.8% African-American, 5.3% Hispanic, 2.4% Asian, and 3.8% interracial. Of the students in the district, 38.5% of the students qualified for free and reduced-priced lunch. Similar to Clay's research, student achievement was measured by using two different assessment instruments, a criterion-referenced assessment, the Criterion Referenced Competency Test (CRCT) and a norm-referenced test, the Measures of Academic Progress (MAP). Colquitt examined the effect on student achievement by teacher absence groups, i.e., less than five absences per year, 5-10 absences, 11-14 absences, and 15 or more absences. According to the ANOVA results, teacher absenteeism did not have an effect on student achievement in mathematics. Based on multiple regression analysis, Colquitt's investigation discovered that the teacher characteristics of age, gender, degree level, certification status, and experience were predictors of fifth grade mathematics achievement on the CRCT, and that degree level and teacher certification predicted student achievement as measured by the MAP (Colquitt, 2009).

Brouillette (2012) examined the relationship between fourth grade student achievement in math and teacher absenteeism for the 2010-2011 school year across nine school districts in northern Louisiana. Archival data were collected from the personnel offices of each district for all fourth grade teachers employed in the districts. Student outcome data were collected from the Louisiana Department of Education and consisted of fourth-grade mathematics achievement scores from the Louisiana Education

Assessment Program (LEAP). When examining whether significant differences existed on LEAP scores based upon four categories of teacher absence (<5; 5-10; 11-14; and >14 days), the results of the ANOVA analysis were not significant. The researcher hypothesized that the use of highly qualified substitute teachers may have lessened the impact of teacher absence on student performance (Brouillette, 2012).

Summary

The characteristics of teacher age, gender, years of teaching experience, degree and certification may affect student achievement in some contexts (Clotfelter et al., 2009; Croninger et al., 2007; Miller et al., 2008). Research has suggested that when the effects of these characteristics are present, they are often strong predictors of student achievement (Darling-Hammond, 2003; Wobmann, 2003). Nevertheless, one of the greatest responsibilities for educational leaders revolves around student achievement. Students must excel in the classroom in the core academic areas of mathematics, English, language arts, science, and social studies (Chiang, 2009). According to Pikoff (2003) classroom teachers are the key to student achievement and are responsible for providing quality instruction. Maintaining the continuity of instruction is difficult when teachers are not present in the classroom (Miller, 2008). In order to meet the high standards set forth by the state and federal governments, it seems apparent that educational leaders must address the issue of teacher absenteeism.

CHAPTER III

METHODOLOGY

The purpose of this study was to determine the relationship between teacher absenteeism and teacher characteristics that influence student achievement in a rural setting. Chapter III presents the methods that were used to fulfil this purpose and includes the following sections: Research Design, Participants, Instrumentation, Procedures, and Data Analysis.

Research Design

To fulfil the purpose of this study and to answer the five research questions that guided this study, two research methods were employed. Casual-comparative research was used to answer the following questions: Are there differences in MCT2 language arts achievement scores of students in Grades 3-8 whose teachers miss five or fewer days and students whose teachers miss more than five days of school? (Research Question 2) and Are there differences in MCT2 mathematics achievement scores of students in Grades 3-8 whose teachers miss five or fewer days and students whose teachers miss more than five days of school? (Research Question 3).

Causal comparative research attempts to determine reasons, or causes, for the existing conditions. This research design attempts to identify the effects of the independent variable on the dependent variable. While causal comparative research

attempts to determine cause and effects relationships, the design is not strong enough to do so because of the inability to manipulate the independent variable. Therefore, while a causal-comparative design cannot truly investigate cause and effect relationships, the design provides valuable information in the absence of the ability to manipulate the independent variable (Fraenkel & Wallen, 2000)

Causal comparative research was deemed the most appropriate type of research to answer Research Questions 2 and 3 because of the researcher's inability to manipulate the independent variable, number of teacher absenteeism, included in the questions. Nevertheless, the causal-comparative design determined if there were significant differences in measures of academic achievement (dependent variables of MCT2 language arts achievement and MCT2 mathematics achievement) between students whose teachers were absent five or fewer days during the academic year and students whose teachers were absent more than five days during the academic year.

The second research design used in this study is the correlational research design. The correlational research design was used to answer the following research questions: Are there differences in the magnitude of relationships between teacher absences and student achievement across schools and grade levels in in one rural school district? (Research Question 1), How accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in language arts as measured by the MCT2? (Research Question 4), and How accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict 3rd-8th grade student achievement in mathematics as measured by the MCT2? (Research Question 5).

Correlational research, according to Gay, Mills, and Airasian (2012), has two primary purposes. One of the purposes of correlational research is to determine if relationships exists between two or more quantifiable variables. The magnitude of the relationship is expressed by a correlation coefficient ranging from -1 to +1. Hence, the negative and positive signs indication the direction of the relationship. Variables that have a negative relationship indicate that as measures of one variable increase measures on the other variable tend to decrease. A positive relationship indicates that as measures of one variable increase measures of the other variable increase. The closer the coefficient is to the absolute value of one the stronger the relationship. The second purpose of correlational research is to determine if the relationships found between variables can be used to make predictions (Gay et al., 2012). When variables are found to be highly related, that is they have a high correlation coefficient, then one variable or group of variables can be used to predict another variable. In studies where correlational research is used to make predictions, one variable or set of variables is considered the independent or predictor variable and the other variable is considered the dependent or criterion variable (Gay et al., 2012). Consequently, this study will use correlational research for both purposes.

Research Question 1 sought to determine if a relationship exists between teacher absenteeism and student achievement and if the magnitude of those relationships vary by schools and grade level. For this question, the two quantifiable variables are measures of teacher absenteeism and measures of student achievement (MCT2 language arts and mathematics scores). Research Questions 4 and 5 sought to determine if teachers' rate of absenteeism, age gender, years of teaching experience, degree and certification (predictor

variables) can reliably, predict measures of student achievement (criterion variable). Student achievement in this study is operationally defined as scores on the MCT2 language arts and mathematics tests.

Participants

All data that were utilized in this study were archived data. The data were gathered from the records of students and teachers at four participating schools from one rural Central Mississippi school district that consists of five schools. Data were collected from two elementary schools, one middle school and one junior/senior high school in that district. During the 2012-2013 school year the total district population was approximately 3,000. Of the total population, approximately 63% were African American, 26% were White, 9% were Hispanic and 2% Native Americans/Asians. Approximately, 88% of the students were economically disadvantaged and received free or reduced price lunch. Of the students, 7% received special education services and 5% were classified as English Language Learners (ELL). The racial composition of the teachers in the school district was 65% White and 35% of Black.

The student population (N = 1307) for this study included all third, fourth, fifth, sixth, seventh, and eighth grade students in the district who participated in MCT2 testing in May of 2013 and their respective teachers. The teacher population (N = 41) for this study included all general education elementary third, fourth, and fifth grade classroom teachers and all general education sixth, seventh, and eighth grade language arts and mathematics teachers employed by the district during the 2012-2013 school year

The archived data used in this study were gathered from two sources. Data representing the independent variables (rate of absenteeism, age, gender, certification,

years of teaching experience, and degree) were gathered from teachers' files stored in the Human Resources Department at the participating school district. The dependent variables, MCT2 language arts scores and MCT2 mathematics scores were gathered from students' records at the respective schools.

The MCT2 is the state of Mississippi's test that is required for all students in Grades 3 – 8. The MCT 2 measures individual student achievement based on the Mississippi Curriculum in language arts and mathematics (Mississippi Department of Education [MDE], 2013). Students' scores on the MCT2 correspond to four proficiency levels. The four proficiency levels that students can obtain are minimal, basic, proficient, or advanced. Student achievement results from the MCT2 determine whether individual schools and school districts make growth. Additionally, the results determine if schools and school district meet Annual Measurable Objectives (AMOs) as required by Elementary and Secondary School Act of 2001(ESEA).

According to the *Technical Manual for 2012-2013 Test Administration* MDE, 2013*)*, the reliability and the validity of the MCT2 have been established. Moreover, Cronbach's alpha, a measure of reliability, for the test ranges from .87 to 0.91. According to Fraenkel and Wallen (2000) Cronbach's alpha coefficients of at least .70 are satisfactory for research purposes.

Procedures

Following approval of the school district and Mississippi State University Institutional Review Board (IRB) to the conduct the study, the researcher developed a spreadsheet to include all students in third through eighth grades who participated in MCT 2 testing during the 2012-2013 school year and developed a spreadsheet to include

third through eighth grade individual teacher characteristics (i.e. absenteeism, age, gender, years of teaching experience, degree and certification). After securing access to the data, an SPSS data file was created. After all data were linked, the teachers' and students' names were removed from the data file to maintain both teacher and student anonymity.

Data Analysis

This study utilized two research designs as a means of answering the following four research questions.

1. Are there differences in the magnitude of relationships between teacher absences and student achievement across schools and grade levels in in one rural school district?
2. Are there differences in MCT2 language arts achievement scores of students in Grades 3-8 whose teachers missed five or fewer days and students whose teachers missed more than five days of school?
3. Are there differences in MCT2 mathematics achievement scores of students in Grades 3-8 whose teachers missed five or fewer days and students whose teachers missed more than five days of school?
4. How accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in language arts as measured by the MCT2?
5. How accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in mathematics as measured by the MCT2?

To answer research question 1, a Pearson *r* correlation coefficient was computed. According to Gay et al. (2012), the Pearson *r* is the most common analysis to use when both variables represent continuous variables, either ratio or interval. In the case of this research study, both variables for Research Question 1, teacher absenteeism and student achievement, represent continuous variables. Research Questions 2 and 3 were answered using Independent Samples *t* Tests. According to Gay et al. (2012), Independent Samples *t* Tests are appropriate to use to determine if measures for two groups are significantly different from each other. For this study, the Independent Samples *t* Tests were used to determine if there were differences in MCT2 language arts scores and MCT2 mathematics scores for a groups students with teachers who have five or fewer absences and a group of students with teachers who have more than five absences.

To answer Research Questions 4 and 5, a multiple regression analysis was conducted to determine whether teacher characteristics of rates of absenteeism, age, gender, years of teaching experience, degree and certification are predictors of student achievement. The teacher characteristics of age and experience were set as continuous variables. Gender, certification status, and degree level were set as dichotomous variables and two levels: gender (males=1, females=2), certification (traditional = 2). Nevertheless, multiple regression analyses produce multiple regression equations that account for more than one independent variable in predicting the outcome for one dependent variable (student achievement).

Summary

Chapter 3 described the methodology that was used to conduct this study. The purpose of this study was to determine the relationship between teacher absenteeism and

teacher characteristics that influence student achievement in a rural setting. Five research questions guided this study to determine whether teachers' rate of absenteeism, age, gender, years of teacher experience, degree and certification are predictors of student achievement in language arts and mathematics.

This study employed a causal comparative research design and a correlational research design. Casual-comparative research was used to determine if there's differences in MCT2 language arts scores and MCT2 mathematics scores for a group students with teachers who have five or fewer absences and a group of students with teachers who have more than five absences.

Moreover, correlational research was utilized to determine how accurately teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification can predict third through eighth grade student achievement in language arts as measured by the MCT2. Multiple regression analysis were employed to determine which teacher characteristic have a significant impact on student achievement.

CHAPTER IV

RESULTS

Throughout the public schools in the United States, a great emphasis has been placed on improving education for all students. Since the passage of the NCLB (2001), public schools have been immersed in a system of educational reform to improve student achievement. The purpose of this study was to determine the relationship between teacher absenteeism and teacher characteristics that influence student achievement in a rural setting. This chapter presents the results of data analyses that were used to describe the participants, MCT2 scores and teacher absence rates. This chapter also presents the results of data analyses that were used to answer the following research questions:

1. Are there differences in the magnitude of relationships between teacher absences and student achievement across schools and grade levels in one rural school district?
2. Are there differences in MCT2 language arts achievement scores of students in Grades 3-8 whose teachers missed five or fewer days and students whose teachers missed more than five days of school?
3. Are there differences in MCT2 mathematics achievement scores of students in Grades 3-8 whose teachers missed five or fewer days and students whose teachers missed more than five days of school?

4. How accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in language arts as measured by the MCT2?
5. How accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in mathematics as measured by the MCT2?

The chapter is organized into three sections. The first section provides a description of the teacher participants and a description of MCT2 scores and teacher absence rates. The second section presents the results of data analyses used to answer the research questions. The final section of this chapter presents a summary of the results of this study.

Descriptive Analysis

Description of the Sample

Participants consisted of all third through eighth grade teachers and students in regular education classrooms. Archival data from all third through eighth grade teachers (N = 41) were collected for data analysis. The descriptive analysis revealed that most participants were female (n = 38; 92.7%) with an average of 8.91 years of teaching experience. Most teachers (n = 33; 80%) held a traditional certification and a Bachelor's degree (N = 28; 68.2%). The average number of days missed from school was 11.56. Tables 1 – 4 display descriptive information regarding the teachers participating in this study.

Table 1

Teachers' Age, Years of Teaching Experience, and Rate of Absenteeism

Characteristics	N	Min	Max	Mean	SD
Teacher Age	41	22	64	40.47	11.89
Teaching Experience	41	0	33	8.91	8.87
Rate of Absenteeism	41	0	33	11.56	9.68

Table 2

Teachers by Gender

Gender	Frequency	Percent
Male	3	7.3
Female	38	92.7

Table 3

Teachers by Degree

Degree	Frequency	Percent
Bachelor's	28	68.2
Master's or Higher	13	31.8

Table 4

Teachers by Certification

Certification	Frequency	Percent
Traditional	33	80
Alternate	8	20

Description of MCT2 Results

All third through eighth grade students (N = 1307) who received instruction in language arts and mathematics in a regular education classroom during the 2012-2013 school year were included in the sample. The average score for the district on the MCT2 language arts assessment was 145.66 and for the MCT2 mathematics assessment the district average was 148.49. Displayed in Table 5 are descriptive statistics for the MCT 2 scores for language arts and mathematics by grade level.

Table 5

MCT 2 Language Arts and Mathematics Descriptive Statistics

Grade	Language Arts			Mathematics		
	N	Mean	SD	N	Mean	SD
3	237	146.63	13.32	234	149.00	12.81
4	371	146.43	13.52	217	147.52	11.45
5	314	148.03	12.74	219	150.59	12.49
6	275	141.97	13.23	227	147.80	12.00
7	313	145.26	12.99	213	146.67	10.98
8	334	145.30	12.86	197	149.39	10.58

Research Questions Data Analysis

This section of Chapter IV is organized by research question. Research Question 1 was a multi-stage question requiring multiple sets of analyses. Therefore, the results for this question are displayed in the following order: relationships between MCT2 language arts scores and teacher absences by school then grade level followed by the relationships between MCT2 mathematics scores and teacher absences by school then grade level. Research Questions 2 through 5 only required one set of analyses and are displayed by order of question. After reporting the results of data analysis for each research question, the results of data analysis are summarized and the research question is answered.

Research Question 1

Research question one asked whether there was a difference in the magnitude of relationships between teacher absences and student achievement across schools and grade levels in one rural school district. A series of Pearson r correlation coefficients were calculated to determine the relationship between teacher absences and third through eighth grade MCT 2 language arts and mathematics scores.

MCT 2 Language Arts and teacher absences by school. When MCT2 language arts scores and teacher absences were examined across the four schools participating in this study, it was revealed that correlation coefficients could only be computed for three of the schools because one of the schools had only one teacher who was participating in the study. Because there was only one teacher at this school, it was not possible for the variable of teacher absences to vary. Nevertheless, the correlation coefficients computed for the three remaining schools indicated that MCT2 language arts scores and teacher absences were positively related at two schools and negatively related at one school. The magnitude of each of those relationships was small and only one of the relationships was statistically significant. Table 6 displays the results of this set of analyses.

MCT 2 Language Arts and teacher absences by grade level. When the relationships between MCT2 language arts scores and teacher absences were examined across grade levels, it was revealed teacher absences were positively related at five grade levels and negatively related at one grade level. The magnitudes of each of those relationships were small and only one of the relationships was statistically significant. Table 7 displays the results of this set of analyses.

Table 6

MCT2 Language Arts Scores and Teacher Absences Correlations by School

School Code	N	Correlation Coefficient	Significance
School 1	757	-.006	.875
School 2	165	.155*	.048
School 3	810	.051	.145

*Statistically Significant at the .05 alpha level

Table 7

MCT2 Language Arts Scores and Teacher Absences Correlations by Grade Level

Grade Level	N	Correlation Coefficient	Significance
3	237	.170*	.009
4	370	.007	.887
5	314	.027	.631
6	275	.103	.090
7	313	-.030	.596
8	334	.013	.807

*Statistically Significant at the .01 alpha level

MCT 2 Mathematics and teacher absences by school. When MCT2 mathematics scores and teacher absences were examined across the four schools participating in this study, it was revealed that correlation coefficients could only be computed for three of the schools because one of the schools had only one teacher who was participating in the study. Because there was only one teacher at this school, it was not possible for the variable of teacher absences to vary. Nevertheless, the correlation coefficients computed for the three remaining schools indicated that MCT2 mathematics scores and teacher absences were positively related at two schools and negatively related at one school. The magnitude of each of those relationships was small, however, two of the relationships were statistically significant. Table 8 displays the results of this set of analyses.

MCT 2 Mathematics and teacher absences by grade level. When MCT2 mathematics scores and teacher absences were examined across the grade levels, it was revealed that teacher absences were positively related at one grade level and negatively related at five grade levels. The magnitudes of each of those relationships were small and four of the relationships were statistically significant. Table 9 displays the results of this set of analyses.

Table 8

MCT2 Mathematics Scores and Teacher Absences Relationships by School

School Code	N	Correlation Coefficient	Significance
School 1	505	.001	.981
School 2	230	.150*	.023
School 3	470	-.160**	.001

*Statistically Significant at the .05 alpha level
**Statistically Significant at the .01 alpha level

Table 9

MCT2 Mathematics Scores and Teacher Absences Relationships by Grade Level

Grade Level	N	Correlation Coefficient	Significance
3	234	.157*	.016
4	217	-.326**	.000
5	219	-.051	.453
6	227	-.485**	.000
7	213	-.192**	.005
8	197	-.024	.735

*Statistically Significant at the .05 alpha level
**Statistically Significant at the .01 alpha level

The results of the series (18 bivariate correlations) of Pearson r correlations revealed that the relationships between MCT2 scores (language arts and mathematics) and teacher absences varied by school, grade level, type of relationship, and significance of relationship. Of the 18 correlation coefficients computed, eight revealed negative relationships and 10 revealed positive relationships. In terms of statistical significance, eight of the 18 relationships were statistically significant. However, in answering Research Question 1, there were no differences in the magnitude of the 18 relationships found. All of the correlation coefficients computed indicated that the magnitudes of the relationships between MCT2 scores and teacher absences were small.

Research Question 2

Research question 2 asked if there are differences in the MCT 2 language arts achievement scores of students in Grades 3 through 8 whose teachers missed five or fewer days and students whose teachers missed more than five days of school. To answer this research question, an independent sample *t*-test was computed to determine if there were differences in MCT2 language arts scores between students that missed five or fewer days of school and students who had teachers that missed more than five days of school. The result of this analysis, t (1789) = -2.55, p =.01 was statistically significant. The mean MCT 2 language arts score for students with teachers who missed five or fewer days of school (m = 146.07, *SD* = 13.17) was lower than the MCT 2 language arts mean score for students with teachers who missed more than five days of school (m = 144.42, *SD* = 13.27). Table 10 displays the descriptive results of this analysis.

As a follow-up to Research Question 2, a series of independent samples *t*-test were computed. The first series of *t*-tests examined differences in MCT2 language arts

scores for third through eighth grade students who had teachers who missed five or fewer days of school and students who had teachers who missed more than five days in a school year. The results of this series of analyses revealed significant differences at the third grade level, t (235) = -2.59, p = .01, fourth grade level, t(368) = -2.25, p = .03, and sixth grade level, t(273) = -3.61, p < .001. At the third grade level, the MCT2 language arts mean score of the students with teachers who had missed more than five days of school (m = 147.38, SD = 12.75) was higher than the MCT2 language arts mean score of students with teachers who had missed five or fewer days of school (m = 140.04, SD = 16.50). At the fourth grade level, the MCT2 language arts mean score of the students with teachers who had missed more than five days of school (m = 147.07, SD = 13.89) was higher than the MCT2 language arts mean score of students with teachers who had missed five or fewer days of school (m = 142.82, SD = 10.77). At the sixth grade level, the MCT2 language arts mean score of the students with teachers who had missed more than five days of school (m = 144.33, SD = 13.74) was higher than the MCT2 language arts mean score of students with teachers who had missed five or fewer days of school (m = 138.59, SD = 11.72). Consequently, in each case, the MCT2 language arts mean score for students with teachers who missed more than five days of school was higher than the MCT2 language arts mean score for students with teachers who had missed five or fewer days of school. For Grades 5, 7, and 8, the differences between the MCT2 language arts mean scores of the two groups of students was not significantly different. Therefore, the answer to Research Question 2 is that there are differences in MCT2 language arts of students in Grades 3 through 8 whose teachers miss five or fewer days and students whose teachers miss more than five days of school. Moreover, the differences that are

statistically significant indicate that students with teachers who missed more than five days of school scored higher on the MCT2 language arts test than students with teachers who missed five or fewer days of school. Table 11 displays descriptive statistics for the third through eighth grade MCT2 language arts scores and Table 12 displays the results of the series of independent samples *t*-test.

Table 10

MCT 2 Language Arts Descriptive Statistics Districtwide

Teacher Absence Group	N	Mean	Std. Deviation	*t*	*p*
≤ 5 Absences	645	140.04	16.50		
> 5 Absences	1146	147.38	12.75	-2.55	.01

Table 11

Students' MCT2 Language Arts Score Descriptive Statistics by Grade Level

Grade	Teacher Absence Group	N	Mean	Std. Deviation
3	≤ 5 Absences	24	140.04	16.50
	> 5 Absences	213	147.38	12.75
4	≤ 5 Absences	60	142.82	10.77
	> 5 Absences	310	147.07	13.89
5	≤ 5 Absences	190	147.54	13.76
	> 5 Absences	71	146.51	10.26
6	≤ 5 Absences	113	138.59	11.72
	> 5 Absences	162	144.33	13.74
7	≤ 5 Absences	59	146.71	13.30
	> 5 Absences	254	144.92	12.91
8	≤ 5 Absences	199	145.07	12.75
	> 5 Absences	135	145.63	13.07

Table 12

Independent Samples T-Test Results

Grade	*T*	*df*	*Sig*
3	-2.59*	235	.01
4	-2.25*	368	.02
5	.57	259	.51
6	-3.61*	273	.00
7	.95	311	.34
8	-39	332	.70

*Statistically significant at the .05 alpha level

Research Question 3

Research question 3 asked if there are differences in the MCT 2 mathematics achievement scores of students in Grades 3 through 8 whose teachers missed five or fewer days of school and students whose teachers missed more than five days of school. To answer this research question, an independent sample *t*-test was computed to determine if there were differences in MCT2 mathematics scores between students that missed five or fewer days of school and students who had teachers that missed more than five days of school. The result of this analysis, $t(1305) = 2.79$, $p = .00$ was statistically significant. The MCT2 mathematics mean score for students with teachers who missed five or fewer days of school (m = 150.06, *SD* = 11.96) was higher than the MCT 2 mathematics mean score for students with teachers who missed more than five days of school (m = 147.96, *SD* = 11.75). Table 13 displays the descriptive results for this analysis.

As a follow-up to Research Question 3, a series of independent sample *t*-test were computed to examine differences in MCT2 mathematics scores for third through eighth grade students who had teachers missed five or fewer days of school and students who had teachers who missed more than five days in a school year. The results of this series of analyses revealed significant differences at the third grade level, $t(232) = -2.30$, $p = .02$ and fourth grade level, $t(215) = .483$, $p = .00$. At the third grade level, the MCT2 mathematics mean score of the students with teachers who had missed more than five days of schools (m = 149.64, *SD* = 12.46) was higher than the MCT2 mathematics mean score of students with teachers who had missed five or fewer days of school (m = 143.38, *SD* = 14.63). At the fourth grade level, the MCT2 mathematics mean score of the students with teachers who had missed five or fewer days (m = 152.20, *SD* = 11.00) was higher than the MCT2 mathematics mean score of the students with teachers who had missed more than five days of school (m = 144.79, *SD* = 10.83). For Grades 5, $t(217) = .41$, $p = .69$, and 8, $t(102.84) = .43$, $p = .74$, the differences between the MCT2 mathematics mean scores of the two groups of students were not significantly different. For grades 6 and 7, *t* tests could not be computed because all teachers within these grade levels had more than five absences for the school year. Therefore, the answer to Research Question 3 is that there are differences in MCT 2 mathematics scores of students in Grades 3 through 8 whose teachers miss five or fewer days and students whose teachers miss more than five days of schools. In the districtwide comparison, students who had teachers who missed five or fewer days of school had a higher MCT 2 mathematics mean score than students with teachers who missed more than five days of school. In grade level comparisons, the results varied. For Grade 3, the MCT 2 mathematics mean score

for students who had teachers who missed more than five days of school was higher than the MCT 2 mathematics mean score for students who had teachers who missed five or fewer days of school. However, the pattern reversed when Grade 4 MCT 2 mathematics results were examined. Students who had teachers who missed five or fewer days of school had a higher MCT 2 mathematics mean score than students who had teachers who missed more than five days of school. Table 14 displays descriptive statistics for the third through eighth grade MCT2 mathematics scores and Table 15 displays the results of the series of independent samples *t*-test.

Table 13

MCT 2 Mathematics Descriptive Statistics Districtwide

Teacher Absence Group	N	Mean	Std. Deviation
≤ 5 Absences	329	150.06	11.96
> 5 Absences	978	147.96	11.74

Table 14

MCT2 Mathematics Descriptive Statistics by Grade

Grade	Teacher Absence Group	N	Mean	Std. Deviation
3	≤ 5 Absences	24	143.38	14.63
	> 5 Absences	210	149.64	12.46
4	≤ 5 Absences	80	152.20	11.00
	> 5 Absences	137	144.79	10.83
5	≤ 5 Absences	71	151.08	12.69
	> 5 Absences	148	150.35	12.42
6	≤ 5 Absences	0*		
	> 5 Absences	227	147.80	12.00
7	≤ 5 Absences	0*		
	> 5 Absences	213	146.67	10.97
8	≤ 5 Absences	154	149.53	11.33
	> 5 Absences	135	148.91	7.40

*None of the students had teachers who missed five days or fewer of school

Table 15

Independent Samples T-Test Results

Grade	*T*	*df*	*Sig*
3	-2.29*	232	.02
4	4.83**	215	.00
5	.41	217	.69
8	.43	102.84	.74

*Statistically significant at the .05 alpha level
**Statistically Significant at the .01 alpha level

Research Question 4

Research Question 4 asked how accurately teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in language arts as measured by the MCT2. To answer this research question, multiple regression analysis was conducted. Regression results indicated a statistically significant model for predicting MCT2 Language Arts scores, $R^2 = .036$, $R^2_{adj} = .033$, $F(6, 1691) = 12.62$, $p < .001$. This model accounted for 3.6% of variance in MCT 2 Language Arts scores. The equation that resulted from this model is: Language Arts MCT 2 Score = 152.88 -.26(age) +1.75(degree level) -2.02(certification level) + 2.90(Gender) -.009(years of teaching experience) -.155(rate of Absenteeism). Consequently, while the model was statistically significant, it is not very accurate in predicting MCT2 Language Arts scores because this model accounts for 3.6% of variance in MCT 2 Language Arts scores. Based on the multiple regression analysis, age, degree, and rate of absenteeism were statistically significant predictors of student achievement. The characteristics that accounted for the greatest difference in student achievement was age and rate of absenteeism. A summary of the regression model is presented in Table 16 and Table 17 presents the coefficients summary.

Table 16

MCT2 Language Arts Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.190[a]	.036	.033	13.020

a. Predictors: (Constant), Age, Certification level, Gender, Rate of Absenteeism, Years of Teaching Experience, Degree Level

Table 17

Regression Analysis of MCT2 Language Arts Scores Using Teacher Characteristics as Predictors

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	*Beta*	*T*	*Sig.*
(Constant)	152.883	3.876		39.441	.000
Gender	2.903	1.407	.054	2.063	.039
Certification	-2.020	1.121	-.052	-1.802	.072
Degree	1.750	.755	.066	2.318	.021
Rate of Absenteeism	-.155	.500	-.093	-3.099	.002
Years of Teaching Experience	.009	.072	-.005	-.127	.849
Age	.262	.053	-.204	-4.987	.000

Research Question 5

Research Question 5 asked how accurately teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in mathematics as measured by the MCT2. To answer this research question, multiple regression analysis was conducted. Regression results indicated a statistically significant model for predicting MCT 2 mathematics scores, $R^2 = .024$, $R^2_{adj} = .024$, $F(6, 1223) =$, $p < .001$. This model accounted for 2.4% of variance in MCT2 Mathematics. The equation that resulted from this model is: Mathematics MCT2

Score = 140.91 + .04(age) + 1.79(degree level) + 3.34(certification level) + .338(Gender) -.176(years of teaching experience) -.075(rate of Absenteeism). Consequently, while the model was statistically significant, it is not very accurate in predicting MCT2 Language Arts scores because this model accounts for only 2.4% of variance in MCT 2 Mathematics scores. Based on the multiple regression analysis, certification and years of teaching experience were statistically significant predictors of student achievement as measured by the MCT2 mathematics assessment. Additionally, certification was one characteristic that accounted for the greatest difference in MCT2 mathematics scores. A summary of the regression model is presented in Table 18 and Table 19 presents the coefficients summary.

Table 18

MCT2 Mathematics Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.153[a]	.024	.019	11.89

a. Predictors: (Constant), Age, Certification level, Gender, Rate of Absenteeism, Years of Teaching Experience, Degree Level

Table 19

Regression Analysis of MCT2 Mathematics Scores Using Teacher Characteristics as Predictors

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	*Beta*	*t*	*Sig.*
(Constant)	140.913	5.324		26.470	.000
Gender	.338	1.769	.007	.191	.849
Certification	3.347	.995	.139	3.364	.001
Degree	1.797	1.200	.072	1.497	.135
Rate of Absenteeism	-.075	.042	-.062	-1.782	.075
Years of Teaching Experience	-.176	.061	-.133	-2.886	.004
Age	.040	.045	.014	.894	.372

Summary

Chapter IV presented the results of data analysis used to answer the five research questions that guided this study. Three statistical procedures were used to answer the five questions. To answer Research Question 1, Pearson r correlation coefficients were computed to determine if there were differences in magnitudes of the relationships between MCT2 language arts and mathematics scores and teacher absences. The results of this series of analyses revealed that there were no differences in the magnitude of the relationships by school or grade level. All of the relationships found were small in

magnitude. To answer Research Questions 2 and 3, a series of independent samples t-tests were computed to determine if there were differences in MCT2 language arts (Research Question 2) and MCT2 mathematics (Research Question 3) scores between students who had teachers who missed five or fewer days of school and students who had teachers who missed more than five days of school. The two districtwide comparisons yielded different results. When MCT2 language arts scores were analyzed, the students with teachers who had missed more than five days of school outperformed the students who had teachers who had missed five or fewer days of school. When MCT2 mathematics scores were examined, the trend reversed. Students who had teachers who missed five or fewer days of school outperformed students who had teachers who had missed more than five days of school. Additional grade level analyses also revealed inconsistent findings by grade level and subject. Research Questions 4 and 5 asked if a set of independent variables could be used to predict MCT2 language arts and mathematics scores and were answered using multiple regression analysis. The results for both analyses revealed two statistically significant prediction models. However, neither model accounted for much of the variance in the MCT2 language arts and mathematics scores.

CHAPTER V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

The purpose of this study is to determine the relationship between teacher absenteeism and student achievement and other specific teacher characteristics that influence student achievement. Chapter V includes the summary of the study and the conclusions and recommendations based on the results of the study and is organized in that manner.

Summary

In spite of all of the educational reform measures that the United States has undertaken, measures of academic achievement in the nation are still cause for concern. Abundant research has found that teachers are one of the most influential factors of student academic achievement. While teachers are responsible for delivering quality instruction, the Office of Civil Rights (2012) reported that 36% of the nation's school teachers missed at least 10 days of school during the 2009 – 2010 school year. In which case, high quality instructional time is lost. However, most of the research on teacher absenteeism has focused on understanding and explaining teachers' absenteeism in terms of teacher demographics and the financial costs to school districts. The research that has examined teacher absenteeism and its relationship to student academic achievement has been inconsistent and narrowly focused. The purpose of this study was to determine the

relationship between teacher absenteeism and student achievement and other specific teacher characteristics that influence student achievement. To fulfill the purpose of this study, the following five research questions were developed to guide the study:

1. Are there differences in the magnitude of relationships between teacher absences and student achievement across schools and grade levels in one rural school district?
2. Are there differences in MCT2 language arts achievement scores of students in Grades 3-8 whose teachers missed five or fewer days and students whose teachers missed more than five days of school?
3. Are there differences in MCT2 mathematics achievement scores of students in Grades 3-8 whose teachers missed five or fewer days and students whose teachers missed more than five days of school?
4. How accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in language arts as measured by the MCT2?
5. How accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict third through eighth grade student achievement in mathematics as measured by the MCT2?

This study employed correlational and causal-comparative research designs to answer the five research questions as they pertain to one rural school district in Central Mississippi. The correlational research design was used to determine if there were differences in the magnitude of relationships between teacher absences and student achievement across schools and grade levels in one rural school district (Research

Question 1). Additionally, correlational research design was used to determine how accurately do teachers' rate of absenteeism, age, gender, years of teaching experience, degree and certification predict 3rd-8th grade student achievement in language arts and mathematics as measured by the MCT2 (Research Questions 4 and 5). A causal-comparative research design was employed to determine if there were significant differences in measures of academic achievement (MCT2 language arts achievement and MCT2 mathematics achievement) between students whose teachers were absent five or fewer days during the academic year and students whose teachers were absent more than five days during the academic year (Research Questions 2 and 3).

Pearson r correlations, independent samples t-tests and multiple regression analysis were used to analyze data to answer the five research questions. Pearson r correlation coefficients were computed to answer research Question 1. The results of data analysis indicated that there were no differences in the magnitude of the relationships. All of the relationships found were small in magnitude. The results of the analysis for Research Question 2 indicated that there are differences in MCT2 language arts achievement scores of students in Grades 3 through 8 whose teachers miss five or fewer days and students whose teachers miss more than five days of school. In the district-wide comparison, students who had teachers who missed more than five days of school had a higher MCT2 language arts mean score than students who had teachers that missed five or fewer days of school. This same difference was observed in the MCT2 language arts mean scores of third, fourth, and sixth grade students. However, when MCT2 mathematics scores were analyzed, the pattern for the district-wide comparison reversed. Students with teachers who missed five or fewer days outperformed students who had

teachers who missed more than five days of school. When scores were examined by grade level, two statistically significant findings were revealed at the third and fourth grade level. At the third grade level, students who had teachers with more than five absences out performed students who had teachers with five or fewer absences. At the fourth grade level, the finding was reversed. Students who had teachers with five or fewer absences had a higher MCT2 mathematics mean score than students who had teachers who missed more than five days. Data analyzed to answer Research Questions 4 and 5 revealed two, statistically significant regression models but neither model explained much of the variance in MCT2 scores. Nevertheless, both models resulted in prediction equations.

Discussion

Despite the lack of a significant relationship between teacher absenteeism and student achievement in language arts, a review of literature indicated that teacher absenteeism is a significant problem. In schools throughout the nation, over a third (36%) of the nation's teachers missed at least 10 days of school (Office of Civil Rights, 2012). In addition, the financial burdens placed on schools by teacher absenteeism, the probable impact on student achievement increases more of a primary concern. Since the primary goal of education is to prepare students to become productive members of society, public schools must place student achievement as the primary objective. Nevertheless, teacher absences have shown to have a negative impact on student achievement in some contexts (Miller et al., 2008, Tingle et al., 2012). Certain teacher characteristics (i.e. gender, years of teaching experience, degree and certification) have also been shown to impact student achievement (Clotfelter et al., 2007)

Consequently, student achievement has been the forefront of both federal and state legislation. Since the passage of the NCLB in 2001, teachers, school administrators, superintendents, and school board have sought out innovative interventions to increase student achievement on standardized assessments. Moreover, schools are now subject to higher levels of levels or accountability, not only for the performance of the students but also for the performance of teachers and administrators. Nevertheless, school districts are charged with responsibility of hiring and retaining highly qualified teachers, providing instructional materials, and improving the overall academic achievement of all students. Therefore, as education leaders seek to meet the demands of current education legislation, it is imperative that educational leaders continue to investigate every measure to improve student achievement. It is crucial that school districts continue to explore the specific teacher characteristics of absence, age, gender, years of teaching experience degree and certification and how these characteristics may impact student performance.

When a descriptive analysis of the participants was conducted, findings revealed that teachers missed an average of 11.56 days of school. These results are consisted with the findings reported from the Office of Civil Rights (2012) that teachers throughout the United States missed on an average of 10 days per year. These findings should be very alarming to district and school leaders. In the district examined, teachers receive a specified number of sick and person leave days. In this particular district, teachers are given 7 sick days and 2 personal leave days. As evident in the distribution of the absentee groups, the majority of teachers used their allocated number of sick and personal leave days. These results are consistent with findings of other studies that majority of teachers use all their leave time received over the course of a year (Speas, 2010).

The findings in Research Question 1 produced results similar research conducted by Tingle et al. (2012). The purpose of the research was to explore the relationship between teacher absences and student achievement in an urban school district. Moreover, this study employed Pearson correlation methods and hierarchical linear modeling. Pearson correlation method was used to examine the relationship between student achievement across schools, grade levels and subject areas. Findings revealed that relationships were found between teacher absences and student achievement across schools and grade levels. However, these relationships were found to be very small across both schools and grade levels.

The findings in Research Question 2 yielded results similar to research studies by Clay (2007). Clay conducted an investigation between teacher absence and student achievement data over three school years, 2002-2003, 2003-2004, and 2004-2005, in the St. Louis County school district. This research study employed both *t*-tests and analysis of variance to investigate the relationship between teacher absences and student achievement. Findings from this research revealed that there was no statistical significance between student scores and teacher absences by groups for communication arts and mathematics as measured by the MAP assessment or reading and mathematics as measured by the Terra Nova tests. Moreover, these findings contradict those by, Miller et al. (2008), Woods and Montagno, (1997), which found that higher teacher absences had a negative effect on student achievement.

The findings in Research Question 3 produced findings similar to a research study conducted by Miller et al. (2008). Miller et al. (2008) conducted a quantitative research study to examine the relationship between teacher absences and student achievement. The

sample consisted of approximately 200 teachers and 4,000 students. Student achievement data in mathematics were acquired from the Stanford Achievement Test (Series 9). Based on regression analyses, the researchers determined that a teacher's absentee rate of 10 days per year decreased student fourth grade achievement by 3.2% of a standard deviation. Consequently, the findings for this study contradict the findings of Colquitt (2009) and Brouilette (2012). Both studies found that teacher absenteeism did not impact student achievement in mathematics.

In contrast, the findings of research question 4 are contradictory to recent investigations into the effects of teacher characteristics on student achievement that have found that age (Wobman, 2003) and degree level(Huang & Moon, 2005) were not predictors of student achievement. Wobmann (2003) examined the relationship between school resources, institutional characteristics and student achievement. Within the category of school resources, the author included the teacher characteristics of age, gender, experience, and education. The researcher determined that the age of a teacher had a negative effect. Huang & Moon (2009) performed a multi-level analysis of teacher characteristics and student achievement in low performing school. Teacher characteristics consisted of teacher certification, educational attainment, experience, and attendance at professional development workshops. The authors employed value-added models using three level hierarchical linear modeling to analyze data in reading and math from 1,544 students, 154 teachers, and 53 schools. Results indicated that traditional teacher qualification characteristics such as licensing status, educational attainment, and experience were not statistically significant in producing student achievement gains. In the context in which this investigation took place, the teacher characteristics of age and

degree level were predictors of student achievement in language arts as measured by MCT2.

In contrast, the findings of research question 5 are contradictory to recent investigations into the effects of teacher characteristics on student achievement that have found that certification (Angrist & Guryan, 2008; Jepsen, 2005) and years of teaching experience (Jepsen, 2005) were not predictors of student achievement. Angrist and Guryan (2008) investigated whether certification status was a predictor of student achievement. The authors examined data from the SASS that was administered throughout the United States during the 1987-1988, 1993-1994, and 1999-2000 school years. The survey consisted of information regarding teacher salaries and teacher backgrounds. Teacher demographic information included: teacher level of education, teacher certification status, teacher subject assignment, and credentials from the educational institution that the teacher attended. However, the increases in teacher certification requirements did not result in improved teacher quality and was not a strong predictor of student achievement. Jepsen (2005) conducted an analysis that examined the effects of multiple teacher characteristics on student achievement in first and third grades. Teacher characteristics included in the study were experience, degree level, and certification status. The author utilized the fixed effects as a method of analysis to control for the effects of teacher and peer effects on academic growth. Four separate regression analyses were used based on subject area and cohort. Findings revealed that teacher characteristics of experience, degree level, and certification status were not statistically significant predictors of student achievement. In the context in which this investigation took place, the teacher characteristics of certification and years of teaching

experience were predictors of student achievement in mathematics as measured by MCT2.

This study extends previous studies of teacher absenteeism and student achievement in language arts and mathematics. First, this study compared the magnitude of the relationship between teacher absence and MCT 2 language arts and mathematics scores across schools and grade levels. Second, this study compared differences on the MCT 2 language arts and mathematics scores of students whose teachers missed five or fewer days of schools and students whose teachers missed more than five days of school. Third, this study included other teacher characteristics (e.g. age, gender, years of teaching experience, degree certification) in the analysis of teacher absenteeism to determine which characteristics was a predictor of student achievement in language arts and mathematics as measured by MCT2.

This investigation discovered that third through eighth grade teacher absences from the classroom did not have a negative effect on the language art achievement of third through eighth grade students. However, this study revealed that teacher absences did have a negative impact on student achievement in mathematics. The results across schools and grade levels indicated that were small differences in the magnitude of those relationships. Moreover, student achievement was measured by criterion-referenced assessment of student achievement. Students were assigned to two groups according to the frequency of their teacher's absences(less than five absences verses more than five absences). Independent sample *t*-tests indicated there were differences in MCT 2 language arts and mathematics scores by teacher absent groups. Moreover the findings revealed that teacher absenteeism did not significantly impact student achievement in

language arts but did have a negative impact on student achievement in mathematics. This study is consisted with research conducted over the past three decades (Clay, 2007; Colquitt, 2009; Miller et al., 2008), which found the effect of teacher absenteeism on student achievement is context specific. Consequently, the descriptive analysis of the sample revealed extremely high occurrences of absences, so districts may need to address the direct cost of substitute pay because of teacher absenteeism. Moreover, school districts need to make greater efforts to recruit and retain teachers with characteristics (i.e. degree, certification, and teaching experience) that have found to have an effect on student achievement.

Recommendations for Further Research

Based on the finding of this study, the following are recommendations for further research:

1. This study involved scores from only one school district in Mississippi, it is recommended that a future studies should expand the population to include more school districts that vary in size and demographics.
2. This study utilized only one assessment instrument; it is recommended that a future study include the use of additional instruments to measure academic achievement.
3. This study only used data from only one school year; it is recommended that a future study take more of a longitudinal perspective and collect data for several school years.

4. This study did not differentiate the reasons for teacher absences; it is recommended that a future study take a closer look at the reasons for teacher absences.

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APPENDIX A

IRB APPROVAL LETTER

Protocol Title: The Impact of Teacher Absenteeism and Teacher Characteristics on 3rd-8th Grade Achievement in Language Arts and Mathematics

Protocol Number: 14-398

Principal Investigator: Ms. Florence Cocroft

Date of Determination: 12/19/2014

Qualifying Exempt Category: 45 CFR 46.101(b)(4)

Dear Ms. Cocroft:

The Human Research Protection Program has determined the above referenced project exempt from IRB review.

Please note the following:

* Retain a copy of this correspondence for your records.

* Only the MSU staff and students named on the application are approved as MSU investigators and/or key personnel for this study.

* You do not need to submit an application for annual continuing review; however, a new application must be submitted if the study is ongoing after 5 years from the date of approval. (SOP 01-03 Administrative Review of Applications)

* Any modifications to the project must be reviewed and approved by the HRPP prior to implementation. Any failure to adhere to the approved protocol could result in suspension or termination of your project.

* Per university requirement, all research-related records (e.g. application materials, letters of support, signed consent forms, etc.) must be retained and available for audit for a period of at least 3 years after the research has ended.

* It is the responsibility of the investigator to promptly report

events that may represent unanticipated problems involving risks to subjects or others.

This determination is issued under the Mississippi State University's OHRP Federalwide Assurance #FWA00000203. All forms and procedures can be found on the HRPP website: www.orc.msstate.edu.

Thank you for your cooperation and good luck to you in conducting this research project. If you have questions or concerns, please contact me at nmorse@orc.msstate.edu or call 662-325-5220.

Finally, we would greatly appreciate your feedback on the HRPP approval process. Please take a few minutes to complete our survey at https://www.surveymonkey.com/s/PPM2FBP.

Sincerely,

Nicole Morse, CIP
IRB Compliance Administrator