Lindenwood University
Digital Commons@Lindenwood University

Dissertations | Theses & Dissertations

Spring 3-2015

Student and Teacher Perceptions of Standards-based Grading and Student Performance

Terry W. Winton
Lindenwood University

Follow this and additional works at: https://digitalcommons.lindenwood.edu/dissertations

 Part of the Educational Assessment, Evaluation, and Research Commons

Recommended Citation

Winton, Terry W., "Student and Teacher Perceptions of Standards-based Grading and Student Performance" (2015). *Dissertations*. 379.
https://digitalcommons.lindenwood.edu/dissertations/379

This Dissertation is brought to you for free and open access by the Theses & Dissertations at Digital Commons@Lindenwood University. It has been accepted for inclusion in Dissertations by an authorized administrator of Digital Commons@Lindenwood University. For more information, please contact phuffman@lindenwood.edu.

Student and Teacher Perceptions of Standards-based Grading and Student Performance

by

Terry W. Winton

March 2015

A Dissertation submitted to the Education Faculty of Lindenwood University in partial fulfillment of the requirements for the degree of

Doctor of Education

School of Education

Student and Teacher Perceptions of Standards-Based

Grading and Student Performance

by

Terry W. Winton

This Dissertation has been approved as partial fulfillment

of the requirements for the degree of

Doctor of Education

Lindenwood University, School of Education

Dr. Sherry DeVore, Dissertation Chair — Date: 3-18-15

Dr. Terry Reid, Committee Member — Date: 03-18-15

Dr. Patricia Conner, Committee Member — Date: 03-18-15

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

Full Legal Name: Terry W. Winton

Signature: Terry W. Winton Date: 3-10-15

Acknowledgements

I would like to thank and show my gratitude to my committee chair, Dr. Sherry DeVore. I am thankful for guidance, wisdom, and support throughout the dissertation process. I would also like to express my gratitude to my committee members Dr. Patricia Connor and Dr. Terry Reid. I am grateful to all the participants in this study.

I would like to thank my wife, Angela, for her love and support and patience during the writing process. I am grateful to my two children, Sarah and Michael, who provided encouragement and inspiration. I would also like to thank the instructors of the School of Education at Lindenwood University, who helped guide my writing.

Abstract

Assessing student learning has been part of education since the beginning of formalized schooling. Developments at the national, state, and local level have led to grading reforms over the past quarter century. The purpose of this study was to explore students' and teachers' perceptions of standards-based grading to determine if there was a significant difference on standardized tests scores between students graded using standards-based grading and students graded using traditional grading. Teachers and students from one Missouri high school were interviewed to determine their perceptions about standards-based grading. A stratified sample was utilized to select interviewees. Artifacts from the district were analyzed to determine the process in the implementation of standards-based grading. Quantitative data were obtained from the Missouri Department of Elementary and Secondary Education to compare the Missouri Assessment Performance (MAP) Index scores and means on end-of-course exams from the participating high school with Missouri students. A *t*-test was utilized to determine the difference between the two means. The data revealed teachers' perceptions of standards-based grading were varied, with only two teachers who preferred standards-based grading. Student perceptions were more positive than those of teachers, with 50% of students who were interviewed preferring standards-based grading. Quantitative data revealed no statistically significant difference between the means on end-of-course exams of students assessed with standards-based grading and students assessed with traditional grading in five of the eight subject areas studied.

Table of Contents

List of Tables

List of Figures

Chapter One: Introduction

All states have educational standards which guide teaching and learning. According to the Oregon Department of Education (2010), "standards-based education is the process of teaching, learning, and assessment that focuses on national, state, and local educational standards" (p. 1). Accurate and fair assessment in determining if students have learned the educational standards is achieved through standards-based grading (Jung & Guskey, 2011). Accordingly, "The goal of standards-based grading is to improve the quality of education for all students" (Llosa, 2011, p. 367). Standards-based grading provides teachers and administrators a system to help struggling learners with the goal to improve instruction (Desimone, 2013). Standards-based grading provides teachers with well-defined academic objectives for students and a framework to determine if students have met the objectives (Spencer, 2012).

In this chapter, the background of the study, which provided a historical context, was presented. The conceptual framework was outlined to describe the theoretical approach for the study, while the statement of the problem was addressed justifying the need for current data regarding standards-based grading. The significance of the study was specified as to how this research would be beneficial, and the purpose of the study was introduced, as well as the research questions and hypotheses. Terms were defined, followed by the limitations and assumptions associated with this study.

Background of the Study

Traditional grading practices have been in place since the beginning of formalized education and include homework, assessments, and participation, and often, behavior and tardiness are included in final grades (Guskey, 2011). Points are then totaled which

determines the grade on the progress report or grade card. Grades are then used to place students along a continuum of success, failure, or somewhere in between. The continuum of grades, according to Guskey (2011), "comes from the belief that grades should serve to differentiate students on the basis of demonstrated talent. Students who show superior talent receive high grades, whereas those who display lesser talent receive lower grades" (p. 17).

Brookhart (2011b) discovered, while teachers' opinions on the importance of grades differ, many are beginning to question the practice of grading designed to sort students into learners and non-learners and not support learning for all. Potts (2010) stated, "pedagogical theory and research have been shifting away from traditional grading in recent years, finding it too subjective, too arbitrary, and often not conducive to learning" (p. 29). Likewise, Spencer (2012) reported a "growing number of teachers, schools, and entire districts have put their faith in standards-based grading…[in an attempt] to make grades more meaningful" (p. 4).

In discussing student performance, Carey and Carifio (2011) observed, "when a student's performance is inconsistent, traditional grading practices can prove inadequate" (p. 42). Tierney, Simon, and Charland (2011) argued grades should be an accurate description of accomplishment, so in order to validate grades, factors unrelated to achievement should be reported separately. While reforming education standards and student learning outcomes have taken place for the past two decades, Guskey (2011) asserted, "the one element still unaligned with these reforms is grading and reporting. Student report cards today look much like they looked a century ago, listing a single grade for each subject area or course" (p. 17). This could be due to teachers not being

taught how to grade. Yesbeck (2011) reported, "in teacher preparation courses, emphasis is placed on the design and delivery of instruction, but little emphasis is placed on developing appropriate measures of assessment and contributing factors to consider when assigning grades" (p. 28).

Conceptual Framework

The move towards standards-based grading or standards-based reform (SBR) is based on the theories and research of many experts in the educational field:

> The SBR movement reflects a confluence of policy trends—in particular, a growing emphasis on using tests to monitor progress and hold schools accountable and a belief that school reforms are most likely to be effective when all components of the education system are designed to work in alignment toward a common set of goals. Many of the SBR systems that have been adopted in response to the requirements of NCLB had their origins in state and federal initiatives from the 1980s and 1990s and in activities conducted by professional organizations such as the National Council of Teachers of Mathematics. (Hamilton, Stecher, & Yuan, 2008, p. 2)

Other researchers, such as Reeves (2008), Marzano and Heflebower (2011), and Guskey, Swan, and Lee (2010), have related their opinions regarding grading systems.

Reeves (2008) emphasized that changing current grading practices would immediately impact student failure rates. For this reason, Marzano and Heflebower (2011) confirmed, "in an effort to cure the ills of current grading and reporting systems, many schools and districts across the United States have attempted to implement a standards-based system" (p. 34). Moreover, Reeves (2011) indicated:

> There's nothing inherently wrong with letter grades. What has rendered our present grading system so toxic is that letter grades, in the absence of additional information, are inaccurate and misleading. Two students can earn a C in math, with the first student an ace mathematician with poor attitude and conduct and the second student utterly unprepared to advance to the next grade in mathematics while possessing a great attitude and compliant disposition. (p. 77)

With inconsistencies in grading, another system has been needed. The result of mandated accountability standards has led many school district administrators to consider standards-based grading.

At the end of the 20th century, concern about grading was heightened because of the lack of congruence between teachers' practices and measurement theory (Tierney et al., 2011). The accountability provisions of the No Child Left Behind Act (NCLB) shaped much of the work of public school teachers and administrators in the United States. NCLB required each state to develop content and achievement standards in several subjects, to administer tests to measure students' progress toward these standards, to develop targets for performance on these tests, and to impose a series of sanctions on schools and districts that do not meet the target (Zigmond & Kloo, 2009).

Standards-based grading removes non-academic elements from the gradebook and bases grades on specific learning criteria developed from explicit standards (Guskey et al., 2010). Additionally, "the goal of standards-based instruction is to improve the quality of education for all students by developing rigorous standards and aligning instruction, assessment, professional development, and resources to those standards" (Llosa, 2011, p. 368). According to O'Connor (2009), "Although they have different

labels, every state has standards that are determined at the state level. These standards are published and all teachers, parents, and students should be familiar with them" (p. 4). Standards clarify the learning tasks for students and lessen the negative effects of grades on students.

Statement of the Problem

Standards-based grading came to the forefront with the advent of the NCLB law advocated by President Bush in 2001 (U.S. Department of Education [USDOE], 2004) and continued with the Common Core State Standards (CCSS) supported by the National Governors Association and Council of Chief State School Officers (Missouri Department of Elementary and Secondary Education [MODESE], 2012b). Many states had a system of standards-based grading in place prior to NCLB, but since the law went into effect, all states had to implement a standards-based accountability system (Zigmond & Kloo, 2009). Educators must be knowledgeable of standards-based grading in order to meet the needs of students as they continue to progress through the 21st century.

The move to standards-based grading must overcome some obstacles and traditions. According to O'Connor (2009), although all states have standards, high schools are reluctantly adopting standards-based for curriculum, instruction, and assessment, and a few are standards-based for grading and reporting. Guskey (2011) identified five long-held traditions and obstacles limiting grading reform:

Obstacle 1: Grades should provide the basis for differentiating students.

Obstacle 2: Grade distributions should resemble a normal bell-shaped curve.

Obstacle 3: Grades should be based on students' standing among classmates.

Obstacle 4: Poor grades prompt students to try harder.

Obstacle 5: Students should receive one grade for each subject or course. (pp. 17-19)

Clearly, standards-based grading is facing many obstacles before full implementation will be practiced or accepted.

Kohn's (2011) research identified three effects grades have on students. First, grades tend to diminish what students are learning (Kohn, 2011). Second, grades create a preference for the easiest possible task (Kohn, 2011). Third, grades tended to reduce the quality of students' thinking (Kohn, 2011). Similarly, Carey and Carifio (2011) observed great anxiety among students forced to undertake tasks when uncertain of the outcome.

The science of teaching has continued its evolution in terms of grading and assessment. According to Potts (2010), "Pedagogical theory and research have been shifting away from traditional grading in recent years, finding it too subjective, too arbitrary, and often not conducive to learning" (p. 29). Standards-based grading is the tool which can relieve teachers from the subjectivity and arbitrariness of current grading practices.

Significance of the Study

Education reform over the past few decades focused primarily on articulating standards for student learning, yet the one element still not aligned with standards reform is grading and reporting (Guskey, 2011). Most grades are still applied using traditional grading practices, which often function as rewards and punishments to motivate students to achieve or to behave appropriately (O'Connor, 2009). Currently, there is much research on the implementation of standards-based grading, but little research in which standards-based grading has been put into practice, especially at the secondary level.

Specifically, “Numerous elementary schools around the country have moved to so-called standards-based grading and report cards. Many middle schools are on board, as well. But high schools have been much slower to embrace the change” (“High Schools Slow,” 2012, para. 2). This current study provides educators with the research necessary to make informed decisions when considering the transition to standards-based grading at the high school level.

Purpose of the Study

The purpose of this study was to examine teacher and student perceptions of standards-based grading to determine if there was a difference in student achievement in one rural Missouri school district using standards-based grading compared to student achievement of Missouri students using traditional grading practices. Wildcat High School (pseudonym) was chosen due to its piloting of standards-based grading in social studies courses during the 2009-2010 school year. School-wide standards-based grading was implemented during the 2012-2013 school year.

Research questions and hypotheses. The following research questions and hypotheses guided this study:

1. What process was used in the implementation of standards-based grading in one southwest Missouri high school?

2. What are high school teachers’ perceptions towards standards-based grading?

3. What are high school students’ perceptions towards standards-based grading?

4. What is the difference between the MAP Index (MPI) scores and mean scores of students in one rural high school utilizing standards-based grading and the MAP Index and mean scores for students in Missouri?

$H1_0$: There is no significant difference between student achievement on standardized tests for students receiving standards-based grades and students receiving traditional grades.

$H1_a$: There is a significant difference between student achievement on standardized tests for students receiving standards-based grades and students receiving traditional grades.

Definition of Key Terms

For the purpose of this study, the following terms are defined:

End-of-Course (EOC) assessments. Criterion-referenced tests that are delivered to middle and high school students when the Course-Level Expectations for a particular course have been covered (MODESE, 2013a).

Standards-based grading. The communication of content mastery when applying grades (Deddeh, Main, & Fulkerson, 2010).

Traditional grading. Grades based on the percentage of all assignments and classroom behavior (Potts, 2010).

Limitations and Assumptions

Scientific studies have limitations and should be recognized by the researcher (Ary, Jacobs, Sorensen, & Walker, 2014). The following limitations were identified in this study:

Design. The research design was a case study and limited to one southwest Missouri public school district. According to Bluman (2012), a limited sample size may generalize results. The inclusion of more school districts in future studies may diminish any generalizations.

Factors beyond the scope of the study. Teacher characteristics including teacher quality, quality of teacher training in standards-based grading, and teacher migration were beyond the control of the study. The quality of the curriculum was an additional factor beyond the control of the study. None of these variables was considered in this study, and the effects of these factors were not considered in the conclusions in the analysis of the data.

Instrumentation. Individual teacher and student bias could have altered the study and could not be controlled through interview questions. Interviewer bias and body language could potentially have had an impact on the interview subjects' responses. Harding (2013) cautioned, "The researcher should consider carefully how their observable (or hearable) characteristics may bias the interview, particularly when interviewing face to face" (p. 34). Additionally, the analysis of artifacts may not have answered all questions pertinent to the study.

The following assumption was accepted:

1. The responses of those interviewed were honest and unbiased.

Summary

Grades have been assigned in virtually the same manner since the beginning of formal education, yet federal, state, and local educational standards have been evolving since grades were first assigned to students. The effects of NCLB from the previous decade and the current CCSS on education have created an educational environment which must recognize the need for grading reform and implementation. The assignments of grades vary from teacher to teacher and district to district. Teachers and

administrators must work together to develop consistent grading practices in order to fairly assess student learning.

Reviewed in Chapter Two was the relevant literature concerning standards-based grading and assessment. The historical perspective of grading was explored, as well as the problems with traditional grading practices and the federal and state mandates imposed on school districts. Also examined were the topics of standardized grading and assessment, opposition to standards-based grading, and the benefits of standards-based grading.

Chapter Two: Review of Literature

Traditional grading practices have centered on entering scores throughout the grading period and then averaging all scores for a final grade. This traditional grading system is still prevalent in many schools and classrooms despite research supporting grading reform. According to Reeves (2008), "If you wanted to make just one change that would immediately reduce student failure rates, then the most effective place to start would be challenging prevailing grading practices" (p. 85). To understand the grading systems used in schools, past and present, traditional and standards-based grading practices were explored in the review of literature.

Included in this chapter was an overview of the history of grading practices and the evolution of grading over the past century, the problem with traditional grading as it pertains to student achievement, and how federal and state mandates drive standards. Also discussed were the current and recommended practices for standards-based grading and assessment, opposition to standards-based grading, and the benefits of standards-based grading. These main topics form the foundation of grading systems.

The purpose of this study was to explore the difference between MAP Index scores of one rural high school using standards-based grading and students in the state of Missouri. Shippy, Washer, and Perrin (2013) determined standards-based grading allows course content to be the sole criteria for determining grades. Gordon (2012) explained:

> Under traditional grading, extra credit, late work, class participation and non-academic assignments (returning a signed progress report, for example) can influence a student's score. These factors represent life skills which, while important, don't necessarily reflect a student's content knowledge. (para. 2)

While life skills are essential, learning content and grading must be determined by research, which identifies the best practices for accurately assigning grades for optimal learning.

Historical Perspective

Grades are not new to the education system. According to Guskey (2013), prior to 1850, grading was essentially unknown in U.S. schools. Students of all ages were grouped in a one-room schoolhouse, with few students attending beyond elementary school (Guskey, 2013). Teachers commonly reported student progress orally to parents during visits to the students' homes (Guskey, 2013). Consequently, Guskey (2013) found, "As enrollments increased in the late 1800s, students were grouped by grade levels according to age and formal evaluations were used, mostly narrative reports on skills mastered and those needing additional work" (p. 68).

It was at this same time schools began to use "letters or number symbols to summarize student learning" (O'Connor, 2010, p. 38), a practice that continues today where "report cards look much like they did a century ago" (Guskey & Bailey, 2010, p. 3). Historically, grades were used to sort students into educational programs and the world beyond (O'Connor, 2010), but in response to dissatisfaction with public education, the movement for minimum competency testing began in the 1970s (Brookhart, 2011a). The competency testing movement began a series of state and federal interventions and regulations over the next four decades, beginning with the *A Nation at Risk* report in 1983, the standards movement in the 1990s, NCLB in 2002, and the CCSS in 2010 (Brookhart, 2011a). According to Murnane and Papay (2010), "The No Child Left

Behind legislation overlaid federal law and regulations on state standards-based accountability systems" (p. 152).

Provisions of the accountability portion of NCLB required every child to meet the targeted expectations on state-defined education standards by the end of the 2013-2014 school year (USDOE, 2004). The law, in response to apprehension of the future of education, was "coming at a time of wide public concern about the state of education, and the NCLB legislation set in place requirements that reached into virtually every public school in America" (NCLB, 2011, para. 2). Because of NCLB, schools began examining grading practices and grade reporting.

According to Cox (2011), "Standards-based report cards may have become commonplace at the elementary level, but at the secondary level, report cards look pretty much as they did when the Committee of Ten convened in 1892 to consider high school reform" (p. 68). Tierney et al. (2011) reasoned by the end of the 20th century, concern about grading was enhanced by indifference between teachers' practices and measurement theory. Statistically, O'Conner (2009) confirmed this concern when he reported the results of one survey:

> The most recent comprehensive survey on high school grading policies published in 1998 by the College Board found a large majority of schools use a traditional grading system A-F or numeric grades (91 %), use the same grading system for all academic courses (92.2%), report GPA (90.1%), and calculate a high school class rank (81.3%). (p. 1)

Twenty-five years ago in 1983, "the landmark U.S. Department of Education report (2008), *A Nation at Risk*, revealed about 13 percent of 17-year-olds were functionally

illiterate, SAT scores were dropping, and students needed an increased array of remedial courses in college" (p. 1). This led to policy debates on how to raise expectations for both student and teacher performance, thereby emphasizing the need to monitor student achievement in a systematic way (Wixson, Dutro, & Athan, 2003).

State and district responses to this policy environment included raising graduation rates, offering more advanced courses, new textbook adoption, or other curricular changes intended to improve the quality of instruction (Hamilton et al., 2008). Also, as a result of this study, "State and local academic standards and standards-based testing began in the 1980s and 1990s, and federal legislation required that states receiving federal aid for education have such academic standards and tests in certain grades" (USDOE, 2008, p. 3). However, there was much variability in standards across states, which could have been alleviated by national standards, but the political climate of the 1990s jettisoned attempts at their implementation (Rothman, 2012).

In response to federal legislation, "by the early 2000s, every state in the U.S. had adopted a system of standards and assessments and was using this system as an accountability mechanism to promote school improvement… much of which can be attributed directly to NCLB" (Hamilton et al., 2008, p. 29). As states began adopting standards and assessments mandated by NCLB, a unified effort began to develop common standards across state lines:

> In June 2010, the National Governors Association and the Council of Chief State School Officers released the Common Core State Standards (CCSS) for grades K-12 in English language arts and mathematics. The state-led initiative to develop these standards grew out of concerns that the current array of different standards

> in every state is not adequately preparing students in our highly mobile society with the knowledge and skills needed to compete globally. (Kober & Rentner, 2011, p. 2)

By the end of 2012, all but a few states adopted the CCSS for implementation or additions to state teaching standards (Doorey, 2013).

The CCSS have not been without controversy. In February of 2014, Indiana became the first state to repeal the standards and "similar bills were introduced in Alabama, Ohio, Oklahoma, Kentucky, and South Carolina" (DeNisco, 2014, p. 22). In the spring of 2014, Oklahoma and South Carolina joined Indiana, when "governors of Oklahoma and South Carolina signed legislation requiring their states to adopt new standards replacing the common core, and legislators in North Carolina advanced bills to require that state to revise its already-adopted standards" (Ujifusa, 2014, p. 24).

On July 14, 2014, Missouri Governor Jay Nixon signed into law House Bill 1490, which requires the State Board of Education to oversee the selection of work groups to revise state learning standards by the 2016-2017 school year (Elementary & Secondary Education Standards, 2014). In Maine, concerned at losing local control, "The Maine Equal Rights Center and No Common Core Maine are planning to submit a ballot measure proposal to the state to repeal the standards" (Durkin, 2013, p. 11). As many states grapple with opinions from professional organizations, parents, and legislators about the CCSS, the main point is to prepare students for a globalized society.

The Problem with Traditional Grading

In a traditional grading system, students acquire points for various activities, assignments, and behaviors, which accrue throughout a grading period. The teacher adds

the points and assigns a letter grade (Marzano & Heflebower, 2011). Enormous differences exist in the criteria used by teachers when assigning grades (Guskey et al., 2011). According to O'Connor (2009), "Most teachers have combined achievement with behavior to varying extents in determining grades because they believe it demonstrates what they value and will motivate students to exhibit those behaviors" (p. 3).

Comparatively, Gordon and Fay (2010) identified two distribution rules teachers rely on when awarding grades: "meritocratic rules distribute grades on academic achievement, whereas particularistic rules evaluate students on the basis of individual characteristics or personal circumstances" (p. 94). Reeves (2011) expressed even those who disagree about grading practices can agree, "students who do the same quality of work should receive the same grades" (p. 76). Creating fair and accurate grading cannot be achieved in a "grading system in which the same quality of work receives an A to F, depending on the idiosyncratic grading policy of the teacher" (Reeves, 2011, p. 76).

Neither the weight of scholarship nor common sense seems to have influenced grading policies in many schools. Practices vary greatly among teachers in the same school, and even worse, the practices best supported by research are rarely in evidence (Reeves, 2008). It can be quite alarming (and eye-opening) to see exactly how many of the grades students receive are based on their behaviors rather than their learning (Fleenor, Lamb, Anton, Stinson, & Donen, 2011). Likewise, Brookhart's (2011a) findings concurred with this analysis, "Besides achievement, teachers often consider students' ability, effort, and behavior in their grading decisions" (p. 6).

Moreover, Campbell (2012) agreed the inclusion of "missed class, attitude, behavior and undone homework into the final grade...provide for the acquisition-or lack

of acquisition-of the course content" (p. 31). According to Marzano and Heflebower (2011):

> A student might have received an overall or "omnibus" letter grade of *B*, not because he had a solid grasp of the target content, but because he was exceptionally well behaved in class, participated in all discussions, and turned in all assignments on time. Likewise, a student may have received a percentage score of 62.9, not because she displayed significant gaps in understanding regarding the target content, but because she received a zero for tardiness on assignments or for disruptive behavior. (p. 34)

Reeves (2011) concurred with this analysis asserting nothing is wrong with the current grading system except two students can receive the same grade, one because of good attitude and conduct, but lacking skill and knowledge, while the second has a poor attitude and conduct, but possesses excellent skill and knowledge of the subject matter.

In a 2006 survey of teachers at Minnetonka, Minnesota Schools, Erickson (2010) asked teachers to list all of the reasons why a student might earn a B- in a course. Teachers gave more than 10 different reasons a student would receive the grade, including turning in an essay late and completing an extra credit assignment that moved a low grade up just enough for the student to eke out a B- (Erickson, 2010). Similarly, in conversations with teachers about grading, Brookhart (2011b) discovered the following, "They can't get an *A* if they don't do the homework. If you only do half the work on your job, you get fired. Everything students do counts in my classroom" (p. 10).

Grading practices are grounded in tradition and not on researched best practice (Jung & Guskey, 2011). Average scores are determined using achievement indicators,

behavior, and progress, which are combined into a single grade, despite evidence this grading practice has detrimental consequences (Jung & Guskey, 2011). Grade averaging can be skewed by one or two poor performances and, if the poor performances occur early in the marking term, can significantly impact student improvement or mastery when it comes to the final grade (Carey & Carifio, 2011). Consequently, "Averaging is just one of many common but questionable practices that can significantly distort the accuracy of grading" (Erickson, 2011, p. 66).

In an analysis of his own grading practices, Winger (2009) realized grades were being inflated due to the completion of assignments, meeting deadlines, and following through with responsibilities. Erickson's (2011) survey of teachers at Minnetonka High School in Minnetonka, Minnesota, revealed, "attendance, behavior, effort, extra credit, and participation were all in the mix along with actual achievement of curriculum standards" (p. 66) when determining grades. Similarly, "Studies of conventional teacher grading practices done with samples of U.S. teachers consistently find that teachers add non-achievement factors into grades and produce unreliable, potentially un-interpretable grades" (Brookhart, 2011a, p. 6). Furthermore, as Guskey (2013) noted, "Percentage grades typically set the minimum passing grade at 60 or 65…in other words, nearly two-thirds of the percentage grading scale describes levels of failure" (p. 70).

Sarte and Hughes (2010) conducted an action research study and discovered grades decrease motivation because of the constant reminder of the rewards or punishments each will receive for an assignment or test. The implications for educators, according to Sarte and Hughes (2010), is to deemphasize tests and grades to alleviate stress among students, realize grades externally motivate students and hinder learning, to

recognize that competition for grades may be a poor substitute for self-motivated learning, and to understand utilization of students self-interests can support learning. Similarly, Kohn (2011) found, “Grades tend to diminish students’ interests in learning, create a preference for the easiest possible task, and tend to reduce the quality of students’ thinking” (p. 29).

Likewise, Reeves (2011) asserted, “When the inappropriate use of the average in a grading system leads to student despair in the last two months of the semester, discipline problems tend to increase,… diverting time and attention from effective instruction” (p. 79). Moreover, in a survey of approximately 1,000 students in a suburban secondary school, Sarte and Hughes (2010) found four key ideas about grades and intrinsic motivation from students’ perspective: “Tests and grades cause significant stress for students, some students are more concerned with learning while others thrive on the competition created by comparing grades, students enjoy learning new ideas, and thoughtful planning can increase students interest and motivation” (p. 6).

According to Gordon and Fay (2010), “Although a great deal is known about the consequences of grading fairness, little is known about the specific teaching and grading practices that engender these perceptions” (p. 93). Guskey and Bailey (2010) noted, “Few educators have any formal training in grading and reporting” (p. 4). Thus, “rarely has grading been part of preservice or inservice training for teachers. Grading can be idiosyncratic, private, and based largely on how a teacher experienced grading as a student or a young professional” (O’Conner, 2009, p. 1).

Similarly, Scherer (2011) maintained, “Some believe in grading on effort and punctuality and on using grades to foster both a work ethic and academic learning.

Others believe that grades should reflect only where students are in relation to mastering specific content or skills" (p. 7). Consequently, in the wake of NCLB, traditional grading has given way to standards-based grading and reform across the United States (Hamilton et al., 2008). The problem with using a 100 point scale, according to O'Connor and Wormeli (2011), is the scale is "ill-suited to measuring and reporting performance against specific standards" (p. 40). Moreover, "Grades don't seem to accurately account for what students know and are able to do, and the inconsistency across schools, classrooms, and even within one academic department can lead to gross inequities for students" (Campbell, 2012, p. 30).

Traditional grades can be an unreliable source for learning the standards. Iacus and Porro (2011) described the phenomenon of grade inflation when "students put pressure on teachers to get good marks with low effort, and teachers have an incentive to assign good marks to low achievement to improve their quality signal" (p. 140). Quality signal is defined as a teacher's effectiveness, according to the school managing authorities (Iacus & Porro, 2011). The consequences for grade inflation are "grades can no longer be assumed as indicators of performance and their potential role in sorting more able and less able students in their actual achievement" (Iacus & Porro, 2011, p. 140). Accordingly, "if nourishing students' desire to learn is a primary goal for us, then grading by its nature is problematic" (Kohn, 2011, p. 30).

Miller (2013) stated, "When the goal is mastery of standards, it doesn't matter that students might not complete exactly the same number of assignments…because the focus is on what the student is learning rather than how much the student is doing" (p. 112). A traditional 100-point grading scale which averages grades can devastate a

student's grade with a single zero (Guskey, 2013). Additionally, "The resurgence of percentage grades appears to come mainly from the increased use of technology…not from the desire of educators for alternative grading scales or from research about better grading practice" (Guskey, 2013, p. 69).

Federal and State Mandates

Federal and state mandates drive standards and assessments for schools. The requirement for standards and aligned assessments has been a feature of federal legislation since the Improving America's Schools Act (IASA) of 1994, and was the centerpiece of the NCLB Act of 2001 (Hamilton et al., 2008). Congress reauthorized the Elementary and Secondary Education Act (ESEA) of 1965 with the passage of NCLB, the principal federal law affecting education from kindergarten through high school (USDOE, 2004).

The Bush Administration enacted bipartisan support of NCLB as a response to existing concerns of the dismal state of education (Goldstein & Beutel, 2009). Conditionally, "As part of the accountability provisions set forth in the law, *No Child Left Behind* set the goal of having every child make the grade on state-defined education standards by the end of the 2013-14 school year" (USDOE, 2004, p. 1). To reach that goal, every state developed benchmarks to measure progress and make sure every child was learning.

The benchmarks outlined by NCLB required annual testing in grades three through eight in mathematics and reading and at least once during high school (Brookhart, 2011a). At least one additional academic indicator was to be included; graduation rate for high schools, and for elementary and middle schools, states often

chose attendance rates (Riddle & Kober, 2012). The law also required states to administer the National Assessment of Educational Progress (NAEP), the federal testing program (Rotham, 2012).

NCLB also required state and local school districts to publish annual report cards which included: assessment results, accountability information comparing achievement goals and actual performance, the percentage of students not tested, graduation rates, teacher qualifications, and if Adequate Yearly Progress (AYP) was met (USDOE, 2004). Each of these categories had a standard that must be met. The standards were a progression which increased yearly until all students were proficient in reading and math by the year 2013-2014 (USDOE, 2004).

Schools receiving federal funds and failing to make AYP for two consecutive years or more were identified for improvement and faced stringent penalties if AYP continued to not be met in subsequent years (Riddle & Kober, 2012). Goldstein and Beutel (2009) believed this legislation properly identified there was a problem in educating children and adolescents; however, it improperly blamed teachers and teaching practices for this injustice. As a result, Goldstein and Beutel (2009) maintained the responsibility to eliminate the injustice caused by inferior teaching was the responsibility of the federal government and the American people.

During the past decade, districts throughout the country developed curriculum to meet AYP under NCLB. However, in "September 2011, the Obama Administration initiated a program to grant states waivers of several significant requirements of the Elementary and Secondary Education Act (ESEA), as amended by the No Child Left Behind Act (NCLB)" (Riddle & Kober, 2012, p. 1). The waiver offered states the

flexibility to retreat from several of the accountability requirements and offered states the opportunity to design new accountability systems integrating the CCSS (Kober & Riddle, 2012). Additionally, "to receive NCLB waivers, states had to apply to the U.S. Department of Education (ED) and meet various requirements not currently in federal law" (Riddle & Kober, 2012, p. 2). By the end of 2012, a total of 46 states, the District of Columbia, and the Department of Defense had adopted the CCSS (Rothman, 2012).

According to Doorey (2012), "The Common Core State Standards Initiative began in 2009, a collaborative effort among nearly all of the U.S. states and territories, the National Governors Association, and the Council of Chief State School Officers" (p. 29). The standards make clear the "knowledge and skills all students are expected to acquire in order to be prepared for college and careers by the time they graduate from high school" (Rothman, 2012, p. 57). In addition, "Supporters of the common standards say the standards encourage focus on only the most important topics at each grade level and subject, thus allowing teachers to build those skills" (Sawchuck, 2012, p. 18).

In discussing the shift education has taken the last few years, Alberti (2012) wrote:

> Who would have thought just three years ago that education would be in the position that it is in today—that 46 states, three U.S. territories, and the District of Columbia would have voluntarily agreed to share a set of standards for English language arts and literacy and mathematics? (p. 24)

This shift to common standards on a national scale was swift, and states were virtually unanimous in the adoption of the standards. Furthermore, "The rise of globalization also

made it clear that higher standards were needed and that boundaries between states were becoming less important" (Rothman, 2012, p. 59).

The CCSS does not call for or support a national curriculum, but were designed to identify the essential skills and knowledge students need (Doorey, 2012). In fact, "By setting common expectations, then, states have made it possible for students everywhere to graduate from high school prepared for postsecondary education" (Rothman, 2012, pp. 57-58). As Alberti (2012) noted, "The Common Core State Standards are built on the best of the state standards and learning expectations that preceded them" (p. 27). The standards identify "the cognitive processes and learning strategies students need in order to acquire and retain curriculum content" (Rust, 2012, p. 32).

In response to the CCSS, " [The] U.S. Department of Education launched the Race to the Top Assessment Program, allocating $362 million to support the development of new assessment systems and a range of related supports" (Doorey, 2012, p. 30). Two consortia were contracted to develop the assessments (Doorey, 2012). Herman and Linn (2014) summarized the progress of the Partnership for Assessment of Readiness for College and Career (PARCC) and the Smarter Balanced Assessment consortia: "The consortia are clearly after higher-order thinking skills, but unlike in days past, those skills are not divorced from content. Instead, the new standards and the consortia assessments of those standards fully integrate content with higher-order thinking" (p. 36). Similarly, Doorey (2012) specified, "The assessments will require students to comprehend and analyze texts across all content areas that are at a higher level of complexity than those that many districts now use" (p. 30).

Missouri was one of the states to be granted a waiver, which was approved on June 29, 2012 (MODESE, 2012c). Missouri Commissioner of Education Chris L. Nicastro stated:

> While this is the culmination of the application process, the real effort is just beginning. Our goal is to ensure that all students graduate from high school college- and career-ready and for Missouri to become one of the top 10 states in education by the year 2020. (MODESE, 2012c, p. 1)

In order to achieve the goal of top 10 by 20, the MODESE (2012a) adopted an aggressive plan outlined by the following four goals:

1. All Missouri students will graduate college and career ready.
2. All Missouri children will enter kindergarten prepared to be successful in school.
3. Missouri will prepare, develop, and support effective educators.
4. The Missouri Department of Elementary and Secondary Education will improve departmental efficiency and operational effectiveness. (p. 4)

The impact of the CCSS for all states that adopted the standards and Missouri's goal to reach the Top 10 by 20 has required systematic change. Wilhoit (2012) advised states take a systems approach to the standards and adherence to two concepts: "having an effect at scale and understanding that the effort ahead is a systems issue" (p. 47). According to the MODESE's (2012a) Education Reform Plan Summary:

> The Department must provide models and strategies for school districts and charter schools to use in improving instruction and ensuring high performance. Most of these strategies do not require additional resources but a different

> approach in the classroom, the school building, the district office or the state department of education; some strategies require additional resources. (p. 3)

This effort requires a partnership between the state department of education, local school districts, and individual schools within the larger school districts.

Standardized Grading and Assessment

The idea of educational standards took off in the late 1980s with the belief "student learning would improve if states spelled out specifically what all students should know and be able to do and lined up all aspects of the education system—teacher preparation, curriculum, testing—to those expectations" (Rothman, 2012, p. 58). In discussing the term, *standards-based reform*, Hamilton et al. (2008) specified, "Since the 1990s, the term 'standards-based reform' (SBR) has been used extensively in discussions of educational policy" (p. 11). Similarly, Zigmond and Kloo (2009) divulged, "Standards-based reform is not new; it emerged in the early-to-middle 1990s as a primary vehicle focusing schools on achievement and on setting high expectations for teachers and students" (p. 478).

Hamilton et al. (2008) explained most states have standards which address areas far beyond the requirements of NCLB, including social studies and the arts. Indeed, "Nearly all states today have standards for student learning that describe what students should learn and be able to do" (Guskey et al., 2011, p. 53). Standardized assessment was typically the drive behind instruction, and annual testing under NCLB required assessments to be aligned to state standards (NCLB, 2011). Once aligned, "Standards-based accountability operates through a multilevel, multistep feedback mechanism. Content and performance standards that describe what students should know and should

be able to do establish goals for the education system" (Zigmond & Kloo, 2009, p. 479). Zigmond and Kloo (2009), maintained, "The standards also guide the development of system-wide student assessments, and student test scores on these assessments are used as an indicator of school success" (p. 479).

Hamilton et al. (2008) identified six features of which some or all are included in standards-based reform:

- Academic expectations for students.
- Alignment of the key elements of the educational system to promote attainment of these expectations.
- The use of assessments of student achievement to measure outcomes.
- Decentralization of responsibility for decisions relating to curriculum and instruction to schools.
- State and district support and technical assistance to foster improvement of educational services.
- Accountability provisions that reward or sanction schools or students on the basis of measured performance. (p. 11)

O'Connor and Wormeli (2011) surmised, "A pure standards-based system would have only two levels of performance—proficient or not proficient. However, at most grade levels we may want to identify additional levels…which would result in a four-level system" (p. 42).

Guskey and Bailey (2010) asserted there are three reasons for changing how grades are reported. First, the assignment of grades and how grades are reported are disgracefully inadequate (Guskey & Bailey, 2010). Second, report cards are not aligned

with current education reforms (Guskey & Bailey, 2010). Third, report card development often leads to a critical examination of standards, instructional goals, and assessments (Guskey & Bailey, 2010).

Subsequently, there is much difficulty in the development of a standards-based grade card. According to Colby (1999):

> Before developing a standards-based grading system, educators must ask three questions: (a) Do the standards embody the skills and knowledge that we would like our students to have? (b) Are teachers consistently using standards to guide classroom instruction? and (c) Are assessments purposefully aligned with standards and instruction? (p. 52)

Guskey and Bailey (2010) also considered different groups want different things:

- Parents want a report card that offers more precise information about how their children are doing in school, but want that information to be understandable and useful.
- Teachers want a report card that matches recent changes in their curricula and classroom assessments, but did not want a form that requires a lot of extra time and effort to complete.
- Administrators want more consistency in grading, but fear imposing changes that will add to teachers' workload or infringe on teachers' academic freedom.
- All these groups want a report card that is meaningful to students and facilitates learning, but few know precisely how that can be achieved. (pp. 1-2)

Therefore, according to O'Connor (2009), "It is essential to be clear about the primary purpose of grades, which is to communicate students' achievement of learning goals" (p. 2).

Sadler (2009) concurred, "Grades form a concise method of conveying levels of academic achievement and expressing them in a common currency" (p. 810). When developing standards-based grade cards, O'Connor and Wormeli (2011) referred to advanced placement's use of five levels and the International Baccalaureate's seven levels, which are regarded as "the most highly regarded high school programs in the world" (p. 42) as the basis for the development of a standards-based grade card. Moreover, "in standards-based systems, teachers should move from an assessment methods-based system to a standards-based system where the categories in the gradebook are not tests, projects, and assignments" (O'Connor, 2009, p. 4). Instead, for example, gradebooks could be organized around each student's understanding of the standards on a four-point scale (Townsley, 2014).

Clear standards are of benefit to students' understanding of what is expected. As a result, according to Sadler (2009):

> The standards exist in advance of the students' beginning work in response to assessment tasks. As students are inducted into their nature and use, the standards become accessible to them to guide their responses to assessment tasks. The award of a grade is performed by comparing the quality of a student work directly with the relevant quality-oriented standards, and classifying accordingly. (p. 820)

Likewise, Armstrong, Chan, Malfroy, and Thomson (2008) agreed a standards-and criteria-based approach clarifies the assessment task for students and the basis on which work will be evaluated.

O'Connor (2010) explained as knowledge of assessment has evolved, educators have begun to comprehend the difference between assessment of learning (summative assessment) and assessment for learning (formative assessment). O'Connor (2010) continued, affirming summative assessments provide the criteria for determining grades and formative assessments provide feedback to students for learning. In other words, the purpose of grading is to assess learning. Similarly, "The new standards-based report cards list standards and are typically graded with performance categories like advanced, proficient, basic, and below basic" (Brookhart, 2011a, p. 12).

Tierney et al. (2011) developed four essential principles for grading in a standards-based system:

- When the purpose of grading is to report on student achievement, grades should be referenced to the curriculum objectives or learning expectations (criterion referenced).
- A grade should be an accurate representation of achievement, so non-achievement factors should be reported separately to permit valid interpretation by stakeholders.
- Results from multiple assessments should be combined carefully, with weighting that reflects the learning expectations, to ensure that the grade accurately summarizes achievement.

- Information about grading should be clearly communicated so that grades are justified and their meaning is understood by students, parents, and other teachers. (p. 212)

Opposition to Standards-Based Grading

Jung and Guskey (2011) maintained grading and how grades are reported has essentially remained unchanged despite research supporting grade reform. Consequently, Vatterot (2011) discovered teachers in opposition to a standards-based approach cite three reasons to continue grading homework despite the negative correlation between grading homework and achievement: "First, if I don't grade it, they won't do it; second, hard work should be rewarded; and third, homework grades help students who test poorly" (p. 61). Additionally, according to Kohn (2011), standards-based grades can be cause for concern because the standards may be too specific, artificial, and inappropriate for the age in which the standards are being used. Moreover, Spencer (2012) added critics of standards-based grading believe the time and math required can be an immense obstacle in the implementation of standards-based grading.

Teachers are not alone in wanting to hold on to traditional grading practices, but many parents and students also want to hold on to traditional grading. In analyzing grading practices, Winger (2009) discovered parents want to know which missing assignments can be completed for a grade; realizing grades are more about effort rather than learning. In their study of grading and learning, Sarte and Hughes (2010) asserted students will base effort on their current grade, discovering the time and effort students put into learning is minimal when meeting or exceeding expectations and just enough effort is exerted to pass when students are failing to meet expectations. Spencer (2012)

observed the lack of motivation by students to study for exams when they know there will be additional opportunities for retakes as defined by standards-based grading systems. The difficulty in changing grading practices is because of the tradition of grades. Students and parents expect to grades to be given for work and assessments completed in school (Sarte & Hughes, 2010). Likewise, according to Guskey and Bailey (2010):

> Occasionally parents express skepticism about standards-based report cards. They believe that a traditional letter grade or percentage grade for each subject area on the report card works just fine, and they see no reason to change. Parents also understand letter grades, or at least believe that they do, because letter grades were used when they were in school. In addition, since most colleges and universities use letter grades and will probably continue to do so, parents want their children to become accustomed to letter grade systems so that they can successfully navigate within such systems when they reach that level. (p. 6)

Many teachers continue to use multiple measures for determining grades. For instance, "Teachers frequently merge scores from major exams, compositions, quizzes, projects, and reports with evidence from homework, punctuality in turning in assignments, class participation, work habits, and effort" (Guskey & Jung, 2012, p. 24). Campbell (2012) identified three reasons some teachers continue to support traditional grading practices: "First, defenders claim that students need to have consequences for failing to turn work in on time; second, behavior, attitude, missed class, and undone homework should be averaged into the final grade; third, every grade should be averaged

into the semester grade" (p. 31). Students have also identified grades as being one of the principle reasons for studying and completing assignments (Sarte & Hughes, 2010). As Sadler (2009) explained, "Incorporating ineligible components is now so thoroughly part of the assessment culture in many institutions that it is perceived by both teachers and students as normal and unproblematic" (p. 813).

Iacus and Porro (2011) found teachers' use of grades go beyond what students know, but are also used to reward improvement, promote effort, or punish apathy. Sadler (2009) added, "Grades can have a profound and positive impact on a students' sense of achievement, acting as goals that provide motivation to engage productively with, go deeper into, or push beyond course material" (p. 810). Likewise, teachers fear the lack of sufficient consequences for turning in late work, which is a hallmark of standards-based grading, will undermine the responsibility all schools seek to instill in students (Guskey, 2011).

Benefits of Standards-Based Grading

The conversation on the benefits of standards-based grading must begin with the purpose of assigning grades. Guskey and Bailey (2010) asserted most everyone agrees report cards are in need of improvement and student learning should be the basis for grades, but rarely can agreement be reached on what report cards should contain or how they should be constructed. O'Connor (2009) specified, "It is essential to be clear of the primary purpose of grades, which is to communicate students' achievement of learning goals" (p. 2). Guskey (2011) agreed the basis of grades must have significance and be based on clear learning criteria, and therefore, will have clear meaning and communicate what is meant to be communicated.

Iacus and Porro (2011) believed achievement can improve if higher standards are used in grading. Reeves (2011) concurred schools that improve grading guidelines improve curriculum, instruction, assessment, and leadership, but schools that preserve toxic grading guidelines undercut their best work. According to Sadler (2009), grades must have intrinsic value and should represent what is intended. Similarly, Erickson (2011) stated, "Grades should reflect only what a student knows and is able to do" (p. 66). Grades, according to O'Connor (2010), have traditionally been a combination of behaviors and achievement; and therefore, it has been difficult to decide what a grade represents. O'Connor (2010) maintained, if the purpose of grades is to determine learning goals have been met, then it is imperative grades should reflect only measures of achievement and not penalties such as handing in work past a deadline.

Similarly, O'Connor and Wormeli (2011) supported the separation of nonacademic and academic factors on report cards with separate scores for each standard which, therefore, provide evidence of mastery over time. Many educators around the world have recognized combining nonacademic and academic factors distorts grades and assign multiple grades, which "provides the foundation for standards-based approaches to grading" (Guskey, 2011, p. 19). As a result, a standards-based report card "provides parents with a clearer and more detailed picture of their child's academic performance in school along with information on other important school-related activities" (Guskey & Bailey, 2010, p. 6).

The state of Kentucky began a standards-based grading initiative by bringing together educators from three school districts and researchers with expertise in grading and reporting practices for a three-day workshop (Guskey et al., 2011). From this

initiative, Guskey et al. (2011) found that teacher grading bias supported the implementation of a standards-based grading model:

> First, they require teachers to base grades on explicit criteria derived from the articulated learning standards. To assign grades, teachers must analyze the meaning of each standard and decide what evidence best reflects achievement of that specific standard. Second, they compel teachers to distinguish product, process, and progress criteria in assigning grades. (p. 53)

Likewise, the Oregon Department of Education (2010) identified five reasons for the development of standards-based education:

- What to teach-standards serve as beginning points about what to teach.
- Increased achievement-standards focus on essential concepts, knowledge, skills, and behaviors for success in the 21st century.
- Meeting the needs of low achieving students-standards can be used to prevent school failure and dropouts.
- Increased accountability-standards can become the basis for teaching and testing.
- Increased state and federal responsibility-standards have the states take a much more prominent role in educational affairs. (p. 1)

Brookhart (2011b), discussing the dialogue teachers must begin as schools move towards standards-based grading, stipulated, “Standards-based grading is based on the principle that grades should convey how well students have achieved standards. In other words, grades are not about what students earn; they are about what students learn” (p. 12). Shippy et al. (2013) agreed, “When students are assessed against competencies, they

can see their progress over each concept as a unit, semester, or year progresses" (p. 15). Likewise, Hamilton et al. (2008) specified the primary intention of standards is providing teachers and students with expectations of what is to be learned, linking the standards to assessments, and providing students with information about the attainment of those expectations. Winger (2009) concurred the purpose of standards-based grading is to provide meaning to grades and for grades to be representative of curriculum standards.

Faced with a 55% failure rate in Algebra I, the staff at Health Sciences High and Middle College (HSHMC) decided grades should reflect student understanding and would be determined entirely by evidence of students' comprehension as measured on performance assessments (Fisher, Frey, & Pumpian, 2011). Practice work at the HSHMC does not count towards students grades (Fisher et al., 2011). Since the HSHMC went to a standards-based grading system, "Homework completion exceeds 90 percent and grade point averages increased from 2.089 to 3.36" (Fisher et al., 2011, p. 50).

Brookhart (2011a) deemed, "Teachers are beginning to see the inconsistencies between conventional grading practices and the student learning for which they are accountable" (p. 12). However, Sarte and Hughes (2010) contended, "the education system is supposed to value learning, yet we hold students and teachers accountable based on percentages and test scores as if they reliably and accurately measure learning" (p. 8). Likewise, Wormeli (2011) specified the goal of a curriculum is for all students to reach proficiency and not for each student to reach proficiency at the same time. Rundquist (2011) concurred the purpose of standards-based grading is to give a grade which represents learning and has the flexibility to allow for students who need extra time for learning. Wormeli (2011) agreed, "It makes sense to grade students according

their performance on standards, not the routes they take to achieve those standards" (p. 26).

According to Jung and Guskey (2011), standards-based grading remedies inconsistencies by having teachers distinguish between process grades, which focus on what students need to learn to reach the achievement goal; product grades, which assesses what students actually learned; and progress grades, which determines the progress of learning. Shippy et al. (2013) agreed, "When a clear set of standards is identified, teachers can develop formal and informal assessments to gauge student learning along with creating intervention strategies to help struggling students" (p. 14). Spencer (2012) affirmed the purpose of a standard-based grade card is to report a grade for each subject and to report the level of mastery of several standards in each class.

Summary

Teaching and learning standards have been included in the education of students for many years. Standards-based report cards have long been part of the grading at the elementary level, but secondary grade cards have been virtually unchanged for over 100 years (Cox, 2011). The passage of NCLB in 2001 and the adoption of the CCSS by almost all states in recent years have brought teaching to standards to the forefront of education reform. While literature addresses the need for standards-based grading and supports the negative influence traditional grading has on student performance, little has changed in terms of how grades are figured. Additionally, since only limited numbers of school districts have adopted standards-based grading at the secondary level, there is little research as to the effectiveness standards-based grading has on student achievement. It is

clear more research is needed to either support or negate the effectiveness of standards-based grading.

An overview of the methodology was included in Chapter Three, along with the research questions and research design for this study. Descriptive information about the population and sample and the instrumentation to gather data was offered. Data collection and data analysis procedures were described. Ethical considerations for this study were also presented.

Chapter Three: Methodology

The goal of the No Child Left Behind (NCLB) law was to have every child make the grade on state-defined education standards by the end of the 2013-2014 school year (USDOE, 2004). The law required testing for each student throughout elementary and high school, and students had to achieve at specified performance levels each year to meet the requirements set forth by NCLB (2011). In 2011, the "Obama Administration invited states to apply for waivers of key requirements of the Elementary and Secondary Education Act (ESEA) as amended by NCLB" (Kober & Riddle, 2012, p. 2). Consequently, "this initiative is a state-led effort coordinated by the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO)" (MODESE, 2012b, para. 1). Despite the NCLB waiver and the CCSS, "the classroom teacher's quandary is how to evaluate, record, and communicate student progress in as standards-based system" (Colby, 1999, p. 52).

The intent of this study was to examine the effect of standards-based grading on student achievement and the perceptions of students and teachers of standards-based grading. The significance of studying standards-based grading was to provide educators with the research necessary to make informed decisions when considering the transition to standards-based grading. Included in Chapter Three are the problem and purpose, research design, population and sample, the instrumentation used, and how data were collected and analyzed. A mixed-method design was used in this study.

Problem and Purpose Overview

In order to meet state and federal mandates, along with CCSS instructional practices, student assessment must be aligned to the standards students are required to

learn. Current grading practices have not met these mandates, and changes must be implemented. Marzano (2010) listed four challenges with current grading practices:

1. Factors other than academic achievement are considered when assigning grades (attendance, behavior, organization, effort).
2. Assessments are weighted differently.
3. Single scores are misrepresented on classroom assignments.
4. Students are compared against each other instead of against standards. (para. 2)

However, Guskey and Bailey (2010) asserted, "Today we know more than ever before the about effective grading and reporting practices" (p. 5).

The purpose of this study was to examine high school students' and teachers' perceptions of standards-based grading and to determine if a difference exists between the standardized test scores of students receiving standards-based grading and those receiving traditional grading.

Research questions and hypotheses. The following research questions and hypotheses guided this study:

1. What process was used in the implementation of standards-based grading in one southwest Missouri high school?
2. What are high school teachers' perceptions towards standards-based grading?
3. What are high school students' perceptions towards standards-based grading?
4. What is the difference between the MAP Index (MPI) scores and mean scores of students in one rural high school utilizing standards-based grading and the MAP Index and mean scores for students in Missouri?

$H1_0$: There is no significant difference between student achievement on standardized tests for students receiving standards-based grades and students receiving traditional grades.

$H1_a$: There is a significant difference between student achievement on standardized tests for students receiving standards-based grades and students receiving traditional grades.

Research Design

This research was conducted using a mixed-methods design employing both quantitative and qualitative research. Guest et al. (2013) asserted, "The basic premise behind using a mixed-methods research design is that the combination of both approaches provides a better understanding of a research problem than either approach could alone" (p. 16). Turner (2010) agreed qualitative design coupled with additional forms of data can provide more well-rounded information for analysis. Qualitative data were obtained to determine high school students and teachers attitudes towards standards-based grading, and quantitative data were gathered to determine if a difference exists between the standardized scores of students receiving standards-based grading as compared to those receiving traditional grading. Standardized assessments analyzed included End-of Course (EOC) scores obtained from the MODESE website for Wildcat High School and for all Missouri students. Triangulation was achieved through the examination of school artifacts, student and teacher perceptions, and student achievement data.

Case study. A case study design was used for this research study. Crowe et al. (2011) defined case study as "A research approach that is used to generate an in-depth, multi-faceted understanding of a complex issue in its real-life context" (p. 1). According

to Harding (2013), “Case study research designs can be qualitative or quantitative or take a mixed-methods or critical approach” (p. 16). Since the design of this case study was a single-case, the findings may lack generalization (Crowe et al., 2011). Furthermore, this was an exploratory case study. Hesse-Biber and Leavy (2010) explained, “The exploratory design’s overall intent is based on the need to initially explore a topic qualitatively before an adequate quantitative examination of the topic can be undertaken” (p. 377).

Population and Sample

The population for this study was one rural high school in southwest Missouri. As shown in Table 1, the school had 612 students, and the ethnicity rate was 87.7% Caucasian, 8.5% Hispanic, 1.0% African American, and 1.0% Indian (MODESE, 2013b). The school had 51.2% of the students qualifying for free and reduced price meals (MODESE, 2013b).

Table 1

Demographic Data for Wildcat High School

[a]Total Population	Caucasian	Hispanic	African American	Indian	Free and Reduced Price Meals
612	87.7%	8.50%	1.0%	1.0%	51.2%

Note. [a]Based on total population.

The high school has used standards-based grading in its social studies curriculum since the 2009-2010 school year. The school implemented standards-based grading in all curricular areas beginning with the 2012-2013 school year. The total population of the

high school was considered to obtain a random sampling of 12 students. All teachers in the high school who have used both standards-based grading and traditional grading were included in the sample.

Students were chosen using the stratified sampling method, which Bluman (2012) defined as a "sample obtained by dividing the population into subgroups, called strata, according to various homogenous characteristics and then selecting members from each stratum for the sample" (p. 726). The strata were determined by grade level, with each grade level (9-12) representing one strata. Random sampling techniques were utilized to choose students to be interviewed. Random sampling, defined by Bluman (2012), requires "every member of a population must have an equal chance of being selected" (p. 721).

A total of 12 randomly selected students were interviewed. Teachers were randomly chosen from each academic discipline. Two teachers from each discipline were interviewed for a total of eight teacher interviews.

Instrumentation

The instrumentation used in this study were interview questions to identify teacher (see Appendix A) and student perceptions (see Appendix B) of possible barriers and advantages to standards-based grading. Interview questions were developed by the researcher and field-tested prior to implementation of the study. According to Turner (2010), a pilot test will assist the researcher in the refinement of questions, weaknesses, and flaws within the interview design. The field test included a combination of teachers and administrators from one Missouri high school which previously implemented standards-based grading. The interview questions were sent to the educators utilizing

electronic mail (email) with the intent to make revisions based upon feedback. However, feedback obtained from the field test required no additional revisions to the interview questions included in the study.

Consent to participate forms were signed by the superintendent, teachers, and the parents of students involved in the study. Request to participate in the study was through email to the superintendent, building principal, and teachers. Student participation was requested through school email, if available, or through a written request to students. Student informed consent to participate was also accompanied by a letter to parents asking for permission for their child to participate in the study.

Interviews. A standardized, open-ended interview format was utilized for this study. Questions asked in an open-ended format are always identical, but allow for "participants to contribute as much detailed information as they desire and it also allows the researcher to ask probing questions as a means of follow-up" (Turner, 2010, p. 756). Recommendations for conducting interviews from Guest, Namey, and Mitchell (2013) were followed to clarify the intent of each question.

Secondary database. Quantitative data were obtained utilizing secondary data obtained from the MODESE website. Anderson, Prause, and Silver (2011) stated "Secondary data (SD) can provide a unique methodological tool with which to examine psychological issues and can serve as a valuable contribution to a program of research" (p. 56). Assessment scores from the MAP were analyzed longitudinally from 2009 through 2014 of all students assessed to examine standards-based grading and student achievement. Specific student EOC assessment scores collected and analyzed were as indicated:

- English 2, Algebra 1, and Biology 1 for the years 2009-2014.
- English 1, Algebra 2, Geometry, American History, and Government for the years 2010-2014.

Artifacts. District artifacts relating to the process of implementing standards-based grading were analyzed. Artifacts included district PowerPoint presentations and the district website. Williams' (2007) discussion on mixed-methods design and artifacts specified, "The data collection for a case study is extensive and draws from multiple sources such as direct or participant observations, interviews, archival records or documents, physical artifacts, and audiovisual materials" (p. 68).

Threats to internal validity. Yu and Ohund (2012) stated, "Internal validity refers specifically to whether an experimental treatment/condition makes a difference to the outcome or not, and whether there is sufficient evidence to substantiate the claim" (p. 2). According to Yu and Ohlund (2012), threats to internal validity are history, maturation, testing, instrumentation, statistical regression, selection of subjects, experimental morality, selection-maturation, interaction, and the John Henry effect. A causal relationship was not included in this study, which would be a threat to internal validity.

Threats to external validity. Yu and Ohlund (2012) defined threats to external validity as, "The generalizability of the treatment/condition outcomes across various settings" (para. 3). Factors jeopardizing external validity include reactive or interaction effect of testing, interaction effects of selection biases and the experimental variable, reactive effects of experimental arrangements, and multiple treatment interference (Yu & Ohlund, 2012). External validity for this study was threatened due to the use of a case

study method, which, according to Taylor, Sturts, and Garvin (2011), "One of the main criticisms of case studies is that they are limited to one or perhaps a handful of examples" (p. 303).

Internal reliability. Oluwatayo (2012) explained reliability as obtaining similar results if research is replicated on similar groups in a comparable manner. Internal reliability was achieved through the collection of multiple sources of data and data analysis. Triangulation of data provides a holistic understanding of a phenomenon for more in-depth analysis (Reeves, Peller, Goldman, & Kitto, 2013). However, the design of this study was a single-case study method which may limit the ability to repeat the results.

Data Collection

Upon approval from Lindenwood University IRB (see Appendix C), a letter was sent to the superintendent (see Appendix D) for permission to conduct research at Wildcat High School. A parent consent letter was mailed to parents (see Appendix E) and participant consent letters (see Appendix F) were emailed to teachers participating in the survey. Adult consent forms (see Appendix G) and participant consent forms (see Appendix H) were obtained prior to conducting interviews with students and teachers.

Interviews were conducted on-site and recorded for accuracy. All student interviews were conducted during the school day during advisory time in a single day. Teacher interviews were conducted during in-service time and were completed in a single day. The high school principal set the interview times and provided an appropriate setting to conduct the interviews. The time between the completion of the student interviews and the completion of the teacher interviews was approximately two weeks.

Interviews were professionally transcribed at the completion of all interviews to ensure accuracy. Secondary data were collected and included student achievement data from all years in which standards-based grading had been implemented and from the years prior to standards-based grading in which EOC exams were given. Artifacts related to the implementation and monitoring of standards-based grading were collected from the school district for analysis. Student and parent follow-up surveys conducted by the school district were obtained electronically from the high school principal. PowerPoint presentations were obtained from the school website.

Data Analysis

Archived data were collected and analyzed to determine the school district's process to adopt standards-based grading. The value in using archived data is the chance to conduct research using primary sources (Maune et al., 2013). Archived data analysis included a summary of key decisions and information utilized to transition to standards-based grading. Standardized assessment data (MAP) were analyzed to determine the differences in standards-based grading and traditional grading.

Transcribed interviews were coded using axial coding, "which create themes or categories by grouping codes or labels given to words and phrases" ("Coding," 2012, p. 2). Hierarchical coding, which puts "several codes together as types or kinds of something" ("Coding," 2012, p. 3), was used in order to group interviewee responses for analysis. Codes were used to identify trends and tendencies from the interviews.

This study sought to determine if a difference exists between students graded using standards-based grading and those evaluated using traditional grading and student assessments on standardized tests at Wildcat High School. Student scores on the MAP

were also compared between students at Wildcat High School and Missouri students. A two-tailed *t*-test was used to analyze the data with a *p* value of statistical significance established at 0.05. As clarified by Bluman (2012), "In a two-tailed test, the null hypothesis should be rejected when the test value is in either of the two critical regions" (p. 408).

Ethical Considerations

Prior to the collection of research for interviews, informed consent letters and permission to conduct research were given to all research participants. Precise explanations of assurance of confidentiality were included in the informed consent letter. Data collected from the MODESE or from the school district included in the case study did not include any personal identifiable information. Interview participants were given data codes or pseudonyms to further protect confidentiality.

Summary

This study was conducted in one southwest Missouri school district that has implemented standards-based grading at the high school level. Both qualitative and quantitative data were gathered and analyzed. Interviews, secondary data, and artifacts were utilized to triangulate the data. Responses from both qualitative and quantitative data were used to answer research questions.

Contained in Chapter Four are the demographic information for the participating high school. Secondary data, in the form of EOC scores from the MAP, were analyzed. Interview responses were discussed, and common themes were identified.

Chapter Four: Analysis of Data

Standards-based reform, according to Hamilton et al. (2008), "is one of the most prominent features of the current educational landscape" (p. 10). The standards-based grading debate heated up with the adoption of NCLB, and the conversation increased since virtually all states have adopted the CCSS, which were released in 2010 (Rothman, 2010). The purpose of this study was to examine student achievement of those who had received standards-based grading and to obtain the perceptions of students and teachers toward standards-based grading. Addressed in this study was the issue of whether or not schools should change from traditional grading to standards-based grading. Scherer (2011) believed before changing the way grades are reported, there is a need to consider "the purposes that grades will serve. Are the grades meant to be incentives, feedback, or an evaluation?" (p. 7).

Contained in this chapter is a review of the demographic data, study design, and sample. This chapter also includes an analysis of EOC test scores to determine if there is a significant difference on the MAP Index and mean scores for students attending Wildcat High School and for students from other Missouri high schools. Figures and tables were used to represent data to provide a visual format which was easy to read and understand. Results of teacher and student interviews were transcribed using axial coding.

School District Demographic Information

The sample for this study was one rural high school in southwest Missouri. Data obtained from the MODESE (2013b) showed a total school population of 612 students, with 87.7% Caucasian, 8.5% Hispanic, 1.0% African American, and 1.0% Indian. The

free and reduced price meal rate was 51.2% (MODESE, 2013b). However, when obtaining student lists from the school administration for random selection for this study in the spring of 2014, the total student population had declined to 549. No other demographic data could be obtained at this time.

Study Design

A mixed-method design was used to strengthen this study. Mixed-methods are "inclusive of both qualitative and quantitative methods…to provide a better understanding of a research problem than either approach could alone" (Guest et al., 2013, p. 16). The design of this study was to gather and analyze the perceptions of standards-based grading from students and teachers. Interview questions were developed by the researcher to gain insight about the perceptions. The EOC tests results were analyzed to determine if there was a significant difference in student achievement when using standards-based grading. Artifacts were analyzed to provide for triangulation.

Sample

A stratified sample was used in this study to choose students and teachers for interviews for gathering qualitative data. The strata for students were determined by grade level, with each grade level (9-12) representing one strata. Teachers' strata were determined using the four core academic disciplines. Then, random sampling techniques were utilized to choose students and teachers to be interviewed.

Analysis of Artifacts

Wildcat High School began full implementation of standards-based grading during the 2012-2013 school year. The assistant superintendent published two PowerPoint presentations on the school website during the fall semester of the 2012-2013

school year. The first presentation explained standards-based grading. The second PowerPoint summarized concerns addressed by students and parents at the school board meeting early in the school year.

PowerPoint 1. The definition of traditional grading and the problems associated with this system of grading were identified during the first several slides. The first slide was used to explain traditional grading consists of letter grades based on academic and non-academic factors where everything is graded and averaged into a single grade for the class. One example used was: Has a student who receives a C, based on 100% homework completion and a 50% test average, really mastered the standard? Another slide was presented to identify six practices that inhibit learning:

- Including behaviors in academic grade.
- Assessments not linked to learning targets.
- Grading first effort (formative assessment).
- Assigning zeros as grades (The Power of Zero).
- Always using the average to determine a grade.
- Old and recent scores are given the same weight.

The next two slides were shown to explain what a learning standard is, which Wildcat High School calls a *power standard*. A power standard was defined in the PowerPoint as an agreed-upon statement of what a student should know and be able to do in a given content area. This clarifies what students need to learn and allows them to hit the target (one that is not moving).

The next slide was presented to detail the three factors which make up a power standard:

- Assists students with success in other classes.
- Assists students with success at the next level of learning.
- Assists students with success in life.

The remaining slides focused on explaining standards-based grading. According to Wildcat High School, standards-based grading focuses on mastering content, reporting what students know, is a balance of formative and summative assessments, and encourages student reflection and responsibility. Additionally, Wildcat High School promoted standards-based grading by defining success as what students *learn* rather than what teachers *teach*, ensuring mastery of the most important standards is a powerful way to improve, and all students can achieve success and need different approaches to realize their potential.

PowerPoint 2. The second PowerPoint was presented to summarize meetings with the school board and the superintendent over concerns with standards-based grading. The first several slides of this PowerPoint included discussions of a petition presented to the school board with two reasons cited by parents and students asking standards-based grading be reevaluated. The first reason cited in PowerPoint 2 read:

> We find it more difficult to compete for scholarships or acceptance to colleges when our academic performance (including GPA and transcripts) is compared to students across the nation whose grading policy is the commonly accepted method. As mastery level of a power standard is set below an A range percentage, other competitors have an advantage: they (the students) [are] test[ed]

on and pass the material they are taught and receive the A. To someone who is comparing and contrasting students, our B does not compare to their A, when in reality, we did more work only to receive a lower grade.

The second reason included four points which outlined how failing students are given an advantage when those who excel are at a huge disadvantage. The following solutions were provided:

A. Mastery set back to 90% = A-.

B. Ideally, mastery equal to 100%.

C. Each student will actually work at his or her own pace. (Information presented to all students at one time but then allow for independent progress as mastery is shown.)

D. 4.0 questions or material is attainable. (Indicated at this point, 4.0 questions are just really hard questions where students may not have heard or been taught the material).

Comments by parents at the school board meeting were paraphrased in PowerPoint 2. One parent commented, "Regarding last spring's pilot where 3.0 = A- and then was changed to 3.0 = B+." Another parent commented, "Communication has been a problem. The first progress report was confusing due to information provided."

The next several slides of PowerPoint 2 were shown to summarize a meeting between the superintendent and patrons of the district to discuss standards-based grading. According to the discussion, no one wanted to do away with standards-based grading. Questions were raised concerning GPA and scholarship opportunities for the students.

One major concern continually raised was the students being able to discuss the process with teachers so the students understand how standards-based grading works in each class. The superintendent suggested teachers take time to explain how they assessed. During the last part of the meeting, the superintendent discussed rigor. The superintendent explained he did not believe rigor came from the grading system but should be documented through the grading system. The remainder of PowerPoint 2 was presented to review the principles outlined in PowerPoint 1.

Student survey. Wildcat High School students participated in a follow-up survey in May of 2014 asking their opinions about standards-based grading. The 14-question survey, of which 12 questions were objective and two required subjective responses (questions 11 and 13) was completed by 115 students. Question 11 was: "Please describe your understanding of Learning Opportunities, Formative Assessments, and Summative Assessments." In response to this question, the consensus of students described learning opportunities as homework not counted for a grade, formative assessments as quizzes or practice tests used to determine if a student understands the material, and summative assessments as the final test which counts for a grade. Table 2 summarizes the objective results of the survey.

The responses to the survey indicated the majority of students believed homework has a direct effect on learning and should be calculated into grades. The majority of the students believed standards-based grading summative assessments are challenging and teachers are consistent in with standards-based grading practices. Lastly, the survey indicated a majority of students did not believe standards-based grading is preparing them for the work force or college.

Table 2

Wildcat High School Student Follow-up Survey

Question Number	Agree	Disagree
1. Standards-based grading provides a more detailed report of my learning and progress than traditional grading. If you marked disagree, please explain why.	57	58
2. Proficient work (3.0) should receive a grade of... If you marked B+, please explain why. If you marked A-, please explain why.	70	45
3. The current grading scale is adequate and does not need to be changed. If you marked disagree, please tell us what needs to be changed.	68	47
4. Homework should be calculated into my grade.	75	40
5. Homework has a direct effect on my learning. If you marked disagree, please explain why.	106	9
6. Standards-based grading summative assessments challenge me more than those used in traditional grading.	76	39
7. I believe my teachers are consistent in their Standards-based grading practices. If you marked disagree, please explain why.	69	46
8. Standards-based grading is preparing me for college.	40	75
9. Standards-based grading is preparing me for the work force. If you marked disagree on #8 or #9, please explain why.	32	83
10. My attendance, tardiness, behavior, and discipline should be reported on a separate grade card.	47	68
12. Considering all aspects, I believe Standards-based grading is the best assessment system for my learning and progress. If you marked disagree, please explain why.	33	82
14. I am willing to serve on a Standards-based grading Committee comprised of parents, students, teachers, administrators, and school board members.	35	80

Parent survey. Wildcat High School parents participated in a follow-up survey in May of 2014 asking their opinions of standards-based grading. The survey had 19 respondents and 15 questions, 11 which were objective and three subjective. The results of the objective questions are shown in Table 3. The four subjective questions were as follows:

- Question 11: Please describe your understanding of Standards-based grading. No parents responded to this question.
- Question 12: Please describe your understanding of the purpose of using Power Standards. No parents responded to this question.
- Question 13: Please describe your understanding of what Learning Opportunities, Formative Assessments, and Summative Assessments are. Very few parents responded to this question. Among the responses to learning opportunities, one parent responded, "Learning opportunities are looking at an idea, exploring, researching, etc., then practicing." Most of the other responses to the understanding of learning opportunities were "homework, not sure, or don't know."

Parent responses to the understanding of formative assessment were varied, but the two most common responses were "pretests, quizzes, or assessing if the student understands the concepts taught." One parent responded, "Not calculated in the grade." Another parent responded, "A fancy name for a pretest that is not graded/recorded."

Parent responses to the understanding of summative assessments were consistent, and most parents understood summative assessments were to determine mastery or were final tests. One parent responded, "A fancy name for test/final that is graded and

recorded and also offers questions over material that has not been taught, but if marked correctly will enhance the student's score."

Table 3

Wildcat High School Parent Follow-up Survey

Question Number	Agree	Disagree
1. Standards-based grading provides a more detailed report of my child's learning and progress than traditional grading.	5	14
2. Proficient work (3.0) should receive a grade of...	A-	B+
If you marked B+, please explain why. If you marked A-, please explain why.	10	9
3. The current grading scale is adequate and does not need to be changed. If you marked disagree, please tell us what needs to be changed.	12	7
4. Homework should be calculated into a student's grade. If you marked agree, please explain why. If you marked disagree, please explain why.	16	3
5. Homework has a direct effect on student learning.	19	0
6. Standards-based grading Summative Assessments challenge students more than those used in traditional grading	3	16
7. I believe my child's teachers are consistent in their Standards-Based Grading practices. If you marked disagree, please explain why.	5	14
8. Standards-based grading is preparing my child for college.	3	16
9. Standards-based grading is preparing my child for the work force.	2	17
10. Which of the following should be reported to parents on a separate grade card (mark all that apply):	Behavior	16
	Attendance	13
	Discipline	13
	Tardiness	10
14. Considering all aspects, I believe Standards-based grading is the best assessment system for my child's learning and progress.	4	15
16. I am willing to serve on a Standards-based grading Committee comprised of parents, students, teachers, administrators, and school board members.	11	8

Analysis of Qualitative Data

Interviews were conducted on-site at Wildcat High School on two separate days over a two-week period. One afternoon was spent interviewing teachers, and one afternoon was spent interviewing students. The average number of years teachers had taught was 16⅔ years.

Teacher question 1. How long have you been teaching? Responses ranged from a first-year teacher to teachers who had taught 29 years. Table 4 outlines the length in the number of years taught by the teachers interviewed.

Teacher question 2. What subjects do you teach? The participants interviewed included two teachers who taught Math, two who taught English, two who taught Science, one who taught Social Studies, and one teacher who taught FACS. Table 4 outlines the subjects taught aligned to years of experience.

Table 4

Wildcat High School Experience and Subjects Taught

Years of Experience	Subjects Taught
1	FACS
3	Math
12	Science
19	English
20	Social Studies
21	Science
28	English
29	Math

Teacher question 3. Do you use standards-based grading in each subject? All teachers interviewed used standards-based grading in all subjects. One teacher commented, "I put aside my own philosophical objections to it, and then do it, because it is Board Policy."

Teacher question 4. Were survey data used in the decision to begin standards-based grading? Four of the eight teachers interviewed said teachers were surveyed about their thoughts concerning standards-based grading prior to implementation. One teacher responded, "I think they talked to us a little bit about it." Another teacher responded, "Each teacher was questioned, and we started with a pilot program in the Social Studies, and I was one of the four members of that original pilot program. . . and we offered feedback and tweaked it as we went along." The remaining two teachers were in their first year in the district.

Teacher question 5. What professional development training was provided in the implementation of standards-based grading? In response to this question, two teachers indicated a book study was done with one teacher specifically mentioning "one of Robert J. Marzano's books." Two responses specified people were brought in to talk to teachers, and two identified the Social Studies department as piloting standards-based grading and bringing in resident experts who led in-service professional development.

Another responded, "We did have some people from outside of the school who they brought in. We also had primarily our standards-based grading committees that were our in-service groups." Two teachers were not in the district during initial implementation, and only one of the two indicated receiving any professional development in the form of a mentor teacher.

Teacher question 6. Did your instructional practices change with the implementation of standards-based grading? Seven of the eight teachers interviewed said their instructional practices changed, while one teacher did not change instructional practices since it was her first year of teaching. Three teachers responded *yes* to this question without elaborating. One teacher said the school uses more common assessments, and two teachers replied the school uses more formative assessments. One indicated the rigor increased, and one teacher reported instructional practices were very similar to what was used prior to standards-based grading.

Teacher question 7. Do you prefer standards-based grading, and why? Opinions varied greatly on grading preference. Two teachers said they preferred standards-based grading because it allowed the teachers to know where students are deficient. Three teachers did not believe there was a difference between traditional grading and standards-based grading.

One teacher did not have an opinion and did not answer the question. Two teachers responded standards-based grading created an atmosphere of laziness, because students do not prepare for tests since the test retakes are allowed. One teacher preferred traditional grading and believed standards-based grading is an artificial manipulation of student grades to meet AYP. Another response was that standards-based grading makes it easier to justify grades.

Teacher question 8. What were the barriers to standards-based grading? The overriding theme to barriers of standards-based grading was getting parents and students to understand the system. Public opinion was identified by one teacher as a

barrier. Two teachers identified the lack of intrinsic motivation as a barrier, and many students and parents do not like that daily work is not counted as a grade.

Teacher question 9. What do you perceive are the advantages and disadvantages to standards-based grading? The advantages of standards-based grading most prevalent among teacher responses were students know where they are in terms of learning the standards, mastery is the goal, and standards-based grading is better aligned to the curriculum than a traditional grading system. One teacher responded, "Making sure that the core, which is equal to our A on the student grade card is an actual A."

The most prevalent disadvantage to standards-based grading identified by teachers was the time it takes for mastery for some students and meeting deadlines to prepare students for standardized testing. One teacher, in response to the disadvantages of standards-based grading, said, "Disadvantages are students being allowed to do retakes." Another teacher, who opposed standards-based grading, said, "We have fewer students making A's, and I believe it puts our students at a disadvantage with other students in other schools that are competing for scholarships. And that's a big deal to parents."

Student question 1. What grade are you in school? A total of 12 students were interviewed in grades nine through 12. Four freshmen, four sophomores, two juniors, and two seniors were interviewed.

Student question 2. Approximately what is your GPA? Only two students of the 12 interviewed knew their GPA. The two students who did know their GPA had a 3.0 and a 3.3, respectively, on a 4.0 scale.

Student question 3. Do you prefer standards-based grading or traditional grading? Why? Six students preferred standards-based grading, and five students preferred traditional grading. One student had no opinion when asked this question. One student responded, "I want to say, I prefer traditional grading, mostly because I feel like some teachers understand it and some don't." Another student, who preferred standards-based grading, responded, "Because it's easier to understand for one and gives me better grades."

Student question 4. What changes in teaching have you observed since the implementation of standards-based grading? Eight students observed changes to teaching, and four students observed no changes to teaching when asked this question. Two students responded about taking more notes. Another student responded, "Well, we're going to more technology and computers and stuff." A fourth student responded "You don't get taught as much, since, of course, we have our computer."

Student question 5. Has your homework increased or decreased with standards-based grading? Six students responded homework had decreased, and five students believed homework had stayed the same as with traditional grading. Only one student responded homework had increased.

Student question 6. What do you believe are the advantages and disadvantages of standards-based grading? Among the responses to the advantages, responses included the following: "You take your time, and go at your own pace;" "You're able to get better grades;" and "It's really hard to fail when you're disciplined." Responses to disadvantages included, "Homework doesn't get graded," "It is really hard

to get an A," "We don't have as much work to do to get better grades," and "Some teachers do it different."

Student question 7. What are your parents' opinions of standards-based grading? The responses were varied on this question. Two students responded their parents liked standards-based grading, and three responded their parents disliked standards-based grading. Four students replied their parents had no opinion, and three students responded their parents did not understand standards-based grading.

Analysis of Quantitative Data

The EOC data for this study were obtained through the MODESE website. The EOC assessment data were collected for the years 2010 through 2014 for both Wildcat High School and for Missouri. Assessment data were gathered for Algebra 1 and 2, Geometry, English 1 and 2, Biology 1, American History, and Government.

Additionally, the EOC assessment data for the year 2009 were gathered for Biology 1, Algebra I, and English 2, which were the only EOC assessments administered in 2009. The MAP Performance Index (MPI) scores of Wildcat High School were compared to the MPI scores of Missouri. The MPI is used by MODESE (2014) for the following:

> The MPI is a single composite number that represents the MAP assessment performance of every student by awarding points to each student based on the four achievement levels. The MPI is a calculation used to determine whether the LEA, school, or subgroup is meeting the 2020 target, is on track to meeting the 2020 target, is approaching the annual benchmark, or is substantially not meeting the state performance targets. (p. 15)

The formula MODESE (2014) uses to determine MPI is explained as follows:

> To generate the MPI (see Appendix I), the number of Advanced scores are multiplied by five (5), Proficient scores by four (4), Basic scores by three (3), and Below Basic scores by one (1). These products are then summed, divided by the total number of reportable, multiplied by 100, and then rounded to the tenth to produce the MPI which ranges from 100-500. (p. 16)

The MAP mean scores on the EOC exams were analyzed from Wildcat High School and Missouri students to compare longitudinally the success of standards-based grading. The comparison of mean scores was also analyzed to determine if the gap between Wildcat High School and Missouri students widened or became narrower. When applicable, mean scores were compared prior to standards-based grading with scores after standards-based grading was implemented. A two-tailed *t*-test was used to analyze the data with a *p* value of statistical significance established at 0.05.

The MPI scores for American History (see Table 5) at Wildcat High School ranged from a low of 692.0 in 2013 to a high of 715.4 in 2014, for a range of 23.4. The MPI scores for American History for Missouri schools ranged from a low of 719.4 in 2010 to a high of 739.5 in 2014, for a range of 20.1. The MPI scores for Missouri schools exceeded the MPI scores of Wildcat High School for each year.

Table 5

American History EOC Assessment Results

Wildcat High School			Missouri Schools		
Year	Number of Students Tested	MAP Index	Year	Number of Students Tested	MAP Index
*2010	148	712.0	2010	34,096	719.4
*2011	141	702.4	2011	36,411	735.8
*2012	141	721.4	2012	30,575	734.5
*2013	124	692.0	2013	53,779	735.7
*2014	143	715.4	2014	51857	739.5

Note. *Years in which standards-based grading was implemented at Wildcat High School.

Wildcat High School students had a MAP mean score of 191.5 in 2010 in American History, the year standards-based grading began in this subject, and Missouri students' had a MAP mean score of 192.6 (see Figure 1), a difference of 1.1 points. Missouri students' mean score steadily increased from 2010 to 2014, by 5.5 points. Wildcat High School students' mean scores initially decreased from 2010 to 2011 and did not make a significant increase in mean scores during with the implementation of standards-based grading. The gap between Wildcat High School students and Missouri students increased from 1.1 points in 2010 to 6.1 points in 2014.

A two-tailed *t*-test comparing the means of Wildcat High School and Missouri students from the years 2010-2014, when standards-based grading was implemented in American History, was performed using $\alpha = 0.05$. The *p*-value of 0.005 was significantly lower than 0.05; therefore, there was sufficient evidence to reject the null hypothesis and consider the alternate hypothesis.

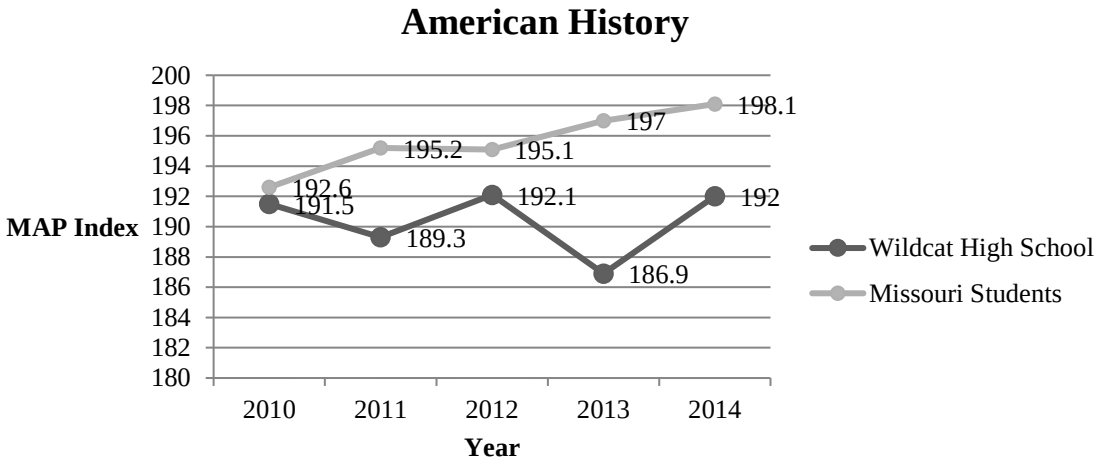

Figure 1. American History EOC longitudinal mean comparison.

The MPI scores for Government (see Table 6) at Wildcat High School ranged from a low of 679.9 in 2013 to a high of 756.9 in 2011, for a range of 77. The MPI for Government for Missouri schools ranged from a low of 748.6 and a high of 773.2, for a range of 24.6. The MPI scores of Missouri schools exceeded Wildcat High School for all years except for 2010, the first year in which standards-based grading was implemented at Wildcat High School.

Table 6

Government EOC Assessment Results

	Wildcat High School			Missouri Schools	
Year	Number of Students Tested	MAP Index	Year	Number of Students Tested	MAP Index
*2010	193	755.9	2010	59,831	748.6
*2011	132	756.9	2011	60,299	761.9
*2012	141	743.9	2012	58,116	755.9
*2013	129	679.9	2013	59,505	760.8
*2014	131	736.9	2014	60,673	773.2

Note. *Years in which standards-based grading was implemented at Wildcat High School.

Wildcat High School students had a MAP mean score of 202 in 2010 in Government, the year standards-based grading began in this subject, compared to Missouri students' MAP mean score of 199.1 in 2010 (see Figure 2), for a difference of 2.9 points. Missouri students' mean score steadily increased from 2010 to 2014, by 5.8 points. Wildcat High School students' scores were initially higher than Missouri students in 2010, but steadily decreased from 2010 to 2013, dropping 6.9 points, before slightly increasing by 1.0 point from 2013 to 2014.

A two-tailed *t*-test comparing the means of Wildcat High School and Missouri students from the years 2010-2014, when standards-based grading was implemented in Government, was performed using $\alpha = 0.05$. The *p*-value of 0.059 was greater than 0.05; therefore, there was sufficient evidence to not reject the null hypothesis.

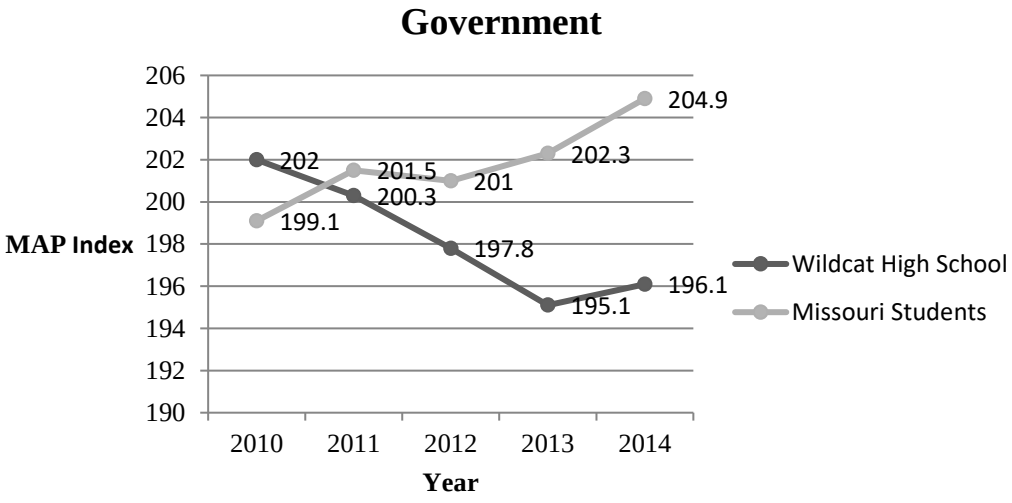

Figure 2. Government EOC longitudinal mean comparison.

The MPI for Biology (see Table 7) at Wildcat High School ranged from a low of 743.9 in 2012 to a high of 855.0 in 2013, for a range of 111.1, which was the first year standards-based grading was implemented in Biology. The MPI for Biology for Missouri schools ranged from a low of 760.5 in 2012 to a high of 796.0 in 2013, for a range of 35.5. The MPI for the two years of 2013 and 2014 of standards-based grading at Wildcat High School was higher than the MPI for Missouri schools for the same years.

Table 7

Biology 1 EOC Assessment Results

Wildcat High School			Missouri Schools		
Year	Number of Students Tested	MAP Index	Year	Number of Students Tested	MAP Index
2009	32	788.5	2009	62,798	756.9
2010	114	778.0	2010	65,298	760.7
2011	135	761.5	2011	67,261	768.7
2012	159	743.9	2012	64,952	760.5
*2013	105	855.0	2013	65,256	796.0
*2014	143	784.7	2014	61,186	781.9

Note. *Years in which standards-based grading was implemented at Wildcat High School.

Wildcat High School students had MAP mean scores in Biology above Missouri students in 2009 and 2010 (see Figure 3). The MAP mean scores for Wildcat High School students steadily decreased from 2009 to 2012, dropping 15.7 points during this time period. Missouri students' MAP mean scores increased slightly from 2009 to 2011, before dropping 2.0 points in 2012. Standards-based grading began at Wildcat High School during the 2012-2013 school year, and MAP mean scores rose 15.7 points in 2013 and fell 5.2 points in 2014. Missouri students' scores increased 9.5 points from 2012 to

2013 before falling 3.7 points in 2014. The MAP mean score trend was similar for both Wildcat High School and Missouri students from 2012 to 2014.

A two-tailed *t*-test comparing the means of Wildcat High School and Missouri students from the years from 2013-2014, when Wildcat High School began implementing standards-based grading in Biology, was performed using $\alpha = 0.05$. The *p*-value was 0.538, which is greater than 0.05; therefore, there was sufficient evidence to not reject the null hypothesis.

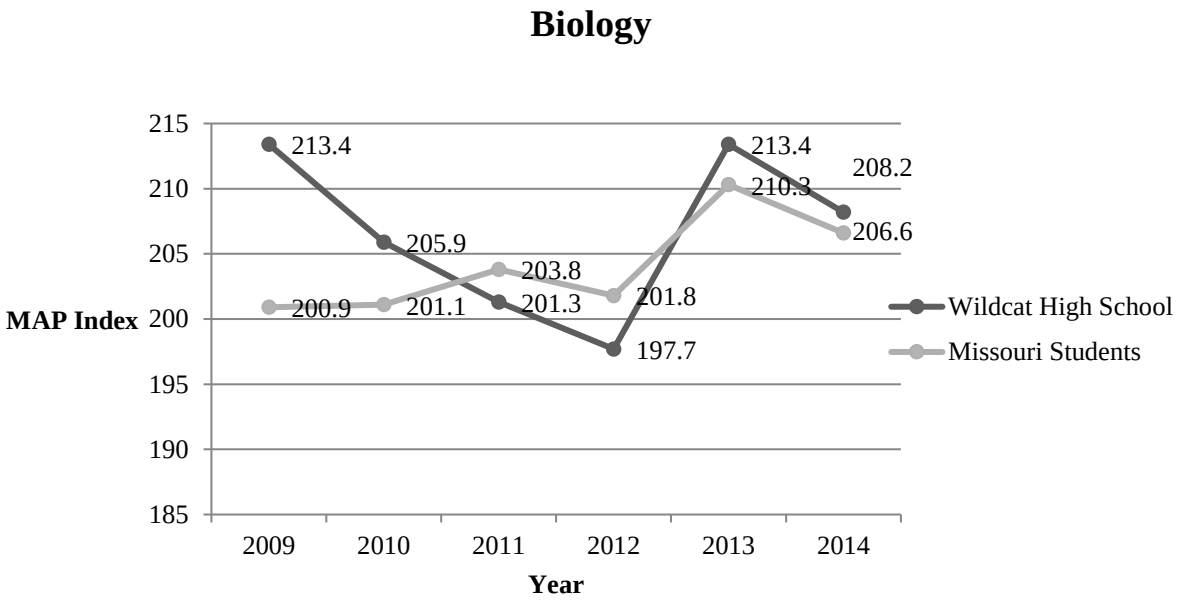

Figure 3. Biology EOC longitudinal mean comparison.

The MPI scores for English 1 (see Table 8) at Wildcat High School ranged from a low of 736.5 in 2013 to a high of 773.3 in 2012, for a range of 36.8. The MPI for English 1 for Missouri ranged from a low of 760.3 in 2010 to a high of 772.9 in 2014. The MPI for Wildcat High School for the years of 2013 and 2014 were the lowest of the five years

of data collected and were the two years in which standards-based grading was implemented, while the MPI scores for Missouri schools showed a steady increase for the same years.

Table 8

English 1 EOC Assessment Results

	Wildcat High School			Missouri Schools	
Year	Number of Students Tested	MAP Index	Year	Number of Students Tested	MAP Index
2010	160	763.9	2010	42,704	760.3
2011	152	771.1	2011	42,744	766.3
2012	161	773.3	2012	44,769	768.4
*2013	162	736.5	2013	63,721	770.1
*2014	147	753.1	2014	61,450	772.9

Note. *Years in which standards-based grading was implemented at Wildcat High School.

Wildcat High School students and Missouri students' MAP mean scores in English 1 were 0.1 points apart in 2010 and gained comparable growth through 2012 (see Figure 4). Standards-based grading was implemented in English 1 in 2012-2013, and Wildcat High School's MAP mean scores dropped 2.3 points in 2013 from the previous year and 3.3 points in 2014 from 2013 for a decrease of 5.6 points in the MAP mean score in the two years of standards-based grading. Missouri students' MAP mean scores increased steadily from 2010 to 2014 and were 5.7 points higher than Wildcat High School students in 2014, after being only 0.1 points higher in 2010.

A two-tailed *t*-test comparing the means of Wildcat High School and Missouri students from the years 2013-2014, when Wildcat High School began implementing standards-based grading in English 1, was performed using $\alpha = 0.05$. The *p*-value was

0.142, which is considerably greater than 0.05, which was sufficient evidence to not reject the null hypothesis.

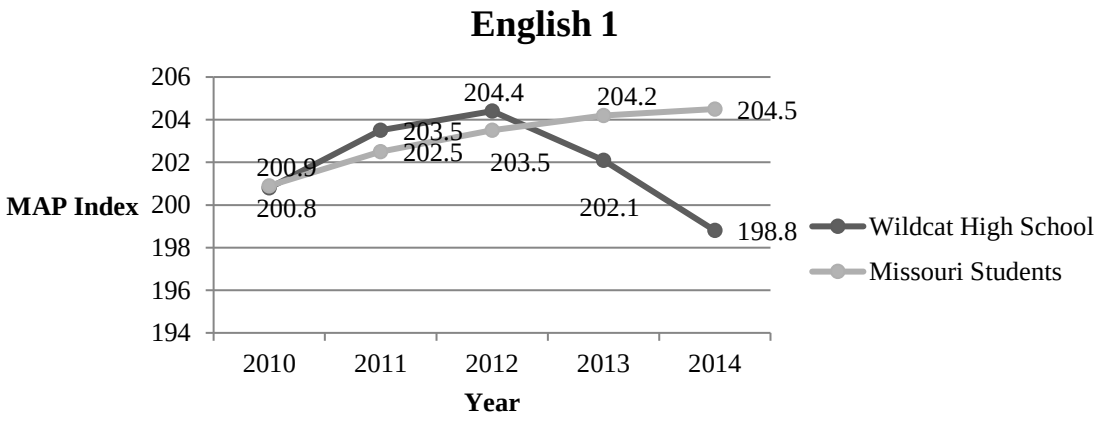

Figure 4. English 1 EOC longitudinal mean comparison

The MPI scores for English 2 (see Table 9) for Wildcat High School ranged from a low of 765.8 in 2013 to a high of 794.4 in 2014, for a range of 28.6. The MPI for English 2 for Missouri schools ranged from a low of 782.7 in 2013 to a high of 799.9 in 2014, for a range of 17.2. The MPI scores for Wildcat High School dropped 18.8 points during the first year of standards-based grading in 2013 from the 2012 year, but increased 28.6 in 2014, the second year of standards-based grading.

Table 9

English 2 EOC Assessment Results

Wildcat High School			Missouri Schools		
Year	Number of Students Tested	MAP Index	Year	Number of Students Tested	MAP Index
2009	127	784.4	2009	63,802	787.4
2010	144	792.5	2010	64,786	792.2
2011	145	779.3	2011	66,060	796.2
2012	141	784.3	2012	65,333	786.1
*2013	155	765.8	2013	64,405	782.7
*2014	161	794.4	2014	64,880	799.9

Note. *Years in which standards-based grading was implemented at Wildcat High School.

Wildcat High School and Missouri students were less than 1.0 point apart on the English 2 MAP mean score in 2009 and 2010 (see Figure 5). In 2011, Wildcat High School students' MAP mean score fell 1.5 points, while Missouri students' MAP mean score increased 1.6 points. The MAP mean scores for both Wildcat High School and Missouri students declined in 2012 and 2013, the first year of EOC exams at Wildcat High School under standards-based grading in English 2. In 2014, Wildcat High School students' MAP mean score increased 5.7 points over 2013, while Missouri students' MAP mean score increased 4.6 points from 2013 to 2014.

A two-tailed *t*-test comparing the means of Wildcat High School and Missouri students for the years 2013-2014, when Wildcat High School began implementing standards-based grading in English 2, was performed using $\alpha = 0.05$. The *p*-value was 0.558, which was considerably higher than 0.05 and was sufficient evidence to not reject the null hypothesis.

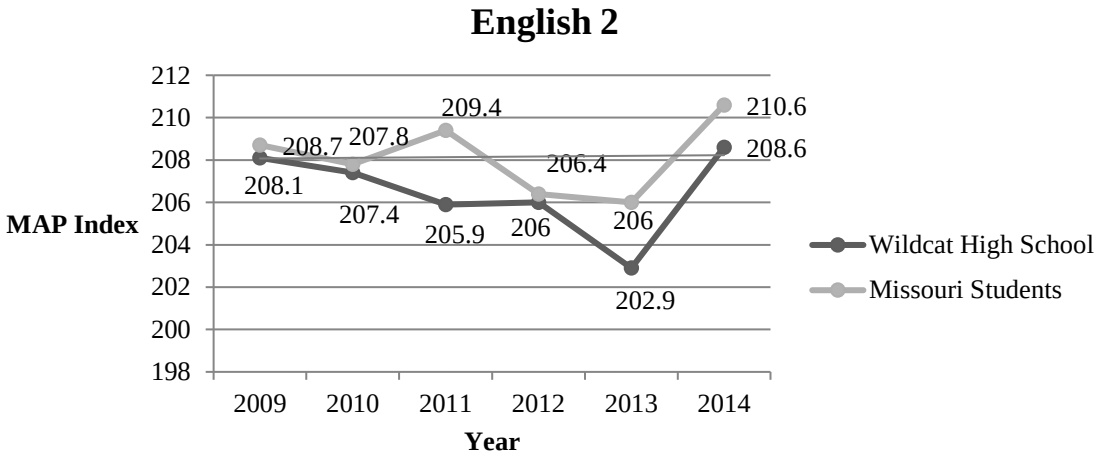

Figure 5. English 2 EOC longitudinal mean comparison.

The MPI scores for Algebra 1 (see Table 10) for Wildcat High School ranged from a low of 745.1 to a high of 771.3 in 2011, for a range of 25.9. The MPI scores for Missouri schools ranged from a high of 769.8 in 2011 to a low of 763.6 in 2014, for a range of 6.2. The MPI scores for Wildcat High School rose 18.4 points in 2013, the first year of standards-based grading, but then fell 13.9 points during the second year of standards-based grading in 2014.

Table 10

Algebra 1 EOC Assessment Results

Wildcat High School			Missouri Schools		
Year	Number of Students Tested	MAP Index	Year	Number of Students Tested	MAP Index
2009	92	784.3	2009	63,126	755.3
2010	134	754.5	2010	66,896	766.4
2011	136	771.3	2011	69,958	769.8
2012	124	745.1	2012	68,946	769.6
*2013	135	763.5	2013	68,173	764.7
*2014	123	749.6	2014	68,028	763.6

Note. *Years in which standards-based grading was implemented at Wildcat High School.

Wildcat High School students' MAP mean score in Algebra 1 was 9.4 points higher than Missouri students' MAP mean score in 2010 (see Figure 6). Missouri students' MAP mean score rose 1.3 points to 202 in 2010 and remained relatively constant through 2014, fluctuating 1.5 points or less. Wildcat High School students' MAP mean score fell 10.6 points from 2009 to 2010 and increased 3.3 points in 2011 from the previous year. In 2012, Wildcat High School students' MAP mean score fell 4.7 points, but showed slight increases in both 2013 and 2014, the two years in which standards-based grading was implemented in Algebra 1.

A two-tailed *t*-test comparing the means of Wildcat High School student and Missouri students from the years 2013-2014, when Wildcat High School began implementing standards-based grading, was performed using $\alpha = 0.05$. The *p*-value was 0.014, which is considerably less than 0.05 and was sufficient evidence to reject the null hypothesis and consider the alternate hypothesis.

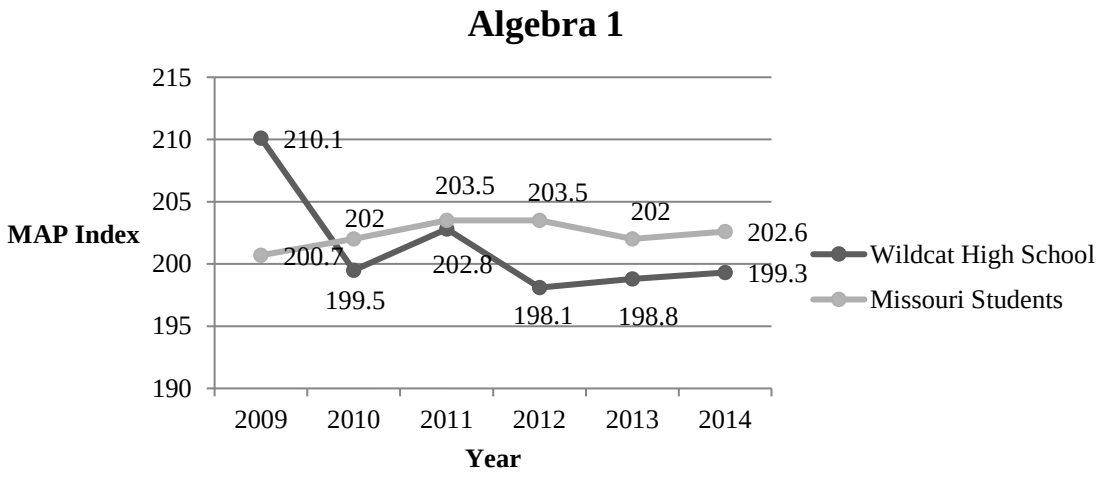

Figure 6. Algebra 1 EOC longitudinal mean comparison.

The MPI score for Algebra 2 (see Table 11) for Wildcat High School ranged from a low of 78.5.8 in 2014 to a high of 830.2 in 2012, for a range of 44.4. The MPI scores for Missouri schools ranged from a low of 733.3 in 2010 to a high of 780.5 in 2014, for a range of 47.2. The MPI for Wildcat High School dropped during both years in which standards-based grading was implemented. In 2013, the MPI dropped 12.1 points from 2012 and dropped 32.3 points in 2014 from 2013.

Table 11

Algebra 2 EOC Assessment Results

Wildcat High School			Missouri Schools		
Year	Number of Students Tested	MAP Index	Year	Number of Students Tested	MAP Index
2010	68	801.5	2010	22,487	733.3
2011	88	789.7	2011	23,200	756.0
2012	68	830.2	2012	25,788	761.2
*2013	48	818.1	2013	23,918	757.4
*2014	67	785.8	2014	26,272	780.5

Note. *Years in which standards-based grading was implemented at Wildcat High School.

Wildcat High School's MAP mean score in Algebra 2 was17.6 points higher than that of Missouri students in 2010 (see Figure 7). Missouri students' MAP mean score was 196.5 points in 2010 and steadily rose through 2014 to 207.7 points. Wildcat High School students' MAP mean score fell 6.6 points in 2011 and rose 10.5 points in 2012. Wildcat High School implemented standards-based grading in Algebra 2 during the 2012-2013 school year. During these two years, MAP mean scores declined 5.9 points in 2013 from 2012 and declined again in 2014 from 2013, falling another 4.4 points, for a total decline of 10.3 points once standards-based grading was implemented.

A two-tailed *t*-test comparing the means of Wildcat High School and Missouri students from the years 2013-2014, when Wildcat High School began implementing standards-based grading was performed using $\alpha = 0.05$. The *p*-value was 0.331, which is significantly greater than 0.05 and was sufficient evidence to not reject the null hypothesis.

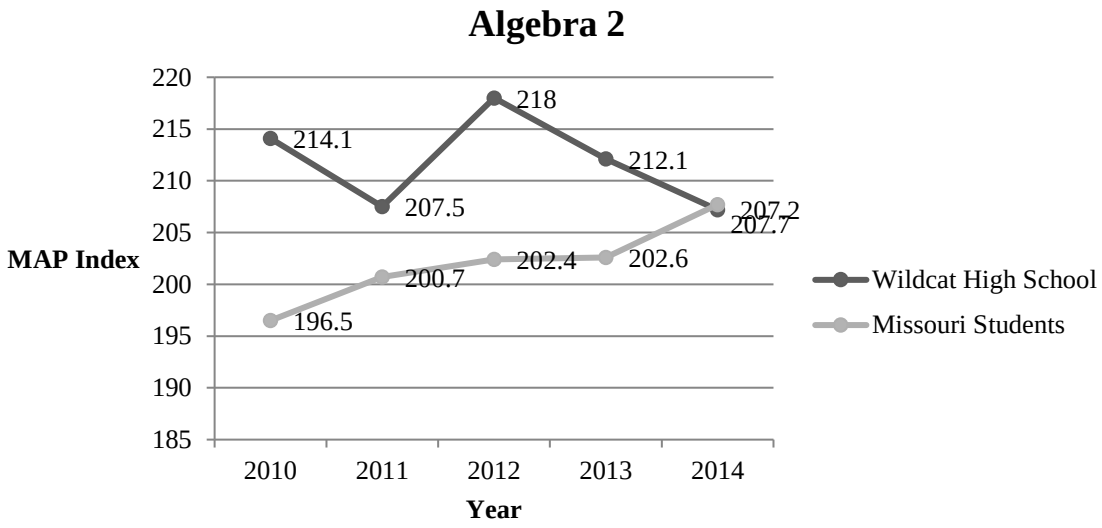

Figure 7. Algebra 2 EOC longitudinal mean comparison.

The MPI for Geometry (see Table 12) for Wildcat High School ranged from a low of 709.6 in 2013 to a high of 809.1 in 2010, for a range of 99.5. The MPI score for Missouri Schools ranged from a low of 743.6 in 2011 to a high of 780.3 in 2014, for a range of 36.7. The MPI scores for Wildcat High School dropped 34.1 from 2012 to 2013, the first year of standards-based grading. The MPI scores rose 44.5 points in 2014, the second year of standards-based grading.

Table 12

Geometry EOC Assessment Results

Wildcat High School			Missouri Schools		
Year	Number of Students Tested	MAP Index	Year	Number of Students Tested	MAP Index
2010	107	809.1	2010	27,713	748.5
2011	116	740.5	2011	27,448	743.6
2012	117	743.7	2012	31,171	764.6
*2013	120	709.6	2013	31,395	769.5
*2014	118	754.1	2014	36,805	780.3

Note. *Years in which standards-based grading was implemented at Wildcat High School.

Wildcat High School's MAP mean score in Geometry was 213.2 in 2010 compared to Missouri students MAP mean score of 200.2 in 2010 (see Figure 8). Missouri students' MAP mean score fell 2 points in 2011 from 2010 and began a steady upward growth from 2012 through 2014, ending with a MAP mean score of 207.1, which was 6.8 points higher than Wildcat High School's MAP mean score of 200.3 points in 2014. Wildcat High School's MAP mean score fell 14.2 points from 2010 to 2011 and another 0.1 point from 2011 to 2012. In 2013, the first year EOC assessment was implemented under standards-based grading, Wildcat High School's MAP mean score grew 1.0 point from 2012 and 1.2 points from 2013 to 2014, for a total MAP mean score growth of 2.2 points with the implementation of standards-based grading.

A two-tailed *t*-test comparing the means of Wildcat High School and Missouri students from the years 2013-2014, when Wildcat High School began implementing standards-based grading in Geometry, was performed using $\alpha = 0.05$. The *p*-value was 0.027, which was significantly less than 0.05 and was sufficient evidence to reject the null hypothesis and consider the alternate hypothesis.

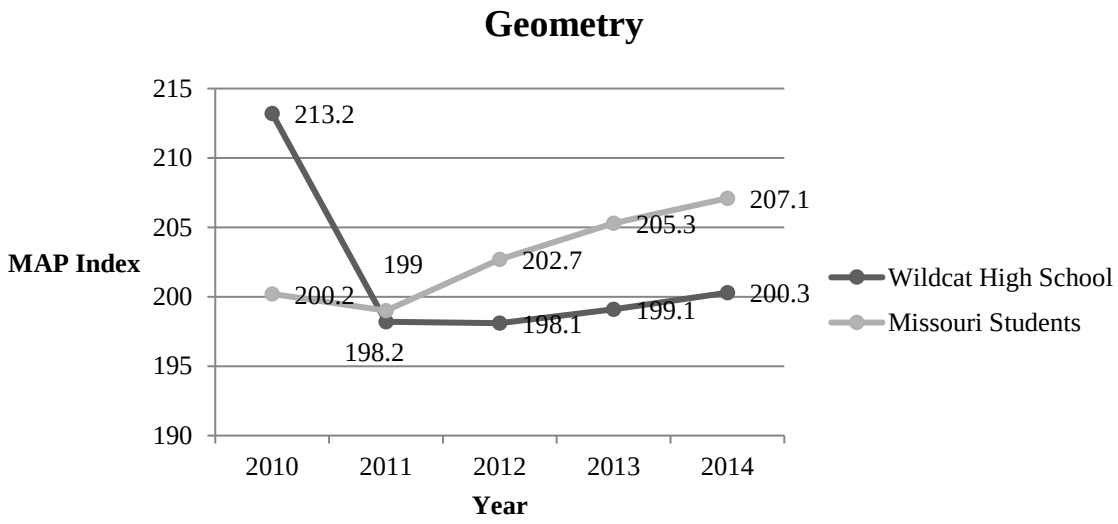

Figure 8. Geometry EOC longitudinal comparison.

Summary

The purpose of this mixed-design study was to examine teachers and students perceptions of standards-based grading and to determine if there was a difference in student achievement on standardized tests in one school using standards-based grading compared to student achievement of Missouri students on standardized tests using traditional grading practices. Qualitative data were obtained through teacher and student interviews to determine perceptions of standards-based grading. Artifacts were analyzed to identify the process used in the implementation and effects of standards-based grading. The artifacts included district PowerPoint presentations and follow-up surveys administered by the district to students and parents.

Quantitative data were obtained from the MODESE website and analyzed using a *t*-test. The EOC scores from Wildcat High School were compared to Missouri students' scores to determine if a difference existed in both MAP Performance Index and the mean.

The EOC scores were obtained from American History, Government, English 1 and 2, Algebra 1 and 2, and Geometry for the years 2010 through 2014, and the year 2009, when available. A two-tailed *t*-test comparing the means of Wildcat High School to Missouri students was conducted in order to test the null hypothesis.

In Chapter Five, a summary of the study was presented followed by the findings for each research question. Limitations of findings and the link to the conceptual framework were discussed. Conclusions, implications for practice, and recommendations were revealed.

Chapter Five: Summary and Conclusions

Grades have been the gauge for student academic success for decades. Traditionally, mixtures of achievement and behavior have been used to determine an average, which is computed into a letter grade. However, traditional letter grades often include non-academic factors. It is not uncommon for teachers to award points for extra-credit, such as bringing in tissue boxes, returning signed permission slips, and a host of other items unrelated to learning (Erickson, 2011). Additionally, many educators are tentative when asked to transition to an alternative grading system (Potts, 2010). One system, standards-based grading, has gained prominence with researchers. Standards-based grading provides "a more comprehensive picture of students' academic progress by identifying specific areas of strength, as well as areas where additional work may be needed" (Guskey & Bailey, 2010, p. 7).

Armstrong et al. (2008) expressed a standards-based approach to grading is more reliable because it clarifies teacher expectations for what students are expected to learn. Comparatively, Miller (2013) concurred, "A standards-based approach to assessment still holds students accountable for the work they need to do to make progress, but leaves teachers free to individualize and leaves students free to concentrate on learning" (p. 112). Jung and Guskey (2011) agreed effective grading systems have clearly expressed standards for what students are responsible to learn.

The passage of NCLB and the CCSS raised the accountability provisions for states and school districts and required students to meet standards to measure achievement. Kober and Riddle (2012), discussing the CCSS, specified, "When the common standards and assessments are fully implemented, there will be a relatively high

degree of consistency across states in the content students should learn and the assessments used to measure learning" (p. 9). In response to the CCSS, Brookhart, (2011a) stated, "It is fair to say that the US education system is becoming more standards-based and centralized in that regard" (p. 3).

The purpose of this study was to provide additional research of standards-based grading to assist schools and districts which may be contemplating grading reform. The research available in the implementation and the effectiveness of standards-based grading is sparse at the high school level. This study was guided by four research questions to determine the implementation of standards-based grading, the perceptions of standards-based grading by students and teachers, and the impact of standards-based grading on student achievement in one southwest Missouri high school.

Findings

Research question 1. What process was used in the implementation of standards-based grading in one southwest Missouri high school?

Standards-based grading implementation consisted of two PowerPoint presentations to the community. The first PowerPoint presentation was scheduled to explain the district's belief in the problems associated with standards-based grading , the definition of power standard, and how standards-based grading would be beneficial to the students. The second PowerPoint presentation was conducted to summarize the communication among the superintendent, the school board, and parents over concerns about standards-based grading and included a petition from parents in the district asking for a re-evaluation of standards-based grading. This communication brought about changes in the structure of standards-based grading, as reported in Chapter Four.

Follow-up data included student and parent surveys about the impact of standards-based grading. The most significant findings were revealed from student responses, in which 65.21% of students believed homework should be included in their grade, and 92.17% believed homework has a direct effect on learning. Even more significant was 65.21% believed standards-based grading was not preparing students for college, and 72.17% believed standards-based grading was not preparing students for the workforce. Lastly, when asked if standards-based grading was the best assessment for students, 70% of the student responses indicated standards-based grading was not the best grading system to assess student learning.

The results of the parent survey mirrored the students' responses. When asked if homework should be calculated into a student's grade, 84.21% agreed, and 100% believed homework had a direct effect on learning. When responding to the question if standards-based grading was the best assessment for students, over 71% of the parents did not believe standards-based grading was the best method for assessing student learning. An overwhelming majority (84.21%) of parents did not believe standards-based grading was preparing students for college, and 89.47% did not believe standards-based grading was preparing students for the workforce.

Research question 2. What are high school teachers' perceptions of standards-based grading?

Eight teachers were interviewed about their perceptions of standards-based grading. Two teachers preferred standards-based grading over traditional grading, three teachers did not believe there was any difference between standards-based grading and traditional grading, one teacher had no opinion, and three teachers disapproved of

standards-based grading. As a percentage, 37.5% of the teachers interviewed did not approve of standards-based grading.

Teachers were asked about the barriers to standards-based grading, and the consensus of teachers believed getting parents and students to understand how students are assessed using standards-based grading was the greatest barrier. Additionally, two teachers identified intrinsic motivation as a barrier. Teachers' responses to the perceived advantages were the following: students know where they are in terms of the standards, and standards-based grading is better aligned to the curriculum than a traditional grading system.

When asked about the perceived disadvantages of standards-based grading, the most prevalent response from teachers was the time it takes for some students to reach mastery and the difficulty in meeting deadlines to prepared students for standardized testing. In regards to teaching strategies, seven of the eight teachers changed their classroom teaching practices upon the implementation of standards-based grading.

Research question 3. What are high school students' perceptions of standards-based grading?

Twelve students were interviewed about their perceptions of standards-based grading. Of the 12, 50% preferred standards-based grading, and 41.66% preferred traditional grading. One student did not have an opinion. An advantage of standards-based grading, as noted by several students, is that it is hard to fail due to being allowed to retake exams, but the disadvantage to standards-based grading is it is hard to get an A.

Research question 4. What is the difference between the MAP Index (MPI) scores and mean scores of students in one rural high school utilizing standards-based grading and the MAP Index scores and mean scores for students in Missouri?

$H1_0$: There is no significant difference between student achievement on standardized tests for students receiving standards-based grades and students receiving traditional grades.

$H1_a$: There is a significant difference between student achievement on standardized tests for students receiving standards-based grades and students receiving traditional grades.

American history. The MPI scores for Missouri students exceeded the MPI scores of Wildcat High School students each year from 2010-2014. The *p* value (0.005) < (0.05), was sufficient evidence to reject the null hypothesis and consider the alternate hypothesis.

Government. The MPI scores for Missouri students exceeded the MPI scores of Wildcat High School students from the years 2011-2014, but not for the year 2010. The *p* value (0.059) > (0.05), was sufficient evidence to not reject the null hypothesis.

Biology. The MPI scores for Wildcat High School students exceeded the MPI scores of Missouri students for the years 2013-2014, the two years standards-based grading was implemented in Biology. The *p* value (0.538) > (0.05) was sufficient evidence to not reject the null hypothesis.

English 1. The MPI scores for Wildcat High School students were lower than the MPI scores of Missouri students for the years 2013-2014, the two years standards-

based grading was implemented in English 1. The *p* value (0.142) > (0.05) was sufficient evidence to not reject the null hypothesis.

English 2. The MPI scores for Wildcat High School students were lower than the MPI scores of Missouri students for the years 2013-2014, the two years standards-based grading was implemented in English 2. The *p* value (0.558) > (0.05) was sufficient evidence to not reject the null hypothesis.

Algebra 1. The MPI scores for Wildcat High School students were lower than the MPI scores for Missouri students for the years 2013-2014, the two years standards-based grading was implemented in Algebra 1. The p value (0.014) < (0.05) was sufficient evidence to reject the null hypothesis and consider the alternate hypothesis.

Algebra 2. The MPI scores for Wildcat High School students were greater than Missouri students for the years 2013-2014, the two years standards-based grading was implemented in Algebra 2. The *p* value (0.331) > (0.05) was sufficient evidence to not reject the null hypothesis.

Geometry. The MPI for Wildcat High School students was lower than Missouri students for the years 2013-2014, the two years standards-based grading was implemented in Geometry. The *p* value (0.27) < (0.05) was sufficient evidence to reject the null hypothesis and consider the alternate hypothesis.

Limitations of Findings

There were three major limitations of this study. First, this research was conducted as a case study of one southwest Missouri high school. Mean EOC data were obtained from only one school implementing standards-based grading and were compared to all Missouri students. The number of students taking the EOC exams at

Wildcat High School was fewer than 200 students in each subject, each year, while the number of Missouri student taking the EOC exams each year numbered in the thousands.

The second limitation was the implementation of standards-based grading at Wildcat High School. Teachers of American History and Government began using standards-based grading during the 2009-2010 school year, and five years of EOC data were able to be obtained from these subjects. The remainder of the subjects (Biology 1, English 1 and 2, Algebra 1 and 2, and Geometry) were implemented during the 2012-2013 school year. Therefore, only two years of EOC data were able to be obtained to compare the means with the EOC scores of Missouri students.

The third limitation was there were no assurances the EOC data collected from all of the Missouri schools used traditional grading or some other form of grading. Data, from Wildcat High School once standards-based grading was implemented, were compared to all Missouri schools to obtain mean scores and *p* value. While the EOC data were limited to one school district which implemented standards-based grading, generalization can be made about the overall significance of standards-based grading on student performance. However, the study cannot be replicated after 2014 due to changes in the EOC assessments.

Relationship of Findings to Conceptual Framework

The purpose of grades is to identify what students have learned based on clearly-defined learning outcomes. Grades must be given using clearly defined learning outcomes and be challenging, rigorous, and transparent (Guskey, 2011). Standards-based grading is one grading system schools can implement which provides the clearly-defined outcomes necessary for optimal student learning. The most important aspect of

standards-based grading is its aligning of standards, assessment, and instruction to learner outcomes (Colby, 1999).

This study sought to determine the impact standards-based grading had on student outcomes on the EOC exams in one southwest Missouri high school. The results of this study were mixed as to the effectiveness of standards-based grading. Additional longitudinal data gathered once standards-based grading has been implemented in all subjects for a minimum of five years would provide a clearer picture of the impact the grading system has on standardized assessment scores. Also, if standards-based grading was implemented prior to students entering high school, students may be better prepared for learning under standards-based grading.

Conclusions

Archival data collected were obtained from two PowerPoint presentations. Maune, Marino, and Hurley (2013) d archives as "Collections of materials and artifacts kept and preserved by organizations" (para. 1). The first PowerPoint was presented to highlight the concepts of traditional grading and standards-based grading, practices that inhibit learning, and why standards-based grading was a good choice for students. The second PowerPoint was a summary of the meetings between the superintendent and the school board and between the superintendent and the patrons of the district. The outcome of these meetings revealed all stakeholders did not want to eliminate standards-based grading, but changes were made to where mastery was 90% and equaled an A- instead of a B+.

Qualitative data collected from this study provided mixed results on teacher perceptions of standards-based grading. Only two teachers preferred standards-based

grading over traditional grading, while the remainder of the teachers did not believe there was a difference from traditional grading, felt standards-based grading created an atmosphere of laziness, or did not have an opinion. Student perceptions of standards-based grading were almost split evenly with six students preferring standards-based grading, five students preferring traditional grading, and one student with no opinion. Students and parents did not believe standards-based grading prepared students for college or the workforce, according to follow-up surveys given by the district.

Data from this study compared EOC test scores in one southwest Missouri high school using standards-based grading to all Missouri students' EOC test scores. The results of the analyses of scores from American History, Algebra 1, and Geometry were statistically significant at a *p* value of 0.05, and results from Government, Biology, English 1and 2, and Algebra 2 were not statistically significant at a *p* value of 0.05. According to Bluman (2012), the null hypothesis should be rejected when the *p* value is below the level of significance and not rejected when above the level of significance. Therefore, it can be surmised the implementation of standards-based grading does not yield a significantly positive difference on EOC tests.

Implications for Practice

There are several implications for practice to be addressed if standards-based grading is to be a successful alternative to traditional grading. Parents and students believe homework should be calculated into students' grades. Schools implementing standards-based grading can use homework to assess student learning formatively and to give a separate grade from the summative assessment. Principals and teachers must help

parents and students understand the goal of standards-based grading is about the end result to assess what students have learned.

The overwhelming majority of parents and students reported in follow-up surveys they do not believe standards-based grading is preparing students for college or for the workforce. Developing school partnerships with businesses so students can participate in internships and getting feedback from business would provide the data necessary to determine the effectiveness of standards-based grading on workforce preparation. Schools can track student performance on college prep tests, such as the PSAT, ACT, and SAT to determine student preparation for college.

The final implication for practice is to continue analyzing EOC test scores for the effectiveness of standards-based grading on student achievement. Only three of the eight subjects in which standards-based grading was implemented resulted in statistically significant EOC test scores. Since teaching methods, curriculum, and the standards may impact student performance on EOC exams, differentiating these data will help schools to improve upon the implementation of standards-based grading.

Recommendations for Future Research

There are four main recommendations for future research. First, there are many schools across the state and country utilizing standards-based grading. Statistical analysis of multiple high schools utilizing standards-based grading and comparing standardized test scores before and after the implementation of standards-based grading will expand the research in this area. Additionally, standardized test data need to be analyzed over a five-to-10 year period for high schools using standards-based grading and those using traditional grading.

Second, while the quantitative data obtained from teacher and student interviews provided excellent insight into their perceptions of standards-based grading, a survey of students, teachers, and parents utilizing a Likert Scale would provide additional data. Statements in which the participants' opinions (*strongly agree, agree, disagree, and strongly disagree*) would be obtained might include the following:

1. Standards-based grading improves learning.
2. I understand how students are assessed in standards-based grading.
3. Homework should be included in the final grade.
4. Standards-based grading prepares students for college.
5. Standards-based grading prepares students for the workforce.
6. I prefer standards-based grading over traditional grading.
7. Standards-based grading improves student test scores.
8. Learning is clearly defined with standards-based grading.
9. Attendance and student behavior should be included in grades.
10. My grades have improved under standards-based grading.
11. Standards-based grading has raised academic expectations.
12. Homework has increased under standards-based grading.

A survey would allow for a larger population of stakeholders to be measured, which would provide more accurate data as to the perceptions of students, teachers, and parents.

Third, teachers include a multitude of items within a gradebook. Measures to include teacher fidelity would enhance the study. Consistency among teachers and how students are being graded with standards-based grading would enhance additional research.

Fourth, analyze schools which have implemented strong professional development prior to and along with standards-based grading. This would allow a better analysis as to the implementation of standards-based grading. The analysis of professional development would provide additional archival data to strengthen the research.

Summary

Assigning students a grade at the end of a unit or a term has traditionally been understood to measure learning. However, traditional grading has usually included non-academic factors, such as, tardiness, behavior, the timeliness of turning in assignments, and total points of homework and tests to determine grade average. Also, how teachers grade students is widely varied. Grades are an unreliable measurement of student achievement, with great differences among teachers in the criteria used when determining grades (Guskey et al., 2011).

Standards-based grading adds reliability and clarity to student learning outcomes. Specific learning outcomes from the curriculum are established with a standards-based report card, so the applicable rigor can be applied to student learning (Guskey & Bailey, 2010). The purpose of this study was to identify if differences existed among student scores on standardized tests when using standards-based grading as opposed to those using traditional grading. Teacher and student perceptions about standards-based grading were also reviewed.

In Chapter One, an historical basis for the research and the conceptual framework was described. The statement of the problem, significance and purpose of the study, the hypotheses, and research questions were introduced. Key definitions, limitations, and

assumptions were presented. In Chapter Two, an historical background of the study and a literature review of supporting and opposing evidence were provided.

An explanation of the methodology used in this mixed-methods study was stated in Chapter Three. An overview of the problem and purpose of the study was recounted, and the null and alternate hypotheses were identified. The population and sample were described, as well as the instrumentation and analysis process.

In Chapter Four, the sample and demographic were reviewed. Data were collected from archives at Wildcat High School and from interviews of teachers and students. A total of 12 students and eight teachers were interviewed in the spring of 2014. The research questions and hypotheses were restated. The data were evaluated, and tables and figures were designed to present the data.

In Chapter Five, findings, conclusions, and the research questions were discussed. Examining research question one, while there was a process used in the implementation of standards-based grading at Wildcat High School, archival evidence did not reveal significant professional development given to teachers in the use of standards-based grading. Additionally, follow-up surveys of parents and students identified the perception standards-based grading was not adequately preparing students for college or the workforce.

Research question two revealed 37.5% of teachers did not approve of standards-based grading. A consensus of teachers believed the main barrier to standards-based grading was a lack of understanding of the system by parents and students. As for disadvantages, teachers believed the time to reach mastery and the ability to meet deadlines inhibited the effectiveness of standards-based grading. Research question three

revealed 50% of students preferred standards-based grading, and 41.66% of students preferred traditional grading.

Research question four disclosed in five of the eight academic subjects in which EOC exams were analyzed, there was sufficient evidence to not reject the null hypothesis. The five subject areas each had a *p* value of greater than (0.05). However, the implementation of standards-based grading in which EOC exams were analyzed was for two years, except for American History and Government, which were in the fifth year of standards-based grading.

Implications from this study revealed a need for grading reform in schools. This study yielded mixed results regarding standards-based grading; although, according to related literature, standards-based grading can be effective in improving standardized test scores when implemented appropriately and revised if data analysis warrants revision. Nonetheless, school and district leaders must determine if standards-based grading is the best grading model for students and work with teachers, students, and parents to provide the best educational outcomes for their communities.

Appendix A

Teacher Interview Questions

1. How long have you been teaching?
2. What subjects do you teach?
3. Do you use standards-based grading in each subject?
4. Were survey data used in the decision to begin standard-based grading?
5. What professional development training was provided in the implementation of standards-based grading?
6. Did your instructional practices change with the implementation of standards-based grading?
7. Do you prefer standards-based grading or traditional grading, and why?
8. What were the barriers to standards-based grading?
9. What do you perceive are the advantages and disadvantages to standards-based grading?

Appendix B

Student Interview Questions

1. What grade are you in school?
2. Approximately, what is your GPA?
3. Do you prefer standards-based grading or traditional grading? Why?
4. What changes in teaching have you observed since the implementation of standards-based grading?
5. Has your homework increased or decreased with standards-based grading?
6. What do you believe are the advantages and disadvantages of standards-based grading?
7. What are your parent's opinions of standards-based grading?

Appendix C

LINDENWOOD

LINDENWOOD UNIVERSITY ST. CHARLES, MISSOURI

DATE:	December 18, 2013
TO:	Terry Winton
FROM:	Lindenwood University Institutional Review Board
STUDY TITLE:	[523279-1] The Relationship of Standards Based Grading to Student Performance and Student and Teacher Perceptions
IRB REFERENCE #:	
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
APPROVAL DATE:	December 18, 2013
EXPIRATION DATE:	December 18, 2014
REVIEW TYPE:	Administrative Review

Thank you for your submission of New Project materials for this research project. Lindenwood University Institutional Review Board has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Administrative Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to the IRB.

This project has been determined to be a Minimal Risk project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the completion/amendment form for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of December 18, 2014.

Please note that all research records must be retained for a minimum of three years.

If you have any questions, please contact Tammy Moore at (618) 616-7027 or tmoore@lindenwood.edu. Please include your study title and reference number in all correspondence with this office.

If you have any questions, please send them to IRB@lindenwood.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Lindenwood University Institutional Review Board's records.

Appendix D

Permission from Superintendent

Terry Winton
[redacted]
Springfield, MO 65804

October 7, 2013
Dr[redacted], Superintendent

[redacted]

Dear [redacted]

I am currently a doctoral student at Lindenwood University in St. Charles, Missouri, and am conducting research on student and teacher perceptions of standards-based grading. I will be conducting interviews of approximately 10-12 high school students and eight high school teachers. I am requesting permission to conduct the interviews on-site in your district. If you approve, I will contact your high school principal, Mr[redacted], to schedule the interviews. I will keep the disruption to the educational process to a minimum, and all interviewees will be kept confidential. Thank you for your time and consideration.

Sincerely,

Terry Winton, Principal

Verona High School

PERMISSION GRANTED FOR THE

USE REQUESTED ABOVE:

Dr[redacted]

Signature_____Date_____

Appendix E

Consent Letter

Student and Teacher Perceptions of Standards-based Grading and Student Performance

Dear Parent,

I am currently a doctoral student at Lindenwood University in St. Charles, Missouri, and am conducting a study on standards-based grading in a secondary setting. I will be collecting data through interviews to assess your son/daughter's perceptions of standards-based grading in place of traditional letter grades.

Your child's participation in this survey is voluntary and being requested due to the current practice of standards-based grading and traditional grading in your child's school. If you choose to allow your child to participate in this study, his/her identity as a participant will remain confidential, and his/her name will never be publicly associated with any data or answers provided. Results will only be reported collectively at the conclusion of the study.

There is no risk of physical or psychological injury from participation in this study, and no penalty should you decide not to participate. Thank you for allowing your son/daughter to assist in this research.

Sincerely,

Terry Winton

Lindenwood University Doctoral Student

Appendix F

Consent Letter

Student and Teacher Perceptions of Standards-based Grading and Student Performance

Dear Missouri Educator,

I am currently a doctoral student at Lindenwood University in St. Charles, Missouri, and am conducting a study on standards-based grading in a secondary setting. I will be collecting data through interviews to assess your perceptions of standards-based grading in place of traditional letter grades.

Your participation in this interview is voluntary and being requested due to your experience in both standards-based grading and traditional grading. If you choose to participate in this study, your identity as a participant will remain confidential, and your name will never be publicly associated with any data or answers you provide. Results will only be reported collectively at the conclusion of the study.

There is no risk of physical or psychological injury from participation in this study, and no penalty should you decide not to participate. Thank you for your assistance in this research.

Sincerely,

Terry Winton

Lindenwood University Doctoral Student

Appendix G

Lindenwood University
School of Education
209 S. Kingshighway
St. Charles, Missouri 63301

Informed Consent for Participation in Research Activities

Student and Teacher Perceptions of Standards-based Grading and Student Performance

Principal Investigator Mr. Terry Winton

Telephone: 417-xxx-xxxx E-mail: tww081@lindenwood.edu

Participant_____Contact info_____

1. You are invited to participate in a research study conducted by Mr. Terry Winton under the guidance of Dr. Cathy Galland. The purpose of this research is to examine teacher and student perceptions of standards-based grading and the difference between standards-based grading and traditional grading in regard to student achievement. The research will help determine if standards-based grading has an impact on student achievement on standardized tests.

2. a) Your participation will involve:
   - Participating in an interview to gather your perceptions of standards-based grading and experience with standards-based grading.
   - The interviews will take place at [redacted] during lunch breaks, teacher plan time, or before or after school, unless you prefer to be interviewed off-site. If so, arrangements will be made for the interview to take place at an off-site location most convenient for you.

   b) The amount of time involved in your participation will be 20 minutes for a one-time audio taped interview.

   Approximately eight teachers, two from each core subject area, will be involved in this research.

3. There are no anticipated risks associated with this research.

4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about standards-based grading.
5. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

6. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication or presentation that may result from this study and the information collected will remain in the possession of the investigator in a safe location.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Mr. Terry Winton, [redacted] or the Supervising Faculty, Dr. Cathy Galland, [redacted]. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Jann Weitzel, Vice President for Academic Affairs, at 636-949-4846.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

_____	_____
Participant's Signature Date	Participant's Printed Name
_____	_____
Signature of Principal Investigator Date	Investigator Printed Name

Appendix H

Lindenwood University
School of Education
209 S. Kingshighway
St. Charles, Missouri 63301

Informed Consent for Parents to Sign for
Student Participation in Research Activities

Student and Teacher Perceptions of Standards-based
Grading and Student Performance

Principal Investigator Mr. Terry Winton
Telephone: 417-xxx-xxxx E-mail: tww081@lindenwood.edu

Participant_____ Parent Contact info _____

Dear Parent,

1. Your child is invited to participate in a research study conducted by Mr. Terry Winton under the guidance of Dr. Cathy Galland. The purpose of this research is to examine teacher and student perceptions of standards-based grading and the difference between standards-based grading and traditional grading in regard to student achievement. The research will help determine if standards-based grading has an impact on student achievement on standardized tests.

   Standards-based grading assesses and assigns grades based on content mastery as opposed to traditional grading, which assigns grades based on a percentage of all assignments and classroom behavior.

2. a) Your child's participation will involve:
   - Participating in an interview about perceptions of standards-based grading and his/her experience with standards-based grading and traditional grading practices.

   - The interviews above will take place at [redacted] during the school day as determined by the school administration, during lunch breaks, study halls, or before or after school.

   Approximately 12 students may be involved in this research.

b) The amount of time involved in your child's participation will be 20 minutes.

- Audio taped student interview: 1 time occurrence, 20 minutes

4. There are no anticipated risks to your child associated with this research.

5. There are no direct benefits for your child's participation in this study. However, your child's participation will contribute to the knowledge about standards-based grading.

6. Your child's participation is voluntary, and you may choose not to let your child participate in this research study or to withdraw your consent for your child's participation at any time. Your child may choose to skip or not answer any questions that he or she does not want to answer. You and your child will NOT be penalized in any way should you choose not to let your child participate or to withdraw your child.

7. We will do everything we can to protect your child's privacy. As part of this effort, your child's identity will not be revealed in any publication or presentation that may result from this study.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Mr. Terry Winton, [redacted] or the Supervising Faculty, Dr. Cathy Galland, [redacted]. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Jann Weitzel, Vice President for Academic Affairs, at 636-949-4846.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my child's participation in the research described above.

Parent's/Guardian's Signature	Date	Parent's/Guardian's Printed Name
Child's Printed Name		
Signature of Investigator	Date	Investigator Printed Name

Appendix I

Comprehensive Guide to the Missouri School Improvement Program

Updated July 2014

MPI Example Calculation

Achievement levels are provided by the testing companies for the total number of Reportable Students in each subject area. In the following example of a single content area for a grade 6 through 8 school, achievement levels generated through the grade-level MAP, the MAP-A and the EOC assessments may be utilized. To generate the MPI, the number of Advanced scores are multiplied by five (5), Proficient scores by four (4), Basic scores by three (3), and Below Basic scores by one (1). These products are then summed, divided by the total number of reportable and multiplied by 100 then rounded to the tenth to produce the MPI which ranges from 100-500. The following example shows how the index is calculated in a single subject and school:

References

Alberti, S (2012). Making the shifts. *Educational Leadership, 70*(4), 24-27.

Armstrong, S., Chan, S., Malfroy, J., & Thomson, R. (2008). Assessment guide: Implementing criteria and standards-based assessment. University of Western Sydney. Retrieved from http://www.uws.edu.au/__data/assets/pdf_file/0004/449860/Assessment_Guide.pdf

Andersen, J. P., Prause, J., & Silver, R. C. (2011). A step-by-step guide to using secondary data for psychological research. *Social & Personality Psychology Compass*, *5*(1), 56-75. doi:10.1111/j.1751-9004.2010.00329.x

Ary, D., Jacobs, L. C., Sorensen, C., & Walker, D. A. (2014). *Introduction to research in education*. Belmont, CA: Wadsworth Cengage Learning.

Bluman, A. G. (2012). *Elementary statistics: A step by step approach* (8th. ed). New York, NY: McGraw-Hill.

Brookhart, S. M. (2011a, June). *The use of teacher judgment for summative assessment in the United States: Weighed in the balance an (often) found wanting.* Paper presented at the Invited Research Seminar, Oxford University. Abstract retrieved from http://oucea.education.ox.ac.uk/wordpress/wp-content/uploads/2011/07/Brookhart-FINAL.pdf

Brookhart, S. M. (2011b). Starting the conversation about grading. *Educational Leadership*, *69*(3), 10-14.

Campbell, C. (2012). Learning-centered grading practices. *Leadership, 41*(5), 30-33.

Carey, T., & Carifio, J. (2011). Minimum grading, maximum learning. *Principal Leadership, 11*(7), 42-46.

Colby, S. A. (1999). Grading in a standards-based system. *Educational Leadership, 56*(6), 52-55.

Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A., & Sheikh, A. (2011). The case study approach. *BMC Medical Research Methodology, 11*(1), 100-108. doi:10.1186/1471-2288-11-100

Cox, K. B., (2011). Putting classroom grading on the table: A reform in progress *American Secondary Education, 40*(1), 67-87.

Deddeh, H., Main, E., & Fulkerson, S.R. (2010). Eight steps to meaningful grading. *Phi Delta Kappan, 91*(7), 53-58.

DeNisco, A. (2014). Schools coping with Common Core turbulence. *District Administration, 50*(4), 22.

Destimone, L. M. (2013). Reform before NCLB. *Phi Delta Kappan, 94*(8), 59-61.

Doorey, N. A. (2012). Coming soon: A new generation of assessments. *Educational Leadership, 70*(4), 28-34.

Durkin, A. (2013). Maine group seeks vote on Common Core. *Community College Week, 26*(3), 11.

Elementary and Secondary Education Standards, CCS#2 SS SCS HB 1490 (2014).

Erickson, J. A. (2010, March). Grading practices: The third rail. *Principal Leadership, 10*(7), 22-26.

Erickson, J. A. (2011). How grading reform changed our school. *Educational Leadership, 69*(3), 66-70. Retrieved from www.ASCD.org

Fisher, D., Frey, N., & Pumpian, I. (2011). No penalties for practice. *Effective Grading Practices, 69*(3), 46-51. Retrieved from www.ASCD.org

Fleenor, A., Lamb, S., Anton, J., Stinson, T., & Donen, T. (2011). The grade game. *Principal Leadership, 11*(6), 48-52.

Goldstein, R. A., & Beutel, A. R. (2009). Soldier of democracy or enemy of the state? The rhetorical construction of teacher through No Child LeftBbehind. *Journal for Critical Education Policy Studies, 7*(1), 275-300. Retrieved from http://www.jceps.com/PDFs/07-1-11.pdf

Gordon, M. (2012). *Are traditional grades a thing of the past?* Retrieved from http://www.education.com/magazine/article/traditional-grades/

Gordon, M. E., & Fay, C. H. (2010). The effects of grading and teaching practices on students' perceptions of grading fairness. *College Teaching, 58,* 93-98. doi:10.1080/87567550903418586

Guest, G., Namey, E. E., & Mitchell, M. L. (2013). *Collecting qualitative data*. Thousand Oaks, CA: Sage Publications.

Guskey, T. R. (2011). Five obstacles to grading reform. *Educational Leadership, 69*(3), 16-21.

Guskey, T. R. (2013). The case against percentage grades. *Educational Leadership, 71*(1), 68-72.

Guskey, T. R., & Bailey, J. M. (2010). *Developing standards-based report cards.* Thousand Oaks, CA: Corwin.

Guskey, T. R., & Jung, L. A. (2012). Four steps in grading reform. *Principal Leadership, 13*(4), 22-28.

Guskey, T. R., Swan, G. M., & Jung, L. A. (2011). Grades that mean something: Kentucky develops standards-based grade cards. *Phi Delta Kappan, 93*(2), 52-57. Retrieved from kappanmagazine.org

Hamilton, L. S., Stecher, B. M., & Yuan, K. (2008, December). *Standards-based reform in the UnitedSstates: History, research, and future directions*. http://www.rand.org/content/dam/rand/pubs/reprints/2009/RAND_RP1384.pdf

Harding, J. (2013). *Qualitative data analysis from start to finish* (1st ed.). Los Angeles, CA: Sage Publications.

Herman, J., & Linn. R. (2014). New assessment, new rigor. *Educational Leadership, 71*(6), 34-37.

Hesse-Biber, S. N, & Leavy, P. (2010). *Handbook of emergent methods.* New York, NY: The Guilford Press.

High schools slow to adopt standards-based report cards. (2012, July). Eschoolnews.com. Retrieved from http://www.eschoolnews.com/2012/07/12/high-schools-slow-to-adopt-standards-based-report-cards/

Iacus, S. M., & Porro, G. (2011). Teachers' evaluations and students' achievement: A deviation from the reference analysis. *Education Economics, 19,* 139-159. doi:10.1080/09645290903105277

Jung, L. E., & Guskey, T. R. (2011). Fair & accurate grading. *Principal Leadership, 12*(3), 32-37.

Kober, K., & Rentner, D. S. (2011). States' progress and challenges in implementing Common Core State Standards. Retrieved from http://www.cep-dc.org/displayDocument.cfm?DocumentID=374

Kober, N., & Riddle, W. (2012). Accountability Issues to watch under NCLB waivers. Retrieved from www.cep-dc.org

Kohn, A. (2011). The case against grades. *Educational Leadership, 69*(3), 28-33.

Learning domain (2012). Retrieved from http://www.learningdomain.com/Chapter8.Coding.pdf

Llosa, L. (2011). Standards-based classroom assessments of English: A review of issues, current developments, and future directions for research. *Language Testing, 28*(3), 367-382. doi:10.1177/0265532211404188

Marzano, R. J. (2010). Standards-based grading. *NorthEast Washington Educational Service District, 10.* Retrieved from http://www.esd101.net/Page/608

Marzano, R., & Heflebower, T. (2011). Show what students know. *Educational Leadership, 69*(3), 34-39.

Maune, M., Marino, N., & Hurley, G. (2013). *Introduction to archives*. Retrieved from https://owl.english.purdue.edu/owl/resource/988/01/

Miller, J. M. (2013). A better grading system: Standards-based, student-centered assessment. *English Journal, 103*(1), 111-118.

Missouri Department of Elementary and Secondary Education (2012a). *Education reform plan* summary. Retrieved from http://dese.mo.gov/top10by20/documents/10x20-education-reform-plan-summary.pdf

Missouri Department of Elementary and Secondary Education (2012b). *Common core Q and A.* Retrieved from http://dese.mo.gov/divimprove/curriculum/Common_Core.html

Missouri Department of Elementary and Secondary Education (2012c). *Missouri's ESA flexibility waiver approved*. Retrieved from http://dese.mo.gov/news/2012/waiver-approved.htm

Missouri Department of Elementary and Secondary Education (2013a). *End-of -course*. Retrieved from http://dese.mo.gov/divimprove/assess/staff.html

Missouri Department of Elementary and Secondary Education (2013b). *Missouri comprehensive data system*. Retrieved from http://mcds.dese.mo.gov/guidedinquiry/District%20and%20Building%20Student%20Indicators/Building%20Demographic%20Data.aspx?rp:District=048914&rp:SchoolYear=2013&rp:SchoolYear=2012&rp:SchoolYear=2011&rp:SchoolYear=2010

Missouri Department of Elementary and Secondary Education (2014). *MSIP5: Preparing every child for success in school and in life*. Retrieved from http://dese.mo.gov/sites/default/files/MSIP-5-comprehensive-guide-3-13_1.pdf

Murnane, R. J., & Papay, J. P. (2010). Teachers' views on no child left behind: Support for the principles, concerns about the practices. *Journal of Economic Perspectives*, *24*(3), 151-166.

No Child Left Behind (2011, September). *Education Week Published.* Retrieved from http://www.edweek.org/ew/issues/no-child-left-behind/

O'Connor, K., (2009). Reforming grading practices in secondary schools. *Principal's Research Review, 4*(1), 1-7.

O'Connor, K. (2010). Grades: When, why, what impact, and how? *Education Canada, 50*(2), 38-41.

O'Connor, K., & Wormeli, R. (2011). Effective grading practices: Reporting student learning. *Educational Leadership, 69*(3), 40-44.

Oluwatayo, J. A., (2012). Validity and reliability issues in educational research. *Journal of Educational and Social Research, 2*(2), 391-400. doi:10.5901/jesr.2012.v2n2.391

Oregon Department of Education. (2010). *Academic content standards: Creating consistency across Oregon*. Retrieved from http://www.ode.state.or.us/pubs/eii/academiccontentstandardsprimer.pdf

Potts, G. (2010, May). A simple alternative to grading. *Inquiry, The Journal of the Virginia Community Colleges, 15*(1), 29-42.

Reeves, D. B. (2008). Effective grading practices. *Educational Leadership, 65*(5), 85-87.

Reeves, D. B. (2011). Taking the grading conversation public. *Educational Leadership, 69*(3), 76-79.

Riddle, W., & Kober, N. (2012, October). *What impact will NCLB waivers have on the consistency, complexity and transparency of state accountability systems?* Retrieved from website: www.cep-dc.org

Reeves, S., Peller, J., Goldman, J., & Kitto, S. (2013). Ethnography in qualitative educational research: AMEE guide no. 80. *Medical Teacher,35,* 1365-1379. doi:10.3109/0142159X.2013.804977

Rothman, R. (2012). Laying a common foundation for success. *Phi Delta Kappan*, *94*(3), 57-61.

Rundquist, A. (2011). Standards-based grading with voice: Listening for students' understanding. *AIP Conference Proceedings, 141*(1), 69-72. doi:10.1063/1.3679996

Rust, T. R. (2012). Technology and engineering education and the Common Core standards. *Technology and Engineering Teacher, 72*(3), 32-36.

Sadler, R. S. (2009). Grade integrity and the representation of academic achievement. *Studies in Higher Education, 34*, 807-826. doi:10.1080/03075070802706553

Sarte, J. & Hughes, S. (2010). Refocusing our efforts: A shift from grading to an emphasis on learning. *Educational Insights, 14*(1). Retrieved from http://www.ccfi.educ.ubc.ca/publication/insights/v14n01/articles/sarte/index.html

Sawchuck, S. (2012). Many teachers not ready for the common core. *Education Digest, 78*,(2), 16-22.

Scherer, M. (2011). What we learn from grades. *Educational Leadership, 69*(3), 7.

Shippy, N., Washer, B. A., & Perrin, B. (2013). Teaching with the end in mind: The role of standards-based grading. *Journal of Family and Consumer Sciences*, *105*(2), 14-16.

Spencer, K. (2012). Standards-based grading. *Harvard Education Letter, 28*(5), 3-6. Retrieved from www.eddigest.com

Taylor, J. E., Dossick, C. S., & Garvin, M. (2011). Meeting the burden of proof with case-study research. *Journal of Construction Engineering & Management*, *137*(4), 303-311. doi:10.1061/(ASCE)CO.1943-7862.0000283

Tierney, R. D., Simon, M., & Charland, J. (2011). Being fair: Teachers' interpretations of principles for standards-based grading. *The Educational Forum, 75*, 210-227. doi:10.1080/00131725.2011.577669

Townsley, M. (2013). Redesigning grading districtwide. *Educational Leadership, 71*(4), 68-71.

Turner, III, W.D. (2010). Qualitative interview design: A practical guide for novice investigators. *The Qualitative Report, 15*(3), 754-760. Retrieved from http://www.nova.edu/sss/QR/QR15-3/qid.pdf

Ujifusa, A. (2014). Okla., S.C. back off from common core. *Education Week, 33*, (35), 24-26.

United States Department of Education. (2004*). No Child Left Behind—A toolkit for teachers*. Retrieved from ww.ed.gov/teachers/nclbguide/nclb-teachers-toolkit.pdf.

United States Department of Education. (2008). *A nation accountable: 25 years after a nation at risk*. Retrieved from http://www.projectopeningdoors.org/documents/ANationAccountable25YearsAfterANationatRisk.pdf?&lang=en_us&output=json

Vatterott, C. (2011). Making homework central to learning. *Educational Leadership*. *69*(3), 60-64. Retrieved from www.ASCD.org

VandenBos, R. (Ed). (2010). *Publication manual of the American psychological association*: (6th ed). Washington D.C.: American Psychological Association.

Wilhoit, G. (2012). Make-or-break state action. *Phi Delta Kappan, 94*(2), 47-49.

Williams, C. (2007). Research design. *Journal of Business and Economic Research, 5*(3), 65-72.

Winger, T. (2009). Grading what matters. *Educational Leadership, 67*(3), 73-75. Retrieved from www.ASCD.org

Wixson, K. K., Dutro, E., & Athan, R. G. (2003). The challenge of developing content standards. *Review of Research in Education, 27*, 69-107.

Wormeli, R. (2011). Redos and retakes done right. *Educational Leadership, 69*(3), 22-26.

Yesbeck, D. M., (2011). *Grading practices: Teachers' considerations of academic and non-academic factors* (Doctoral dissertation, Virginia Commonwealth University). Retrieved from https://dizzyg.library.vcu.edu/bitstream/handle/10156/3575/Yesbeck_Diana_PhD.pdf?sequence=1

Yu, C., & Ohlund, B. (2012). Threats to validity of research design. Retrieved from http://creative-wisdom.com/teaching/WBI/threat.shtml

Zigmond, N., & Kloo, K. (2009). The two percent students: Considerations and consequences of eligibility decisions. *Peabody Journal of Education, 84*(4), 478-495. doi:10.1080/01619560903240855

Vita

Terry Winton has been the 7-12 principal for the Verona R-7 School District since 2008. Prior experience includes four years teaching social studies at Greenfield High School and three years teaching social studies at Sparta High School. Terry began his administrative career at Exeter High School, serving three years before assuming the position of the K-12 principal at Everton R-III School District from 2003-2008.

Terry earned his Bachelor of Science in Social Studies Education from Missouri State University in 1993. He earned his Master's Degree in Educational Administration from Missouri State University in 1999. Terry received his Specialist Degree in Educational Administration from Missouri State University in 2010.