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THE RELATIONSHIP BETWEEN SECONDARY SCHOOL TEACHER PERCEPTIONS OF GRADING PRACTICES AND SECONDARY SCHOOL TEACHER PERCEPTIONS OF STUDENT MOTIVATION

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BY

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Abstract

Teacher grading practices and student motivation continue to be important topics in education and research. Although studies have documented teacher grading practices and strategies to increase student motivation, few studies have analyzed teacher perceptions of grading practices and teacher perceptions of student motivation and the relationship between these two perceptions.

This quantitative study examined the relationship between secondary teacher perceptions of grading practices and secondary teacher perceptions of student motivation. By using data from two instruments, the Teachers' Perceptions of Grading Practices (TPGP) questionnaire and the Perceptions of Student Motivation (PSM) questionnaire, this study examined the relationship between teacher perceptions of grading practices and student motivation. Results include descriptive statistics regarding demographic differences in perceptions, and a multivariate (MANOVA) analysis to analyze any differences in perceptions amongst different groups based on demographic data. This study focused on 307 secondary school teachers in four Midwest counties because of these teachers' impact on the decision students make to drop out or stay in school.

Results indicate overall correlations between teacher perceptions of grading practices and student motivation, as well as correlations between individual factors of grading and individual factors of student motivation. Results also indicate statistically significant differences in mean scores of perceptions between genders, experience levels, and subject area taught for both grading practice and student motivation.

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CHAPTER ONE

Introduction to the Study

Background

The topic examined in this study was secondary school teacher perceptions of

student motivation and the effects of grading practices and policies on student

motivation. In addition, secondary school teacher's self-identified grading philosophy

was explored. Included in this chapter are the background of the study, theoretical

framework, a statement of the problem, the purpose of the study, research questions,

limitations, and definitions of key terms.

"Grading is one of a teacher's greatest challenges and most important professional

responsibilities. However, few teachers have any formal training in grading methods,

and most teachers have limited knowledge about the effectiveness of various grading

practices" (Guskey, 2004a, p. 31). With educational institutions' focus turned towards

standards and achieving those requirements set by state and federal education governing

bodies, more research has been directed at classroom grading practices (Bonesronning,

1999, 2004; Brookhart, 1993, 1994; McMillan & Lawson, 2001; McMillan, Myran, &

Workman, 2002; McMillan & Nash, 2000). Despite the importance of grading, teachers

receive little if any formal training in grading practices and the effectiveness of various

grading methods (Brookhart, 2004; Stiggins, 1993). Due to this lack of training and

information regarding effective grading methods, teachers tend to utilize strategies they

experienced as students that they remember as being fair and reasonable (Guskey &

Bailey, 2001). Basically, as Guskey points out, "most teachers do what was done to

them" (2004b, p. 49). Brookhart (1991) notes that teachers tend to use a "hodgepodge grade of attitude, effort, and achievement" (p. 36) to award student grades. Teachers use this "hodgepodge" system despite established measurement recommendations (Cross & Frary, 1996; Frary, Cross, & Weber, 1993; Plake & Impara, 1993; Stiggins & Conklin, 1992; Stiggins, Frisbie, & Griswold, 1989). Many studies found that teachers use multiple factors when determining student grades (Brookhart, 1993, 1994; McMillan & Lawson, 2001; Stiggins, Frisbie, & Griswold, 1989). Some studies found that teachers were concerned about motivation and self-esteem and included factors such as effort in their grading practices (Brookhart, 1993, 1994; Stiggins, Frisbie, & Griswold, 1989).

Research has shown that motivation is one of the most powerful determinants of student success or failure in school (Hidi & Harackiewicz, 2000; Reeve, 1996; Ryan & Connell, 1989). Self-worth theory focuses on attempts of the student to maintain a self-concept of high ability (Covington & Omelich, 1981). Based on this theory, the reason many students drop out of school is actually to avoid failure and its implications of low ability in a social realm (Covington & Omelich, 1981). Rather than fail in school, students will attempt to deflect inferences regarding their low ability by blaming their failure on "unstable attributional elements such as bad luck and insufficient effort (study) or to stable external factors such as task difficulty" (Covington & Omelich, 1981). Darling-Hammond and Ifill-Lynch (2006) state that "by the time many struggling students reach adolescence, they have learned to protect their self-esteem by saying they 'don't care about the (stupid) work' rather than risk proving themselves incompetent by trying and failing" (p.9). Researchers believe there is sufficient evidence to show a strong correlation between students' content or skill specific self-concept and their

motivation and academic performance (Covington, 1989, 2005; Covington & Teel, 1996; Elliot & Dweck, 2005; Hansford & Hattie, 1982; Monson & Monson, 1997; Pajares & Schunk, 2001; Rosenberg, 1990). Additionally, research has shown that self-concepts of competence and motivation are deeply tied together (Covington, 2005, 1989; Elliot & Dweck, 2005; Slavin, 2003). This idea of the interaction between self-concept and motivation has been called the "interactive model" or "attribution theory" (Slavin, 2003). Essentially, this theory posits that when students think they have the skills and abilities to be successful at a task, they are more likely to attempt the task than if they think they will be unsuccessful at the task (Covington, 1989). Students tend to make decisions regarding their efforts in school by determining what behavior on their part would best protect their positive self-image and ideas about their competence and abilities (Covington, 1989, 2005). Research also indicates that students study more and work longer and harder at a task if they have a higher confidence in their own abilities (Stipek & Seal, 2001). Thus, rather than continually fail in school, students would rather protect their public image and self-concept by dropping out.

There is a great cost to all when students drop out of school. In the United States, close to 1.2 million students will drop out of high school each year (Alliance for Excellent Education, 2007). More frightening than this number is that research indicates about 75 percent of America's state prison inmates, almost 59 percent of federal inmates, and 69 percent of jail inmates did not complete high school (Alliance for Excellent Education, 2006). Rouse (2005) determined that each high school dropout will cost the nation approximately $260,000 over their lifetime, due to lost income potential and increased public support costs. In fact, "if the students who dropped out of the class of

2007 had graduated, the nation's economy would have benefited from an additional $329

billion in income over their lifetimes" (Alliance for Excellent Education, 2007, p. 1).

Among developed nations, the United States ranks eighteenth in high school graduation

rates (Organisation for Economic Co-Operation and Development, 2007). Students who

graduate from high school offer numerous benefits to society. In addition to earning

higher wages (U.S. Bureau of the Census, 2006), high school graduates live longer

(Muennig, 2005), are less likely to be teen parents (Haveman, Wolfe, & Wilson, 1991),

less likely to commit crimes (Raphael, 2004), less likely to need government health care

(Muennig, 2005) and less likely to require public assistance programs (Garfinkel, Kelly,

& Waldfogel, 2005). Despite evidence that high school drop-outs will earn less income

over time (U.S. Bureau of the Census, 2006), and have increased likelihood for arrest or

incarceration and have poorer health (Harlow, 2003), students continue to drop out of

high school. Research indicates that there are multiple reasons that students give for

dropping out, including academic, social, emotional, and motivational factors (Balfanz &

Letgers, 2006; Carnevale, 2001; EPE, 2007; Jerald, 2006; Rumberger, 2004;). The

evidence suggests that higher student motivation leads to higher student achievement,

resulting in fewer high school dropouts. Schools have made efforts to increase student

motivation in schools; however, researchers believe that the focus should turn away from

special programs and instead to changing schools and classrooms by addressing teaching

practices (Kohn, 1994; Makri-Botsari, 2001; Odden & Archibald, 2001; Pajares &

Schunk, 2001; Urdan & Turner, 2005).

Besides the actions of students, there is also research showing that the actions of

teachers play an important role in student motivation and self-concept (Cocks & Watt,

2004; Kash & Borich, 1978, Kozminsky & Kozminsky, 2003; Likona, 1988, Sakaron, 1986). Teachers believe that student self-concept plays an important role in student success (Levin, 2003; Rayner & Devi, 2001) and that teachers would like more information regarding improving student motivation (Makri-Botsari, 2001; Duke & Gansneder, 1998).

Currently, teachers use few intervention strategies to help motivate students to achieve and succeed (Duke & Gansneder, 1998). However, teachers do tend to use grades as an attempted motivator for student achievement. According to Frisbie and Waltman (1992), one reason teachers give for why they assign grades is:

> to provide evidence of a student's lack of effort or inability to accept responsibility for inappropriate behavior. Grades and other reporting devices are frequently used to document unsuitable behaviors on the part of students, and some teachers threaten students with poor grades in an effort to encourage more acceptable behaviors. (p. 35).

Essentially, teachers use grades as a way to motivate students by punishing their poor effort in the hope that punishment, or the reward of a good grade, will increase motivation and effort and in turn increase achievement (Frisbie & Waltman, 1992). In other words, teachers attempt to use grades to motivate students to achieve and succeed.

To date, there have been few significant studies that evaluated teachers' perceptions of their own grading practices and the relationship of those perceptions to their perceptions of students' motivation in their classrooms. For this reason, this inquiry

focused on teacher perceptions of grading practices and the relationship of those

perceptions to teacher perceptions of students' motivation in their classrooms in order to

develop strategies for policy makers, teacher preparation programs, educational leaders,

and professional developers to design more effective teacher and pre-service teacher

training in grading methods and practices. This study was also relevant to topics such as

teacher merit pay, high stakes testing, and teacher performance reviews, especially in the

shadow of the No Child Left Behind Act.

Theoretical Framework of the Study

There are links between teacher perceptions and teacher actions that provide for

the importance of knowing teacher perceptions (Hardre', Huang, Chen, Chiang, Jen, &

Warden, 2006). Research suggests that teacher perceptions of their students influence the

approach and strategies teachers use with their students (Biddle & Anderson, 1986;

Wenglinski, 2000). Research also suggests that what teachers do influences student

motivation and academic achievement (Chung, 2002; Greene, Miller, Crowson, Duke, &

Akey, 2005). Teachers promote or reduce student motivation through their actions,

interactions, and classroom management and operation (Brophy & Good, 1974; Hardre',

2001; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). According to Hardre',

Davis, and Sullivan (2008), "knowing what teachers think causes students' lack of

motivation is a teacher perception that must be assessed for its accuracy and matched to

appropriate interventions to meet students' motivational needs" (p. 156). Consequently,

assessing causal perceptions on the part of teachers is important, because teacher beliefs

and perceptions about students and processes result in actual teacher behaviors, which directly impact student achievement and motivation (Wild, Enzle, Nix, & Deci, 1997).

Currently no single theory fully explains teacher grading practices or teacher beliefs about motivation within the classroom. However, the Theory of Planned Behavior (TPB) provides a conceptual framework to investigate teacher perceptions of both areas. The TPB has been used to predict behavioral intentions and actual self-reported behaviors (Millar & Shevlin, 2003).

According to the TPB, behavioral intention is the main determinant of human behavior (Liu, 2007) and can be accurately predicted by attitudes towards the behavior, subjective norms, and perceived behavioral control. Attitude toward the behavior refers to "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p. 188). Subjective norms refer to "perceived social pressure to perform or not perform the behavior" (Ajzen, 1991, p. 188). Perceived behavioral control refers to "the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles" (Ajzen, 1991, p. 188). These three factors combine to predict behavioral intention, which is the main determinant of actual behavior (Ajzen, 1991).

Based on the TPB, teachers' perceptions of the usefulness and importance of grading practices can be categorized into attitude towards the behavior. As defined by Ajzen (1988), attitude towards the behavior is a person's positive or negative evaluation of performing the behavior of interest. According to McMillan and Nash (2000), five types of teacher beliefs and values regarding grading exist: philosophy of teaching and

learning; giving students the best opportunity to be successful; promoting student's understanding; accommodating individual differences; and student engagement and motivation. McMillan and Nash (2000) interviewed 24 teachers about their own grading practices and the reasons behind their grading decisions and found that the most important factors affecting grading decisions were the teacher's philosophy of teaching and learning, the value placed on student understanding, and their beliefs about helping students make progress.

Based on the TPB, the influence of academic enablers, expert recommendations, and organizational factors on grading practices can be categorized into subjective norms. According to Ajzen (1991), subjective norm is the "perceived social pressure to perform or not perform the behavior" (p.188). Since grading is required by school districts, teachers must perform the behavior of grading; however, social pressure to grade using academic enablers such as ability, attendance, effort, and behavior makes grading more subjective (Cross & Frary, 1999). Stiggins, Frisbie, and Griswold (1989) stated that grades "influence student achievement, motivation, academic self-concept, locus of control, and attitude, among other things" (p. 12). Additionally, Stiggins, Frisbie, and Griswold (1989) stated that grades "influence teachers' objectives and expectations, activities and perceptions of their own success" (p. 12). Measurement expert recommendations are another social pressure teachers perceive regarding grading, yet there is a large discrepancy between expert recommendations and teacher practice (Allen, 2005; Brookhart, 1993, 1994; McMunn, Schenck, & McColskey, 2003; Stiggins, Frisbie, & Griswold, 1989). Finally, organizational factors are another social pressure on grading teachers perceive. Often organizational factors influence grading practices regardless of

individual teacher beliefs, and teachers must grade according to local or state policy (Guskey, 2000; Cizek, Fitzgerald, & Rachor, 1996).

Based on the TPB, teachers' perceived grading self-efficacy can be categorized as perceived behavioral control regarding grading practices. According to Ajzen (1991), perceived behavioral control refers to "the perceived ease or difficulty of performing the behavior" (p. 188). Ajzen (1991) contends that perceived behavioral control is similar to perceived self-efficacy. Bandura (1986) defined self-efficacy as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances (p. 391). Bandura (1977) argued that self-efficacy directly impacts an individual's choice of activities, motivation, effort, and persistence with an activity. According to Liu (2007), "teachers' perceived self-efficacy of the grading process is teachers' perceived ease or difficulty of grading and their judgment of their capabilities to assign grades to students" (p. 43). Teachers receive little if any formal training in grading practices and the effectiveness of various grading methods (Brookhart, 2004; Stiggins, 1993). Due to this lack of training and information regarding effective grading methods, teachers tend to utilize strategies they experienced as students that they also remember as being fair and reasonable (Guskey & Bailey, 2001).

Teacher perceptions about grading practices impact teachers' perceived control of grading, leading to the formation of specific behavioral intentions to grade in a specific way. Research suggests that teacher perceptions of their students influence the approach and strategies teachers use with their students (Biddle & Anderson, 1986; Wenglinski, 2000). Therefore, measuring teacher perceptions about grading predicts actual teacher behavior regarding grading.

Student motivation has been one of the most studied subjects in educational psychology for the last fifty years (Chapman, Tunmer, & Prochnow, 2000; Covington, 2005; Elliot & Dweck, 2005). This research has resulted in a number of frameworks to explain the causes of student motivation. Most current research finds that competence is the primary factor that unites most of the frameworks for student motivation (Covington, 2005; Elliot & Dweck, 2005). "Most prominent approaches to the study of motivation today involve competence in some way, whether it be the desire to become competent, to appear competent to others, to feel competent, or even avoid feeling or appearing incompetent" (Urdan & Turner, 2005, p. 297). Since competence can impact students the most at the secondary level, where students have the option to drop out of school, this study will focus on secondary school teachers and the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation.

Based on the TPB, teacher's perceptions of the strategies they use to affect student motivation can be categorized as attitude towards the behavior. Research has shown that what teachers do in the classroom influences students' motivation and learning (Chung, 2002; Greene, Miller, Crowson, Duke, & Akey, 2005). Teachers can promote or reduce student motivation through their interactions with students and the design of learning experiences in their classroom (Brophy & Good, 1974; Hardre', 2001; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). Research has shown that teachers' knowledge of students' academic motivation can predict the efforts teachers make to motivate students (Bandura, 1997; Hardre' & Sullivan, 2007).

Based on the TPB, teacher perceptions of parent, student, and organizational pressures to motivate students can be categorized as subjective norms. Social cues that teachers receive from parents and students about student motivation cause teachers to develop beliefs about student motivation, resulting in teacher behaviors that affect motivation (Wild, Enzle, Nix, & Deci, 1997). The pressures put on teachers "represent a potentially widespread, but understudied, social influence on motivational processes" (Wild, et al., 1997, p. 847). Perceived organizational pressures influence teacher behaviors to motivate students. The evidence suggests that higher student motivation leads to higher student achievement, resulting in fewer high school dropouts. Schools have made efforts to increase student motivation in schools; however, researchers believe that the focus should turn away from special programs and instead to changing schools and classrooms by addressing teaching practices (Kohn, 1994; Makri-Botsari, 2001; Odden & Archibald, 2001; Pajares & Schunk, 2001; Urdan & Turner, 2005).

Based on the TPB, teachers' perceived motivation self-efficacy can be categorized as perceived behavioral control regarding student motivation. Urdan and Turner (2005) state that "teachers' efficacy and attributions for student achievement influence their beliefs about whether they can influence their students' motivation and, therefore, their willingness to try" (p. 312). Additionally, teachers must feel confident in their abilities to motivate students if students were to become motivated (Clark & Artiles, 2000). Research indicates that teacher beliefs about their abilities and skills to deal with classroom issues like motivation have a direct impact on student motivation and achievement (Ashton & Webb, 1986; Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Teachers who are confident that they can deal with issues are more likely to have

classrooms that foster motivational and emotional support for students (Pajares & Schunk, 2001).

Teacher perceptions about student motivation influence teachers' perceived control of motivation, leading to the formation of specific behavioral intentions to increase motivation in specific ways. Research suggests that teacher perceptions of their students influence the approach and strategies teachers use with their students (Biddle & Anderson, 1986; Wenglinski, 2000). Therefore, measuring teacher perceptions about student motivation helps predict actual teacher behavior regarding student motivation.

Statement of the Problem

While many studies have been conducted on teacher grading practices, little research has been done on teacher perceptions of grading practices. Also, while several motivation strategies have been shown to be successful in motivating students in secondary classes (Cocks & Watt, 2004; Urdan & Turner, 2005), little research has been conducted on teacher perceptions of student motivation. Finally, there is little research on the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation.

Purpose and Significance of Study

The purpose of this study was to promote greater understanding of the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation. This research is significant to educational institutions because it provides more information to educators and administrators to help shape professional

development. This study provides information to teachers about the relationship between grading and student motivation, and how teacher perceptions of both influence each area. Also this study aims to inform educators about how behavioral beliefs lead to changes in perceived behavioral control, thus impacting actual behavior. Finally, this study informs educational administrators about teacher behaviors regarding grading and motivation, helping shape supervision in the midst of high stakes testing, merit pay, teacher performance reviews, and the requirements of No Child Left Behind.

Research Questions

This study examined the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation. The following research questions were addressed with descriptive and inferential statistics:

RQ1: Is there a statistically significant relationship between overall teacher perceptions of grading practices and overall teacher perceptions of student motivation?

Ho1: There is no statistically significant relationship between overall teacher perceptions of grading practices and overall teacher perceptions of student motivation.

RQ2: Is there a statistically significant relationship between individual factors of teacher perceptions of grading practices (Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, and Perceived Self-efficacy of the grading process) and individual components of teacher perceptions of student motivation (Effort,

Engagement, General Interest, Home Factors, Current Relevance, Aspirations/Future Utility, Peer Factors, and Personal Factors)?

Ho2: There is no statistically significant relationship between individual factors of teacher perceptions of grading practices (Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, and Perceived Self-efficacy of the grading process) and individual components of teacher perceptions of student motivation (Effort, Engagement, General Interest, Home Factors, Current Relevance, Aspirations/Future Utility, Peer Factors, and Personal Factors).

RQ3: Are there statistically significant gender differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation?

Ho3: There are no statistically significant gender differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation?

RQ5: Are there statistically significant differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation by subject area of teacher perceptions?

Ho5: There are no statistically significant differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation by subject area of teacher perceptions.

RQ4: Are there statistically significant differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation by years of teaching experience?

Ho4: There are no statistically significant differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation by years of teaching experience.

Limitations and Assumptions

Limitations

The outcomes of this study may be affected by the following limitations:

1. The study was limited to high schools in one Midwestern state. Due to this limited population the results may not be generalizable nationwide.

2. Both survey instruments used in this study are designed to measure teacher's perceptions. Since the data was collected only from high school teachers, the results may not be generalizable to elementary and middle school teachers.

Assumptions

1. It is an assumption that measuring teacher perceptions through self-reporting is an accurate method of predicting actual teacher behaviors regarding grading practices and motivation, based on the Theory of Planned Behavior.

2. It is an assumption that participants in this study are certified to teach in the subject area and grade level that they report.

Structure of the Study

This research study includes five chapters. Chapter I, Introduction, presented the introduction, the statement of the problem, research questions, limitations and assumptions of the study, the structure of the study, and definitions of key terms. Chapter II, Review of Literature, provides a review of literature relevant to the study regarding grading practices and student motivation, along with a review of the Theory of Planned Behavior. Chapter III, Methodology, presents a research design, sample and data collection methodology, instrumentation choice and rationale, and statistical data analysis procedures. Chapter IV presents the results of the study, and Chapter V presents the conclusions and discussions of the final results as well as direction for further research.

Instruments Used

Teachers' Perceptions of Grading Practices (TPGP): developed and validated by Xing Liu (2007) and measures six areas of teacher perceptions of grading practices: importance, usefulness, student effort, student ability, teachers' grading habits, and perceived self-efficacy of the grading process (Liu, 2007). Reliability coefficients for 5 factors is larger than 0.7, with the remaining factor (student effort) having a reliability coefficient of 0.61.

Perceptions of Student Motivation (PSM): Developed and validated by Hardre', Davis, and Sullivan (2008). This questionnaire is comprised of two parts. The first is the General Motivation section, which assesses overall perceptions of student motivation. The second part is the Reasons section, which assesses the perceived reasons for

students' lack of motivation (Hardre', et al., 2008). The PSM was validated with samples

from the United States and East Asia, and demonstrated a reliability of 0.90 on the

general motivation subscale for the United States sample and 0.89 for the East Asian

sample.

Definitions of Key Terms

Grading Practices: The methods teachers use to determine student grades, including the

factors contributing to the formation of grades

Attribution: The reasons an individual gives to explain the causes of events, actions, and

behaviors (Weiner, 1992).

Attribution Theory: A motivation theory that defines student motivation as being

influenced by an individual's attribution of their own abilities to successfully complete a

task (Slavin, 2003).

Student self-concept: A self-monitoring system in which individuals allocate personal

resources, such as ability, time, effort, and energy level toward the achievement of tasks

Theory of Reasoned Action: Theory that a person's intention to perform a behavior is the

main predictor of that behavior (Ajzen, 1988). Behavioral intentions are a function of

two main predictors: attitudes toward that behavior and subjective norm (Ajzen, 1988).

Theory of Planned Behavior: Extension of the Theory of Reasoned Action (TRA) (Ajzen

and Fishbein, 1980; Ajzen, 1988; Fishbein & Ajzen, 1975) by adding perceived

behavioral control to the model. States that a person's behavior is determined by their

intentions to perform the behavior.

CHAPTER TWO

Review of Related Literature

Introduction

This chapter provides a framework for this study by reviewing the literature and theories relevant to the study. Sections of the literature review are structured around themes within grading practices and student motivation. The first section focuses on grading practices. First, literature on the factors used to determine grades is reviewed; second, research on the influence of academic enablers on teacher grading practices is presented; third, differences between expert recommendations and actual teacher practices in grading is presented; fourth, the effects of teacher characteristics and organizational factors on teacher grading practices is reviewed; fifth, teacher's personal grading practices are examined; and sixth, research regarding the relationship between grading practices and motivation is reviewed.

Next, a section on student motivation is presented. First, student perceptions of grades and the connection to motivation is presented; next, student self-efficacy research is reviewed; third, Attribution Theory is reviewed in the context of grading practices; fourth, Self-Worth Theory is discussed, along with student beliefs of competence; fifth, the student/teacher relationship and teacher actions are reviewed, with information on the relationship's impact on motivation; and sixth, the importance of knowing about teacher perceptions is described.

Each of the areas reviewed relate to the survey instruments chosen and to the research questions for this study. The six factors of the TPGP (Importance, Usefulness,

Student Effort, Student Ability, Teachers' Grading Habits, and Perceived Self-efficacy of the grading process) all relate to the themes reviewed regarding grading practices. The first factor of the PSM, General Motivation, relates to an overall review of motivation research. The second factor of the PSM, the Reasons section, assesses the perceived reasons for students' lack of motivation and relates to the literature review of self-efficacy, Attribution theory, and Self-Worth theory.

Additionally, the Theory of Planned Behavior (TPB), which is used as the theoretical framework for this study and is an extension of the Theory of Reasoned Action (TRA), is presented and discussed.

Factors Used to Determine Grades

According to Guskey (2004a), "grading is one of a teacher's greatest challenges and most important professional responsibilities" (p. 31). Despite the importance of this action, teachers receive little if any formal training in grading practices and the effectiveness of various grading methods (Brookhart, 2004; Stiggins, 1993). Due to this lack of training and information regarding effective grading methods, teachers tend to utilize strategies they experienced as students that they also remember as being fair and reasonable (Guskey & Bailey, 2001). Basically, as Guskey (2004b) points out, "most teachers do what was done to them" (p. 49). Brookhart (1991) notes that teachers tend to use a "hodgepodge grade of attitude, effort, and achievement" to award student grades (p.36). Teachers use this "hodgepodge" system despite established measurement recommendations (Cross & Frary, 1996; Frary, Cross, & Weber, 1993; Plake & Impara, 1993; Stiggins & Conklin, 1992; Stiggins, Frisbie, & Griswold, 1989).

Brookhart (2004) established that there are three methods for determining grades: criterion (standards) referenced, norm-referenced, and student self-referenced. With states attempting to comply with state and federal mandates for student achievement, there is a recent emphasis on standards that promotes criterion-referenced grading. Using this approach, grades are determined by comparing student achievement to established standards of proficiency, independent of the achievement levels of other students (Cauley, Pannozzo, Abrams, McMillan, & Camou-Linkroum, 2006). The most common method of using criterion-referenced grading is the use of percentages, where the percentage of correct answers designates different grades. Some evidence suggests that criterion-referenced grading contributes to stronger student motivation and higher achievement (Brookhart, 2004). This approach allows for multiple opportunities to demonstrate knowledge to achieve a standard, such as retaking a test or completing an assignment again until a percentage standard is achieved (Cauley, et. al, 2006).

Norm-referenced grading compares student performance on a task to the performance on that same task of the student's peers, with higher grades given to students who perform the highest, and lower grades to perform the lowest (Cauley, et. al, 2006). These grades are assigned to students without respect to standards mastery or percentage of correct answers, and instead are focused on comparative performance with peers. Research suggests that norm-referenced grading focuses motivation on competition and performance rather than competence and mastery (Schunk, 1995; Stipek, 2002; Stiggins, 2005).

In the current environment of standards-based education, criterion-referenced grading practices are most desirable; however, research suggests that most teachers use norm-referenced practices in determining grades (McMillan, 2001; 2002). Student self-referenced grading is where student grades are determined by comparing their current performance against their previous performance in assigning a grade, and is not used by teachers frequently (Brookhart, 2004).

Brookhart (1994) made a comprehensive review of the literature on teachers' grading practices. A total of 19 studies were reviewed, with the studies using surveys and case study methods. Brookhart (1994) found that teachers tried to be fair in grading by informing students ahead of time what constituted a particular grade. Student achievement measures were major components in teacher grades, but also included were other factors such as attendance, effort, ability, behavior, participation, and homework completion. Brookhart (1991) labeled this system a "hodgepodge system" of grading, representing all the ingredients that teachers included in grades. In an earlier study Brookhart (1993) found that teachers formally and informally include conceptions of student effort in assigning grades because they are concerned with student motivation, self-esteem, and the social consequences of their grading procedures. Stiggins, Frisbie, and Griswold (1989) found that 50 percent of teachers incorporated student ability into grading, and 86 percent considered effort and motivation in grading. This goes against recommendations from measurement experts that achievement be the sole component in grade determination (Stiggins, Frisbie, & Griswold, 1989).

Multiple other studies about grading practices report similar conclusions

regarding the "hodgepodge" system for grading (Cross & Frary, 1996; Friedman &

Manley, 1991; Frary, Cross, & Weber, 1993; McMillan, 2001; 2002, Truog & Friedman,

1996). In one study, Cross and Frary (1996) found that 72 percent of teachers surveyed

raised the grades of low ability students, with 25 percent of those teachers indicating

"high effort" as one reason for the increase, and another 40 percent of the participants

indicating that student behavior and attitude contributed to increased grades.

McMillan (2001) conducted a survey of almost 1,500 secondary school teachers

and found that 19 grading factors could be organized into four categories: academic

achievement, academic enablers (effort, ability, improvement, participation, behavior),

external benchmarks, and extra credit. McMillan (2002) used the same survey with over

850 elementary teachers and found three major grading factors: academic achievement,

academic enablers, and homework. Additionally, both of these studies found great

variability in the weight teachers assigned to these factors in determining grades.

Supporting this pattern of differences, Cizek, Fitzgerald, and Rachor (1995) found that

grading practices "were highly variable and unpredictable from characteristics such as

practice setting, gender, years of experience, grade level or familiarity with assessment

policies in their school district" (p. 159).

A final factor used in grade determination is using zero in the calculation of

grades, and the detrimental effect this can have (Brookhart, 2004; McMillan, 2004;

Stiggins, 2005; Guskey, 2004). Students receive zeros as grades for not meeting

deadlines, misbehaving in class, or refusing to listen to teacher directives (Canady &

Hotchkiss, 1989; Stiggins & Duke, 1991). Many teachers use zeros in grading to punish students for a lack of effort (Guskey 2004a). However, no research supports the use of zeros as effective punishments. Instead of increasing student effort and motivation, zeros tend to cause students to withdraw from learning (Guskey, 2004a).

In summary, all of these studies support the idea that teachers use multiple factors when determining grades for students. These factors include academic measures, effort and ability, class participation, attendance, behavior, tardiness, homework, and extra credit. The studies also found that while teachers want their grades to objectively reflect student achievement, grades are more of a hodgepodge of academic enablers and that these enablers were important factors for teachers in grade determination.

Academic Enablers

Numerous studies have been conducted examining the factors impacting teacher grading practices (Brookhart, 1993; 1994; McMillan & Lawson, 2001; McMillan, Myran, & Workman, 2002; McMunn, Schenck, & McColskey, 2003; Stiggins, Frisbie, & Griswold, 1989). These studies found that teachers use multiple factors in determining student grades, including several nonachievement factors, such as attendance, behavior, effort, and ability. McMillan (2001; 2002) called these nonachievement factors "academic enablers." Cross and Frary (1999) argue that grades should communicate academic achievement, and that academic enablers distort the meaning of grades as measures of academic achievement, allowing greater potential for discrepancies between teachers due to subjective teacher bias. Stiggins, Frisbie, and Griswold (1989) found that 50 percent of teachers incorporated student ability into grading, and 86 percent of

teachers considered motivation and effort in grade determination. In fact, despite expert recommendations that achievement should be the only factor in grade determination, 80 percent of the study participants felt that effort should be included in grade determination as well.

Brookhart (1993) conducted a study examining the meaning teachers gave to grades. The study included 84 teacher participants, 40 of whom had received training regarding measurement expert recommendations for grading and 44 who did not. Teaching experience ranged from 1 to 25 years, and 84 percent of the participants were K-12 teachers. The instruments used were grading scenarios and multiple-choice questions about those situations. The scenarios were of three types: scenarios about student effort and ability, scenarios about missing work, and scenarios about improvement. Two separate evaluators rated 588 open-ended responses with a 97 percent agreement on the ratings. This study found that teachers formally and informally included perceptions of student effort in assigning grades, mainly due to concern regarding student motivation and self-esteem. The study found that teachers were reluctant to define grades solely based on achievement.

Cross and Frary (1999) studied the nature of grading and found that grades represent a mix of attitude, effort, behavior, improvement, and achievement. The researchers surveyed 310 middle and high school teachers of differing academic subjects in a single school system, along with 7,367 middle and high school students within that same school system. The teachers were asked to describe their actual grading practices as well as their perceptions regarding grading. Students were asked to indicate the degree

of importance they felt teachers gave various grading factors. The researchers found that

72 percent of the teachers reported they incorporated ability in grading determinations,

and that 55 percent of students thought it was fair for teachers to include ability in grade

determination. Also, the researchers found that 25 percent of teacher respondents

indicated that they raised grades for students whom they felt demonstrated high effort,

and that 33 percent of students felt that teachers included effort into grades.

Cizek, Fitzgerald, and Rachor (1996) surveyed 143 elementary and secondary

school teachers regarding grading practices. Their sample included 31 male and 112

female teachers, ranging in age from 21 to 63 years old. Both interview and survey

methods were used, with participants being asked to identify the factors they used to

determine grades, what the final grade given to a student represented, sources of

information used to determine final grades, their personal knowledge about other

teachers' grading practices, and their personal knowledge about district grading policies.

The researchers found that 51.5 percent of teacher participants included student ability in

grade determination, 41.9 percent included student effort, and 35.3 percent included

assignment difficulty in grade determination. The researchers also found that 34.9

percent of respondents indicated that final grades represented individual achievement

only and 28.7 percent indicated that final grades represented both individual achievement

and class performance.

McMillan and Lawson (2001) investigated secondary science teachers' grading

practices, with a sample size of 213 teachers from 58 secondary schools (grades 6-12).

Teachers were asked to indicate the extent to which they included various factors in grade

determination, the types of assessments used, and the cognitive level of those assessments. The researchers found that most secondary science teachers used a variety of factors, such as ability and effort, in grade determination, supporting earlier research by Brookhart (1994). The researchers also found that while teachers reported academic achievement as the most important factor in determining grades, teachers also felt that academic enablers, such as effort, perceived ability level, improvement, and participation were important factors as well. This supported an earlier study by McMillan and Nash (2000) that found that teachers viewed effort as an important grading factor.

In summary, multiple studies have found that teachers include various academic enablers within grade calculations and determinations. These enablers include ability, effort, behavior, tardiness, attendance, difficulty of assignment, and attitude. These studies found that while teachers report that academic achievement is the most important factor in grading, academic enablers should be included in grading. This practice goes against recommendations of various measurement experts.

Expert Recommendations and Actual Teacher Practices

Most experts in measurement recommend that academic achievement should be the only consideration in determining a grade, and there is a large discrepancy between expert recommendations and teacher practice (Allen, 2005; Brookhart, 1993, 1994; McMunn, Schenck, & McColskey, 2003; Stiggins, Frisbie, & Griswold, 1989). Identifying the nature of this discrepancy was part of the purpose of three studies that used expert recommendations as the standard or framework of study (Frary, R.B., Cross, L.H., & Weber, L.J., 1993; Friedman & Manley, 1991; Stiggins, et al., 1989). These

studies found three reasons why teacher grading practices did not align with recommendations: recommended practices may reflect opinions; recommendations may fail to realistically reflect classrooms; and teachers may not be aware of the recommendations or have previous measurement training.

Allen (2005) argued that teachers lack adequate education and training in sound assessment and grading principles, and that teachers hold different views of the purpose of grades. Teachers also failed to share their viewpoints regarding grades with colleagues. Allen (2005) contended that grading systems vary substantially and unpredictably, and had low validity due to the inclusion of academic enablers. By including academic enablers in grades, teachers increased the likelihood that grades are biased and invalid (Allen, 2005). "Using a single grade as a summary of a teacher's 'merged judgment' of a student leads to miscommunication, confusion, and a constitution of the lack of coherence among stakeholders about what a grade represents" (Allen, 2005, p. 220).

Ornstein (1994) found that there was a lack of agreement regarding what should be included in determining a grade, how those factors should be weighted, and whether or not academic enablers were appropriate to include in grading. Ornstein (1994) stated that the more effort and improvement were included in a grade, the more biased and subjective the grades were likely to be.

Researchers contend that a reason for variance in grading practices and discrepancies between expert recommendations and teacher practice is the lack of assessment and measurement training for teachers (Brookhart, 1994; Stiggins, et al.,

1989; Stiggins, 1992). More training, however, will not cause grading practices to align with recommendations. Brookhart (1993) found that measurement training for teachers made little difference in actual grading practices. Yet one measurement recommendation that is followed is the clear communication to students of what their grades will reflect (Brookhart, 1993; Pilcher-Carlton & Oosterhof, 1993; Stiggins, et al., 1989).

In summary, most educational measurement experts believe that academic achievement should be the sole factor in assigning grades, but many teachers do not follow this recommendation. There are multiple reasons for teachers including other factors, such as personal viewpoint, lack of professional communication, and a lack of formal measurement training. When teachers do not follow recommendations for grading and instead introduce academic enablers as grading variables, grades become less objective and lack reliability and validity. Academic enablers may be included at a teacher's discretion, but often there are organizational factors that contribute to decisions regarding factors to include in grade determination, including school practice and policy influences.

Impact of Teacher Characteristics and Organizational Factors

A criterion-referenced approach to grading has been suggested by multiple researchers (Anderson, 2004; Boston, 2003; Guskey, 2000; McMillan, 2001; O'Connor, 1995, 2002). This approach to grading focuses on students meeting certain standards, regardless of the performance of their peers. A norm-referenced approach to grading focuses more on comparing students to their peers to determine grades (Noonan & Duncan, 2009). As previously reviewed, this approach frequently includes the use of

academic enablers such as effort, ability, and behavior, at the teacher's discretion. This approach has been described as a "hodgepodge system" (Brookhart, 1991) that does not follow expert recommendations. Both of these grading approaches center around decisions teachers make about determining grades independently. Often organizational factors influence grading practices regardless of individual teacher beliefs, and teachers must grade according to local or state policy (Guskey, 2000; Cizek, Fitzgerald, & Rachor, 1996). This approach tends to remove some of the decision making power from teachers regarding grade determination (Noonan & Duncan, 2009). Many organizational factors, such as class size, school type, grade level, and subjects taught often impact grading decisions teachers make. Other organizational policies, such as homework policies and how much to weight grading components, impact teacher grading decisions as well (Noonan & Duncan, 2009). Teacher characteristics, such as years of experience, subjects taught, grade level taught, and gender may also impact grading decisions (Liu, 2007).

Cicmanec, Johanson, and Howley (2001) found that class size, percentage of at-risk students, and percentage of teachers assigned to upper level mathematical courses explained roughly 20% of the variance in teacher grading practices, mainly due to academic enablers.

O'Donnell and Woolfolk (1991) found grade level effects on grading practices. Two hundred twenty six elementary school teachers and 117 secondary school teachers participated in the study and were asked to provide their views on intelligence, educational goals, and grading beliefs through the use of questionnaires. The study found that elementary teachers placed a higher value on tests and social dimensions of

intelligence, valued subjective assessments and included academic enablers more than secondary teachers did.

McMillan, Myran, and Workman (2002) examined the effect subjects taught had on grading factors used by teachers. Paired t-tests were used for data analysis, with analysis of variance used to investigate grade level effects on various factors, and a multiple regression analysis was used to predict the percentage of 'A' grades on a set of grading factors. No differences were found between subject areas and grade levels, and there was no significant relationship between academic enablers and the percentage of 'A' grades teachers assigned.

Cizek, Fitzgerald, and Rachor (1996) surveyed 143 elementary and secondary school teachers regarding assessment and grading practices. The study concluded that teacher characteristics (gender, grade level, years of experience) has no significant impact on whether or not a teacher had knowledge about district grading policies. Years of experience was found to have some influence on individual achievement, with more experienced teachers being 1.14 times more likely to assign grades reflecting individual achievement on standards.

In summary, organizational and teacher characteristics can impact teacher decisions regarding grade determinations. Factors such as class size, percentage of at-risk students, grade levels taught, and years of teaching experience are some that impact these grading determinations. However, there are individual factors solely based on the teacher that also impact grading decisions and determinations.

Teacher's Individual Grading Practices

"Grading is one of a teacher's greatest challenges and most important professional responsibilities. However, few teachers have any formal training in grading methods, and most teachers have limited knowledge about the effectiveness of various grading practices" (Guskey, 2004, p. 31). With educational institutions' focus turned towards standards and achieving those requirements set by state and federal education governing bodies, more research has been directed at classroom grading practices (Bonesronning, 1999, 2004; Brookhart, 1993, 1994; McMillan & Lawson, 2001; McMillan, Myran, & Workman, 2002; McMillan & Nash, 2000). Despite the importance of grading, teachers receive little if any formal training in grading practices and the effectiveness of various grading methods (Brookhart, 2004; Stiggins, 1993). Due to this lack of training and information regarding effective grading methods, teachers tend to utilize strategies they experienced as students that they also remember as being fair and reasonable (Guskey & Bailey, 2001). Brookhart (1991) notes that teachers tend to use a "hodgepodge grade of attitude, effort, and achievement" to award student grades (p. 36). Teachers use this "hodgepodge" system despite established measurement recommendations (Cross & Frary, 1996; Frary, Cross, & Weber, 1993; Plake & Impara, 1993; Stiggins & Conklin, 1992; Stiggins, Frisbie, & Griswold, 1989). Many studies found that teachers use multiple factors when determining student grades (Brookhart, 1993, 1994; McMillan & Lawson, 2001; Stiggins, Frisbie, & Griswold, 1989). Some studies found that teachers were concerned about motivation and self-esteem and included factors such as effort in their grading practices (Brookhart, 1993, 1994; Stiggins, Frisbie, & Griswold, 1989).

McMillan and Workman (1999) interviewed 28 middle and high school math and English teachers and found that there was little standardization between teacher grading practices. Wiggins (1988) found that the criteria teachers used for grading was arbitrary and lacked congruence with other teachers. Gullickson (1985) found that elementary teachers used more non-test formats, such as class discussions and student behavior, than secondary teachers.

Frisbie and Waltman (1992) contend that every teacher has a personal philosophy of grading that is influenced by their own value system, and that teacher grading practices are more a matter of preference and values than expert recommendations. Since teachers have differing personal values and philosophies, they may disagree with other teachers on factors to include in grading and how much to weight those factors, especially academic enablers (Frisbie & Waltman, 1992). Supporting this, Ornstein (1994) asserts that all grades assigned are inherently subjective to the teacher, regardless of the factors used or approach taken.

Noonan and Duncan (2009) conducted a study to examine the principles, practices, and policies behind teacher grading systems. A survey of 196 mathematics teachers was used, along with an interpretation panel of 20 of the survey respondents. The interpretation panel reviewed the results of the survey then convened to discuss the questions and results. The researchers found that most high school teachers followed traditional measurement approaches to grading, but some observations from the interpretation panel that were of interest. Some example observations from the groups were: "'(some) expected more teachers would be using the mean score in grading' or

'assess (only) what students' learned'" (p. 10). The interpretation panels also noted

differences in beliefs about academic enablers, with conflicting statements from the

panels such as "'recent research shows attitude, effort, motivation etc. should not be

included in the marks' but that 'report cards be changed so that 'academic enablers' can

be reported'" (p. 10). The researchers also found that "although teachers typically have a

set of principles that guide their decision-making, it is not clear if there is a generally

accepted set of procedures that would determine grading high school students" (p. 11).

Finally, the researchers found that "there was not a strong consensus among teachers as

to the most preferred principles and practices of grading processes they and other

teachers should use in determining final grades for high school students" (p. 11).

In summary, while grading is an extremely important aspect of the teaching

profession, there is little training and consensus among teachers for best practices in

grading. Most teachers grade based on their personal values, philosophies, and

experiences, and often do not share their grading practices with colleagues. Teachers

have much autonomy regarding factors they include in grade decisions, and the weight

they ascribe to those factors. While most teachers want grades to be objective, studies

found that teachers were concerned about motivation and self-esteem and included

factors such as effort in their grading practices, thus making the grades more subjective

(Brookhart, 1993, 1994; Stiggins, Frisbie, & Griswold, 1989).

Relationship Between Teacher Grading Practices and Motivation

Grading systems have always been a method for teachers to assess learning and

assign a value for that learning. Yet, despite volumes of information, there is no

consensus for best practice in grading (Brookhart, 2004). Teacher grading systems and practices can have a direct impact on student motivation (Bonesronning, 2004; Brookhart, 2004). The teachers' grading system introduces a distinction between real and perceived achievement. Perceived achievement is the students' indirect perception of their real achievement, as mediated through the grades given by their teachers. Under some circumstances (for instance, if the grades determine admission to the next level of education) the students may care more about perceived achievement than real achievement (Bonesronning, 2004). There are two main aspects of grading that influence motivation: the comparisons referenced to determine grades and the factors teachers use to determine grades (Cauley, et al., 2006).

Brookhart (2004) notes that there are three methods for determining grades: standards-referenced, norm-referenced, and student self-reference. As previously discussed, standards-referenced grades compare achievement to established standards in the subject areas, norm-referenced grades compare students to each other to determine who is the highest and lowest performers, and student self-referenced grades are those that students contribute to (Cauley, et al., 2006). Research suggests that norm-referenced grading emphasizes competition and performance rather than mastery and competence (Schunk, 1995; Stiggins, 2005; Stipek, 2002).

Numerous studies have been conducted examining the factors impacting teacher grading practices (Brookhart, 1993; 1994; McMillan & Lawson, 2001; McMillan, Myran, & Workman, 2002; McMunn, Schenck, & McColskey, 2003; Stiggins, Frisbie, & Griswold, 1989). These studies found that teachers use multiple factors in determining student grades, including several nonachievement factors, such as attendance, behavior,

effort, ability. McMillan (2001; 2002) called these nonachievement factors "academic enablers." Stiggins, Frisbie, and Griswold (1989) found that teachers wanted their grades to reflect both student achievement and student effort, and that the teachers were concerned about how grades motivated students. Stiggins, Frisbie, and Griswold (1989) found that teachers used student motivation and effort to set different expectation levels for students based on their perceived ability. Essentially, teachers would give a lower achieving student a higher grade if they felt that the student exerted maximum effort on the task or assignment.

Brookhart (1993) found that teachers were likely to give low ability students who tried hard a passing grade even if the original assignment grade was a failing grade, and that students who the teachers felt worked below ability level would receive the grade earned. Brookhart (1993) also found that teachers consider a grade a type of compensation to students for completed work, as opposed to grades alone indicating academic achievement. This study suggested that teachers are concerned with student motivation, self-esteem, and allow value judgments to influence grade determination.

Brookhart (1997) developed a model to demonstrate how grading practices affect self-efficacy, motivation, student effort, and student achievement. The model, based on social cognitive theory of motivation, provides a framework for investigating the effects of grading on student effort and motivation. Brookhart (1994) showed that classroom grading practices had strong effects on students because the grades informed students about what and how to study, and influenced student motivation, achievement, and emotional responses. To illustrate the motivational function of grading, Brookhart (1997)

reviewed the cognitive evaluation theory which suggests that "events are intrinsically motivating to the extent that they (a) facilitate the perception of an internal locus of causality; (b) enhance perceived competence; and (c) are informational" (p. 293). Students use the feedback from grades to regulate their own levels of effort, motivation, and responsibility.

Research suggests "that 1) teachers believe it is important to combine non-achievement factors, such as effort, ability, and conduct, with student achievement to determine grades and 2) there is a great amount of variation between teachers on the weight given…to grading factors" (Cauley, Pannozzo, Abrams, McMillan, & Camou-Linkroum, 2006, p. 17). Research also suggests that grading practices help students form perceptions of self-efficacy and ability, and influence student motivation to learn (Brookhart, 2004).

In summary, several studies have been conducted regarding the factors impacting teacher grading practices, and these studies have found that teachers use a variety of factors to determine student grades, despite expert recommendations against using academic enablers within grade calculations. Teachers feel that their grades reflect not only academic achievement but also effort, ability, and other nonacademic factors. Teachers are more likely to give low ability students higher grades if the teacher perceives a high level of effort from the student, and students use feedback from grades to adjust their academic behaviors.

Student Perceptions

Student perceptions of the grading process impact two main areas. First, perceptions about grading influence student motivation to learn, and second, perceptions about grading provide students with information about themselves (Black & Williams, 1998; Brookhart, 2004; Crooks, 1988; Ross, Rolheiser, & Hogaboam-Gray, 1998). "Today, cognitive psychologists are interested in motivation (student wishes and intentions) and volition (student actions) as bases for effort in school" (Brookhart, 2004, p. 36). There are multiple student perceptions which are important to the relationship between grading and motivation, including: perceptions of the difficulty of a task or assignment (Brookhart, 2004); perceptions of self-efficacy for a task (Pajares, 1996); perceptions of the utility value of an assignment or task (Eccles, 1983); perceptions about the reasons for success or failure, also called attributions (Brookhart, 2004); reasons for wanting to learn, or goal orientations (Ames & Archer, 1988; Elliott & Thrash, 2001); and perceptions of the feedback received after completing an assignment (Deci & Ryan, 1985).

According to Covington (1989), "of all the traditional dimensions of self-concept, the one that bears the highest relationship to achievement is perception of one's ability" (p. 86). Research has shown that attributing performance to ability impacts pride in success, shame and anxiety in failure, and future expectations of success (Covington & Omelich, 1979a, 1979b, 1981; Weiner, Nierenberg, & Goldstein, 1976). Students believe that ability contributes to social status even more so than hard work, and want to attribute success to their abilities and not their efforts (Brown & Weiner, 1984). "It seems fair to say that perceptions of ability profoundly influence virtually all aspects of the achievement process as it unfolds in the classroom" (Covington, 1989, p. 87).

Student perceptions of effort also predict future achievement. Research has shown that the more effort students put into a task the higher their pride in success (Brown & Weiner, 1984; Covington & Omelich, 1979b, 1981), which influences future performance positively (Covington & Omelich, 1984b). Conversely, if students put high effort into a task they have minimal success with, then they are more ashamed of their lack of achievement and less motivated to exert similar effort in later tasks (Fontaine, 1974; McMahan, 1973, Rosenbaum, 1972).

In summary, student perceptions of the grading process play a significant role in student motivation. Research suggests that while there are several student perceptions that are important to the grading process, perhaps the perception with the most powerful impact is the student's perception of ability. Along with perceptions of ability, perceptions of effort exerted for a task also influence student motivation. Student perceptions regarding ability can be viewed through the lens of student self-efficacy.

Student Self-Efficacy

Self-efficacy is a person's belief that he or she has the ability to perform well on a task or assignment, or in a given situation (Bandura, 1982, 1986, 1989). Bandura (1989) described self-efficacy as "people' beliefs about their capabilities to exercise control over events that affect their lives" (p. 1175). Brookhart (1997) posits that student effort on various tasks enhances motivation by reinforcing internal attributions, which lead to higher self-efficacy. Grading systems play a role in student self-efficacy by rewarding internal attributions, such as effort, as well as rewarding academic achievement (McMillan, 2004).

Self-efficacy theory began with Bandura's (1977) publication of "Self-Efficacy: Toward a Unifying Theory of Behavioral Change." Self-efficacy theory has been tested in multiple fields and clinical issues, including depression (Davis & Yates, 1982), assertiveness (Lee, 1984), pain control (Manning & Wright, 1983), and athletic performance (Barling & Abel, 1983). However, more recently self-efficacy research has focused on educational areas, specifically student motivation (Pintrich & Schunk, 1996; Schunk, 1989a, 1989b, 1991).

According to Bandura (1997), a person with high self-efficacy will see difficult tasks as challenges to overcome rather than threats to avoid, recover from failure quickly, attribute their failure to controllable actions, and increase efforts to overcome failure. A person with high self-efficacy will have lower stress and be less likely to develop depression (Bandura, 1997). Conversely, a person with low self-efficacy will avoid difficult tasks because they view them as threats, have a weak commitment to accomplishing goals, dwell on personal shortcomings, and focus on the obstacles in front of them rather than on ways to overcome them (Bandura, 1997). A person with low self-efficacy will have higher levels of stress and be more likely to develop depression than someone with high self-efficacy (Bandura, 1997).

Self-efficacy impacts student motivation and causal attributions are one component of self-efficacy (Graham & Weiner, 1996). According to Cauley, Pannozzo, Abrams, McMillan, and Camou-Linkroum (2006), "students' perceptions of the causes of their successes and failures (e.g., their ability, the level of effort they expended, the difficulty of the task attempted) are common attributions that factor in determining

students' self-efficacy" (p. 19). Perceptions of ability are thought to be more influential on self-efficacy and motivation than other attributions (Schunk, 1991).

Grading practices are connected to student self-efficacy due to feedback teachers provide within the grading process. "Self-efficacy beliefs are influenced by four types of experience: enactive attainment, vicarious experience, verbal persuasion, and physiological states" (Zimmerman, 2000, p. 88). Feedback from teachers, in the form of grades, can be viewed as an enactive experience when students depend on the teachers to judge their levels of success (Cauley, et al., 2006). Research has shown that prior achievement is also a strong predictor of student success, and in a study conducted by Stevens, Olivarez, Lan, and Tallent-Runnels (2004) found that prior mathematics achievement was a significant predictor of math self-efficacy in students, and math self-efficacy was a strong predictor of future math performance and motivation. Prior achievement feedback comes in the form of grades teachers assign students on various performance and academic tasks, and grading practices have a strong influence on students' perception of achievement, and consequently on self-efficacy (Cauley, et al., 2006). Research has also shown that students with stronger self-efficacy beliefs were able to master math and reading assignments more quickly than students with weaker self-efficacy (Schunk, 1982, 1983a, 1983b, 1983c, 1983d, 1984, 1987, 1991).

In summary, self-efficacy has a significant impact on student motivation through the impact self-efficacy beliefs have on achievement behaviors. A person with high self-efficacy will attempt more difficult tasks than a person with low self-efficacy, and attribute failure to different reasons that can be controlled. Grading practices influence

student self-efficacy through the feedback grades provide to students regarding their efforts and abilities on various tasks, and by providing students a basis of prior achievement to predict future successes upon. What students with high self-efficacy attribute failure to is different than students with low self-efficacy and can be described through Attribution Theory.

Attribution Theory

Attribution theory can provide a context in which student experiences and grading practices can be viewed in connection with motivation (Brookhart, 2004). Attribution theory is a cognitive theory of motivation that suggests that the search for understanding is the source of all human motivation (Weiner, 1979, 1985, 1986, 1992). Attribution theory has two general assumptions. The first assumption is that individuals are motivated to understand and master their environment. According to Weiner (1992), individuals are motivated to understand their world in order to make it more predictable and to gain control over future events. Kelley (1971) states that "the attributor is not simply an attributor, a seeker after knowledge; his latent goal in attaining knowledge is that of effective management of himself and his environment" (p. 22). This understanding allows individuals to grow and adapt to their environment (Pintrich & Schunk, 1996). The second assumption is that people are trying to "understand the causal determinants of their own behavior as well as the behavior of others" (Pintrich & Schunk, 1996, p. 108). Individuals seek to know why things happen and why others behave the way they do. Connecting this to grading, students will seek to understand why they

failed or succeeded at a task or assignment (Brookhart, 2004), and teachers will seek to understand why some students succeed and others do not (Pintrich & Schunk, 1996).

Attribution theory connects to grading practices because students will try to identify causes of classroom events, including grading, within three dimensions. These dimensions, according to Brookhart (2004) are: "stability (whether the cause was changeable over time), locus (whether the cause was internal or external to the student), and control (whether or not the student had control over the cause)" (p. 39). A student attempting to attribute success or failure to ability has causes that are stable, internal, and uncontrollable because the student might think they were born that way and nothing will change that. A student attempting to attribute success or failure to lack of effort has causes that are unstable, internal, and controllable, because the student controls how much they study, which can change from assignment to assignment. Finally, a student attempting to attribute success or failure to the ease or difficulty of the assignment has causes that are unstable, external, and uncontrollable, because the teacher controls the assignment and it may change over time (Brookhart, 2004).

Weiner (1979) suggested that these causal attributions impact student behavior. According to Brookhart (2004):

> If a student attributes success on a project to stable reasons (e.g., "I am good at this."), then he or she can reasonably expect to be able to do even more next time. Perceptions of locus of control (internal or external) are related to self-esteem. Success attributed to ability fosters feelings of competence and confidence, whereas success attributed to luck fosters

surprise, but not increased future expectations for success. Failure

attributed to lack of ability fosters feelings of incompetence, whereas

failure attributed to lack of effort fosters feelings of guilt and shame.

Perceived control relates to helping others and emotional responses such

as liking others (p. 39).

These dimensions of causal attribution influence student self-efficacy and success

expectations, along with actual behavior (Weiner, 1986). However, as Pintrich and

Schunk (1996) suggest, it is important to understand that these causal attributions are

perceptions of the individuals involved, not necessarily the actual causes of the outcome.

Attribution research has shown that the dimension of causal attribution that most

impacts self-efficacy and success expectancy is the stability dimension (Weiner, 1986).

Students who attribute failure to a stable factor (such as ability) will have a lower success

expectancy in later tasks. Conversely, students who attribute success to a stable factor

will have a higher success expectancy in later tasks. Additionally, students who attribute

failure to either the locus dimension or the control dimension will not experience the

same lower expectancies as students who attribute failure to a stable factor (Pintrich &

Schunk, 1996).

Evans and Engelberg (1988) researched student perceptions of grading practices

by administering questionnaires to students asking about their attitudes regarding

grading, their understanding of the grading process, and their causal attributions about

why some students get good grades. The results suggest that younger students thought

grades were more influenced by external locus and uncontrollable causes, while older students thought grades were more influenced by internal locus and controllable causes.

Failures that are attributed to lack of ability evoke feelings of shame and humiliation, while failures ascribed to lack of effort evoke feelings of guilt (Covington, 2005; Covington, Spratt, & Omelich, 1980). Therefore, students will try harder on school work in order to reduce guilt. Students, for example, who study hard and fail are left with a feeling that success or failure is not within their control (Fontaine, 1974; Valle, 1974). Research has also found that there is a strong correlation between a student's high expectations and improved academic performance (Covington & Omelich, 1984b; Pajares & Schunk, 2001; Stipek & Seal, 2001). Intense effort increased pride in success (Brown & Weiner, 1984) and pride results in improving student performance (Covington & Omelich, 1984b). This cycle leads to a conflict for failing students. Is the failure due to lack of effort or lack of ability? If a student tries hard and fails, from the student's perspective he must not have the ability to succeed. "In short, many students are caught between two rival sources of self-esteem-competency versus hard work-and they must sacrifice one to aggrandize the other" (Covington, 1989, p. 88).

In summary, Attribution theory is a way to view student motivation within the context of grading practices. Students attribute success and failure to causal attributions from within three dimensions: stability, locus, and control. The stability dimension has the greatest impact on predicting future performance. Students who attribute failure to a lack of ability will lower efforts on future tasks, and students who attribute failure to other causes will not have the same lowered efforts. Students perceive grades in different

ways, and view their performance and the social implications of grades through a lens of self-worth.

Self-Worth Theory

Self-worth theory "holds that academic achievement is best understood in terms of students attempting to maintain a positive image of their own ability, especially when risking failure" (Covington, 1989, p. 88). Covington (1992) based his theory on the assumption that "the search for self-acceptance is the highest human priority, and that in schools self-acceptance comes to depend on one's ability to achieve competitively" (p. 74). Covington (1989) believes that determining why student learn rather that how they learn is the focus of motivational theory. According to Covington (1989), "the reasons individuals learn are as important to the quality of achievement as are the attributions of cause these individuals make, and, in an important sense, motives actually determine the character and form of the attributions" (p. 88).

Self-worth theory of motivation (Covington, 1984; Covington & Beery, 1976) contends that academic achievement should be viewed as a student's attempt to maintain their social image, especially regarding their ability. Self-worth theory focuses on people maximizing success and minimizing and avoiding failure, mainly because success reflects well on ability, and failure reflects negatively (Covington, 1989). According to Covington (1989), "protecting one's sense of competency is of the highest priority— sometimes even a higher priority that achievement itself" (p. 89). An example of this is when a student sets unachievable goals and fails, but the failure was expected so competency is protected. Many researchers have identified strategies students use to

avoid failure, including cheating, procrastination, lack of effort, and setting unattainable

goals (Berglas & Jones, 1978; Birney, Burdick, & Teevan, 1969; Sigall & Gould, 1977).

Using these strategies usually results in failure anyway, which is what students are trying

to avoid. However, by employing these strategies, or when there is a lack of effort, a

student's ability is not questioned since the failure is attributed to lack of effort (Kelley,

1971). The underlying principle is that a combination of intense effort and failure might

suggest a lack of competence and ability, so students employ these self-defeating tactics

to preserve the image of their competence and instead shift the reasons for failure to

something other than ability (Kun & Weiner, 1973; Covington, 1989).

According to Self-worth theory, lack of effort does not always mean lack of

motivation. In fact, Covington (1989) states that "students who express apathy may be

attempting to avoid failure; if they do fail, at least they can avoid the implications—that

they lack ability and hence are unworthy" (p. 89). Protecting one's competence provides

motivation for students who lack a strong belief in their ability (Covington, 1989). The

importance of competence is becoming more relevant as the evidence is mounting that

one main reason that students achieve in school is to protect a sense of worth, especially

in competitive situations (Covington, 2005, 1989). "In school, children attempt to

maximize their sense of self-worth by maintaining positive perceptions of their own

competence" (Pajares & Schunk, 2001, p. 258). This theory of achievement motivation

contends that academic achievement is best seen as students' attempt to maintain a

positive image of their own ability, especially when there is the possibility of failure

(Covington, 1989; Covington & Omelich, 1984a; Pajares & Schunk, 2001). Research

consistently shows that the more competent students feel about their school work, the

more interested they are in their schoolwork, and the harder they work at school (Stipek & Seal, 2001). In other words, feelings of competence develop student self-motivation. "Failure dampens motivation and a lack of motivation makes continuing failure a near certainty" (Levine, 2002, p. 263).

Self-worth is connected to grading practices in multiple ways (Brookhart, 2004). According to Brookhart (2004), grades should be used to reward learning, not just participation, and student control over grading should be utilized as often as possible. Teachers should provide students choices for assignments, provide criteria for success, and allow students to set realistic goals and measure their performance against their own goals. Also, teachers should provide students opportunities to have their effort lead to expected achievement, and teachers should help students set realistic goals for achievement and give grades that are evidence of this achievement, so that students can believe they can have repeated success. Covington (1992) notes that if school tasks are competitive, and if only a limited number of high grades will be awarded, then student perceptions about success or failure will depend on their perceptions of ability and competence; therefore, students will expend less effort to protect their competence if their sense of competence is low.

The dynamics of student achievement change as a student progresses through school (Covington, 1989). When a student takes their first test, the results of that test play a role in the student's self-perception of abilities (Covington & Omelich, 1988). If the test is viewed as a failure, anxiety increases during the next test preparation and testing sessions (Covington, 1989). Students may also lower their outlook on their own abilities,

which is exceptionally noticeable in failure-avoiding and failure-accepting students (Covington & Omelich, 1981). "As perceived ability status decreases, estimates of the importance of ability as a causal factor in success increase. This combination places failure-prone students in a kind of "double jeopardy" (Covington, 1989, p. 94). These students with feelings of lack of ability were labeled by Abramson, Seligman and Teasdale (1978) and others (Fox, 2005) as having "learned helplessness." "Such individuals come to feel that their fate is not in their own hands, that factors beyond their control determine what will happen in school" (Levine, 2002, p. 263).

In a study conducted by Schwarzer, Jerusalem and Schwarzer (1983), high school students who had grades that were decreasing also saw a subsequent feeling of helplessness and a decrease in anxiety. This lack of anxiety in the students further shows the ultimately devastating affect that a student's perception of their abilities plays in a student's motivation in schools. "Unsuccessful students . . . tend to attribute their successes to external factors, such as an easy exam or good luck, and blame their failures on internal factors not under their control, such as their lack of ability" (Kozminsky & Kozminsky, 2003, p. 50). "Believing that you're just not smart enough or that you were born to lose or that you're an unlucky person

wipes out any motivation and eradicates all academic incentive" (Levine, 2002, p. 263).

In summary, Self-worth theory contends that students will go to extreme efforts to protect their sense of competence and the social image of their ability, and students are highly motivated to protect their competence. What teachers may view as a lack of effort and motivation in fact could be strongly motivated to protect one's competence. Grading

practices play a role in developing a sense of competence and ability, and the methods and factors teachers include in the grade determination can have an impact on a student's perceptions of competence and ability, which in turn affects student motivation to achieve. Another factor that impacts student motivation is the relationship between the student and the teacher.

Student/Teacher Relationship and Teacher Actions

The role that a student/teacher relationship plays in the academic success of a student is often a matter of perspective. As discussed previously, students value their ability and feelings of competency more than they value being perceived as a hard worker. "Nothing motivates children more than a feeling of competence" (Stipek & Seal, 2001, p. 42). There is research that shows teachers tend to value a student's effort more than they value the student's perceived natural ability. Students who are perceived as having worked hard are punished less for failure and are rewarded more for success than are those students who are perceived as not trying very hard (Eswara, 1972; Weiner, 1972). Teachers often assume that although not all students are naturally gifted, all students have the ability to work hard. Teachers also assume that they can change student behavior by giving out zeros for grades (Covington, 1989). Research in classrooms has revealed that student motivation in a classroom can be enhanced by a student's attempt to please the teacher (Wentzel, 1999). If teachers concentrate on and reward students who work hard, why do so many students fail to respond with higher effort? Covington (1989) concluded that the reason for the lack of student response is due to a conflict between student and teacher values. "Teachers reward success that is

achieved through intense effort, whereas for many students expending such effort poses a threat, especially when they are risking failure" (Covington, 1989, p. 96). If students try hard and fail, they assume that they are incapable of being successful. Additionally, the failure results in increased shame which results in lowered student efforts. A study conducted by Covington and Omelich (1979b) evaluated college students shame after they hypothetically failed a test. Students experienced the most shame after they studied hard and least shame when they studied very little. Interestingly, this study also asked these students to put themselves in the position of being a teacher and asked them to respond to these excuses. Ironically, the explanation for failure that resulted in both the least punishment by the teacher and the least amount of shame by the student was low student effort combined with an excuse. The behavior most punished by the teacher was the lack of effort; this is the behavior that elicits the least amount of shame in students.

Research on student motivation reveals that teacher actions in the classroom play a strong role in student motivation (Ames, 1992; Anderman & Anderman, 1999; Cocks & Watt, 2004; Urdan, 2004; Urdan & Midgley, 2003; Urdan, Kneisel & Mason, 1999). Teachers that emphasize development of mastery goals and student personal effort in their classrooms have students with higher levels of motivation (Cocks & Watt, 2004; Urdan & Turner, 2005). Conversely, teachers who emphasize performance goals in their classrooms, especially in relationship to other students, have students with lower levels of motivation (Urdan, Midgley & Anderman, 1998). "Although important questions remain about how to interpret the research on classroom goal structures, the existing evidence suggests that when teachers emphasize meaning and individual development in the

classroom, students' competence motivation is enhanced" (Urdan & Turner, 2005, p. 300).

The role of competition in the instructional process is part of what Covington (1989) calls the "institutionalizing of learning" (p. 98). The use of competition in the classroom as a means to motivate students to achieve often leads to lower performance rather than higher academic achievement (Glasser, 1998; Kohn, 1986; Urdan & Turner, 2005). Competition ultimately ties self-esteem to the ability to out-perform others. This type of classroom environment may promote student learning as long as the student is still able to be successful relative to others; however, this in itself is self-defeating because it destroys an intrinsic interest in achievement (Covington, 1989). When failure begins to threaten a student's concept of competence and ability in a classroom, he is likely to withdraw from the learning environment. The easiest way for these students to withdraw from this environment is to simply stop trying, thus insulating their self-esteem. This explains why students may look to dropping out as an answer.

"Competition causes students to focus on ability as the dominant causal agent" (Covington, 1989, p. 99). Whether a student is successful in these types of classrooms is directly tied to natural ability and not work ethic or academic improvement. These patterns can be extremely damaging when considering that junior high and high school students consider ability as something that is fixed and cannot change. "This added dimension creates a sense of hopelessness, because nothing in the situation is within the power of the failing student to correct" (Covington, 1989, p. 99). As a result, the importance of effort in success and the value of hard work are negated by competitive

activities in the classroom (Ames & Ames, 1981). Many students in competitive

classroom situations blame their success on good luck or their failures on bad luck (Ames

& Ames, 1981). To many successful junior high and high school students praise has little

value in competitive situations because they feel ability is something that is beyond their

control (Covington, 1989). All of these factors lead to learned helplessness which results

in student failure and lack of motivation.

In summary, the relationship between students and teachers has a large impact on

student motivation. Teacher perceptions of student motivation can impact how a teacher

assigns grades to a student, with perceived higher effort resulting in less punishment for

failure, while a perceived lack of effort motivated teachers to use grades as punishment

for this behavior. Additionally, competition in academic settings can have a negative

impact on student motivation and achievement, and teacher grading systems that establish

a system of competition can lead to students attributing a lack of success to a lack of

ability, which can lead to a lack of motivation to achieve academically.

Theory of Planned Behavior

The Theory of Planned Behavior (TPB) provides a conceptual framework for the

design of this study, since this study investigates teachers' grading practices and

motivation actions via their perceptions. The TPB extends the Theory of Reasoned

Action (TRA) (Ajzen, 1988; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) by adding

perceived behavior control to the model. According to TRA, a person's behavior is

determined by his/her intention to perform the behavior. Ajzen (1988) states that TRA

assumes that "human beings usually behave in a sensible manner; that they take account

of available information and implicitly or explicitly consider the implications of their

actions" (p. 117). According to TRA, "a person's intention to perform a behavior is the

immediate predictor of that action" (Liu, 2007, p. 37). Behavioral intentions are a

function of two predictors: attitude toward the behavior, and subject norm (Ajzen, 1988).

Attitude toward the behavior is a person's positive or negative perceptions of behavioral

action, and subject norm is a person's positive or negative social perceptions of a

behavioral action (Ajzen, 1988). According to Ajzen (1988):

> the attitude toward a behavior is determined by a person's evaluations of the
>
> outcomes associated with the behavior and by the strength of these associations.
>
> A person who believes that performing a given behavior will lead to mostly
>
> positive outcomes will hold a favorable attitude toward performing the behavior
>
> (p. 120).

The Theory of Reasoned Action was developed to explain behaviors within an

individual's control, but was not able to explain behaviors outside of an individual's

control. The Theory of Planned Behavior was introduced to account for issues of

incomplete control. Along with the two behavioral intention predictors, attitude toward

the behavior and subject norm, TPB introduced another predictor, perceived behavioral

control (Ajzen, 1988).

According to the TPB (Ajzen, 1991), the main determinant of human behavior is

behavioral intention, which can be accurately predicted by attitudes toward the behavior,

subjective norms, and perceived behavioral control. The TPB has been used to predict

behavioral intentions and actual behaviors (Armitage, 2005; Liaw, 2004; Millar &

Shevlin, 2003). These studies have provided evidence that the TPB model could be a feasible tool to predict behavioral intention and actual behavior based on attitudes and perceptions. Although this current study did not aim to confirm links among grading intentions and motivation intentions and actual behavior, theoretical support for this connection guided the development of the study and the data instrument selection.

According to Ajzen (1988), the Theory of Planned Behavior has two important features. First, the TPB assumes that perceived behavioral control has motivational implications for intentions. Second, the TPB includes a potential direct connection between perceived behavioral control and actual behavior. According to Liu (2007), "in other words, after controlling the effects of attitude toward the behavior and subjective norm, perceived behavioral control can affect behavior indirectly via intentions, and it can also predict the behavior directly" (p. 38).

According to the TPB (Ajzen, 1988), behavioral intention is the main determinant of human behavior. Behavioral intention can be predicted by measuring attitudes toward the behavior, subjective norms, and perceived behavioral control. Ajzen (1991) described intentions as follows:

As in the original theory of reasoned action, a central factor in the theory of planned behavior is the individual's intention to perform a given behavior. Intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much effort they are planning to exert, in order to perform the behavior. As a general

rule, the stronger the intention to engage in a behavior, the more likely should be its performance (p. 181).

Attitude toward the behavior refers to "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p. 188). Subjective norms refer to "perceived social pressure to perform or not perform the behavior" (Ajzen, 1991, p. 188). Perceived behavioral control refers to "the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles" (Ajzen, 1991, p. 188). These three factors combine to predict behavioral intention, which is the main determinant of actual behavior (Ajzen, 1991).

The TPB has been used to predict behavioral intentions and actual behaviors (Armitage, 2005; Liaw, 2004; Millar & Shevlin, 2003). Armitage (2005) conducted a study to test the ability of the theory of planned behavior to predict actual participation in physical activity. A sample of 94 participants were given a baseline questionnaire and an identical follow-up questionnaire three months after the baseline. Participants were fitness center members in England who had not attended the fitness center for several months. Results indicated that attitude, subjective norm, and perceived behavioral control accounted for 49 percent of the variance in behavioral intention to perform physical activity.

Liaw (2004) conducted a study investigating the use of search engines as a learning tool using a TPB approach. Liaw (2004) studied whether or not attitude, subjective norm, and perceived behavioral control regarding using search engines

significantly influenced intention to use search engines as a learning tool. A sample of

159 students from a Taiwanese medical university completed a survey questionnaire,

which included three components: computer and internet experience, attitudes towards

search engines, and some demographic information. The results of the study suggested

that behavioral intention to use search engines was significantly influenced by the three

factors of behavioral intention (33% of the total variance explained), and the perceived

satisfaction of search engines was the best predictor (21% of total variance explained).

Millar and Shevlin (2003) conducted a study to examine using the TPB to predict

career information-seeking behaviors of students. A sample of 278 students from three

secondary schools in Ireland completed a TPB modeled questionnaire which included

questions about attitude toward the behavior, subjective norms, and perceived behavioral

control. The study found that behavioral intentions to search for career information were

mainly influenced by past behavior and attitudes towards the behavior. Subjective norms

and perceived behavioral control had no significant impact on career information-seeking

behaviors.

These studies provide evidence that the TPB model can be used to predict

behavioral intention and actual behavior based on attitudes and perceptions. In

combination, attitude towards the behavior, subjective norms, and perceived behavioral

control lead to the formation of a behavioral intention to grade in a specific way and to

attempt to motivate students in a specific way. These behavioral intentions lead to actual

behavior regarding grading practices and motivational strategies. The three factors of

behavioral intention can be described in terms of grading practices and motivational strategies.

Attitude toward the behavior

Based on the TPB, teachers' perceptions of the usefulness and importance of grading practices can be categorized into attitude towards the behavior. As defined by Ajzen (1988), attitude towards the behavior is a person's positive or negative evaluation of performing the behavior of interest. According to McMillan and Nash (2000), five types of teacher beliefs and values regarding grading exist: philosophy of teaching and learning; giving students the best opportunity to be successful; promoting student's understanding; accommodating individual differences; and student engagement and motivation. McMillan and Nash (2000) interviewed 24 teachers about their own grading practices and the reasons behind their grading decisions and found that the most important factors affecting grading decisions were the teacher's philosophy of teaching and learning, the value placed on student understanding, and their beliefs about helping students make progress.

Based on the TPB, teacher's perceptions of the strategies they use to affect student motivation can be categorized as attitude towards the behavior. Research has shown that what teachers do in the classroom influences students' motivation and learning (Chung, 2002; Greene, Miller, Crowson, Duke, & Akey, 2005). Teachers can promote or reduce student motivation through their interactions with students and the design of learning experiences in their classroom (Brophy & Good, 1974; Hardre', 2001; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). Research has shown that

teachers' knowledge of students' academic motivation can predict the efforts teachers make to motivate students (Bandura, 1997; Hardre' & Sullivan, 2007).

Subjective norms

Based on the TPB, the influence of academic enablers, expert recommendations, and organizational factors on grading practices can be categorized into subjective norms. According to Ajzen (1991), subjective norm is the "perceived social pressure to perform or not perform the behavior" (p.188). Since grading is required by school districts, teachers must perform the behavior of grading; however, social pressure to grade using academic enablers such as ability, attendance, effort, and behavior makes grading more subjective (Cross & Frary, 1999). Stiggins, Frisbie, and Griswold (1989) stated that grades "influence student achievement, motivation, academic self-concept, locus of control, and attitude, among other things" (p. 12). Additionally, Stiggins, Frisbie, and Griswold stated that grades "influence teachers' objectives and expectations, activities and perceptions of their own success" (p. 12). Measurement expert recommendations are another social pressure teachers perceive regarding grading, yet there is a large discrepancy between expert recommendations and teacher practice (Allen, 2005; Brookhart, 1993, 1994; McMunn, Schenck, & McColskey, 2003; Stiggins, Frisbie, & Griswold, 1989). Finally, organizational factors are another social pressure on grading teachers perceive. Often organizational factors influence grading practices regardless of individual teacher beliefs, and teachers must grade according to local or state policy (Guskey, 2000; Cizek, Fitzgerald, & Rachor, 1996).

Based on the TPB, teacher perceptions of parent, student, and organizational

pressures to motivate students can be categorized as subjective norms. Social cues that teachers receive from parent and students about student motivation cause teachers to develop beliefs about student motivation, resulting in teacher behaviors that affect motivation (Wild, Enzle, Nix, & Deci, 1997). The pressures put on teachers "represent a potentially widespread, but understudied, social influence on motivational processes" (Wild, et al., 1997, p. 847). Perceived organizational pressures influence teacher behaviors to motivate students. The evidence suggests that higher student motivation leads to higher student achievement, resulting in fewer high school dropouts. Schools have made efforts to increase student motivation in schools; however, researchers believe that the focus should turn away from special programs and instead to changing schools and classrooms by addressing teaching practices (Kohn, 1994; Makri-Botsari, 2001; Odden & Archibald, 2001; Pajares & Schunk, 2001; Urdan & Turner, 2005).

Perceived behavioral control

Based on the TPB, teachers' perceived grading self-efficacy can be categorized as perceived behavioral control regarding grading practices. According to Ajzen (1991), perceived behavioral control refers to "the perceived ease or difficulty of performing the behavior" (p. 188). Ajzen (1991) contends that perceived behavioral control is similar to perceived self-efficacy. Bandura (1986) defined self-efficacy as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances (p. 391). Bandura (1977) argued that self-efficacy directly impacts an individual's choice of activities, motivation, effort, and persistence with an activity. According to Liu (2007), "teachers' perceived self-efficacy of the grading process is

teachers' perceived ease or difficulty of grading and their judgment of their capabilities to assign grades to students" (p. 43). Teachers receive little if any formal training in grading practices and the effectiveness of various grading methods (Brookhart, 2004; Stiggins, 1993). Due to this lack of training and information regarding effective grading methods, teachers tend to utilize strategies they experienced as students that they also remember as being fair and reasonable (Guskey & Bailey, 2001).

Based on the TPB, teachers' perceived motivation self-efficacy can be categorized as perceived behavioral control regarding student motivation. Urdan and Turner (2005) state that "teachers' efficacy and attributions for student achievement influence their beliefs about whether they can influence their students' motivation and, therefore, their willingness to try" (p. 312). Additionally, teachers must feel confident in their abilities to motivate students if students were to become motivated (Clark & Artiles, 2000). Research indicates that teacher beliefs about their abilities and skills to deal with classroom issues like motivation have a direct impact on student motivation and achievement (Ashton & Webb, 1986; Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Teachers who are confident that they can deal with issues are more likely to have classrooms that foster motivational and emotional support for students (Pajares & Schunk, 2001).

In summary, according to the TPB (Ajzen, 1991), the main determinant of human behavior is behavioral intention, which can be accurately predicted by attitudes toward the behavior, subjective norms, and perceived behavioral control. Three factors contribute to predicting behavioral intention: attitude toward the behavior, subjective

norms, and perceived behavioral control. The TPB provides a useful framework to view

teacher perceptions of grading practices and teacher perceptions of student motivation

because it allows prediction of behavioral intentions and actual behaviors based on

attitudes and perceptions.

Figure 1. Theory of Planned behavior

CHAPTER THREE

Research Design and Methodology

Introduction

According to Guskey (2004), "grading is one of a teacher's greatest challenges and most important professional responsibilities" (p. 31). Despite the importance of this action, teachers receive little if any formal training in grading practices and the effectiveness of various grading methods (Brookhart, 2004; Stiggins, 1993). Due to this lack of training and information regarding effective grading methods, teachers tend to utilize strategies they experienced as students that they also remember as being fair and reasonable (Guskey & Bailey, 2001). Teachers use a "hodgepodge" system despite established measurement recommendations (Brookhart, 1991; Cross & Frary, 1996; Frary, Cross, & Weber, 1993; Plake & Impara, 1993; Stiggins & Conklin, 1992; Stiggins, Frisbie, & Griswold, 1989).

One of the toughest challenges facing secondary teachers is the issue of student motivation (Bracken, 1996; Chapman et al., 2000; Covington, 1998; Fox, 2005). Many programs have been developed over the years to help improve student motivation; however, these programs have had limited success and many researchers now believe that student motivation efforts should be focused on transforming schools, classrooms, and teaching practices (Kohn, 1994; Makri-Botsari, 2001; Odden & Archibald, 2001; Pajares & Schunk, 2001).

Problem and Purpose Overview
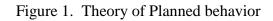
Currently, teachers use few intervention strategies to help motivate students to achieve and succeed (Duke & Gansneder, 1998). However, teachers do tend to use grades as an attempted motivator for student achievement. According to Frisbie and Waltman (1992), one reason teachers give for why they assign grades is to provide evidence of a lack of effort or lack of responsibility for behavior. Some teachers threaten students with poor grades in order to encourage more acceptable behaviors from the student. In other words, teachers attempt to use grades to motivate students to achieve and succeed as well as behave and adhere to expectations.

To date, there have been few significant studies that evaluated teachers' perceptions of their own grading practices and the relationship of those perceptions to their perceptions of students' motivation in their classrooms. For this reason, this inquiry focused on teacher perceptions of grading practices and the relationship of those perceptions to their perceptions of students' motivation in their classrooms in order to develop strategies for policy makers, teacher preparation programs, educational leaders, and professional developers to design more effective teacher and pre-service teacher training in grading methods and practices.

Research Design

This study examined the extent to which demographic variables interact and how these impact individual secondary teachers' perceptions relating to grading practices and student motivation. Such an undertaking can be described as a descriptive study

(Kerlinger, 1986) with multiple independent variables. A descriptive study determines and reports things the way they are (Gay, 1981). Issac and Michael (1983) explained the purposes of descriptive research as follows: 1) to collect detailed factual information that describes existing phenomenon, 2) to identify problems or justify current conditions and practices, 3) to make comparisons and evaluations, and 4) to determine what others are doing with similar problems or situations and benefit from their experience in making future plans and decisions. According to Van Dalen (1966), this method is useful to gather practical information that may be relevant for the improvement or justification of an existing situation. Information gathered might also provide a foundation upon which further research can be conducted. The purpose of this kind of research is to "discover relationship between variables" (Borg & Gall, 1989, p. 573) and identify comparisons between groups. The broad methodology is quantitative. This methodology enables the data to answer the research questions using questionnaires and surveys.

Research Questions and Hypotheses

This study investigated the relationship between secondary school teacher perceptions of grading practices and secondary school teacher perceptions of student motivation. The following research questions and null hypotheses will be investigated in this study. They are:

RQ1: Is there a statistically significant relationship between overall teacher perceptions of grading practices and overall teacher perceptions of student motivation?

Ho1: There is no statistically significant relationship between overall teacher perceptions of grading practices and overall teacher perceptions of student motivation.

RQ2: Is there a statistically significant relationship between individual factors of teacher perceptions of grading practices (Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, and Perceived Self-efficacy of the grading process) and individual components of teacher perceptions of student motivation (Effort, Engagement, General Interest, Home Factors, Current Relevance, Aspirations/Future Utility, Peer Factors, and Personal Factors)?

Ho2: There is no statistically significant relationship between individual factors of teacher perceptions of grading practices (Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, and Perceived Self-efficacy of the grading process) and individual components of teacher perceptions of student motivation (Effort, Engagement, General Interest, Home Factors, Current Relevance, Aspirations/Future Utility, Peer Factors, and Personal Factors).

RQ3: Are there statistically significant gender differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation?

Ho3: There are no statistically significant gender differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation?

RQ4: Are there statistically significant differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation by subject area of teacher perceptions?

Ho5: There are no statistically significant differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation by subject area of teacher perceptions.

RQ5: Are there statistically significant differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation by years of teaching experience?

Ho5: There are no statistically significant differences in the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation by years of teaching experience.

Population and Sample

The population for this study was drawn from a four county region of secondary school teachers in public schools in a Midwest state. Selection of the teachers that comprise the sample was completed in two distinct steps. The first step was selection of school districts from all the districts in the population of the Midwest state. Two criteria were used in the selection of the school districts. First, each district must be located within the predetermined four county region of the Midwest state. Second, each school district in the study was required to have a distinct elementary, middle (or junior high), and high school. The public school directory for the 2010-2011 school year published by

the state department of education was used to select districts that meet these criteria. Any district within the four county region that listed distinct elementary, middle, and high schools was invited to participate.

The second step for selection of a sample of high schools was completing random sampling of the districts that were identified in the first step of sample selection. The high schools in the four county region were distinctly numbered and a random number generator was utilized to select the high schools to survey. All teachers at the randomly selected high schools were invited to participate in the study. Three hundred and seven high school teachers participated in this study.

Data Instrumentation and Collection

This study examined two distinct areas within education: teacher perceptions of grading practices and teacher perceptions of student motivation. Survey instruments measuring each area were used to assess teacher perceptions of both grading practices and student motivation. It took approximately thirty minutes to complete both surveys. The first survey, the Teachers' Perceptions of Grading Practices (TPGP), was developed and validated by Xing Liu (2007) and measures six areas of teacher perceptions of grading practices: Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, and Perceived Self-efficacy of the grading process (Liu, 2007). This instrument was validated on samples in both the United States and China. Within the United States, 122 teachers responded to the survey, and the reliability coefficients of all six factors measured except student effort were all larger than 0.7. The reliability coefficient of student effort was 0.61. Within China, 167 teachers responded to the

survey, and the reliability coefficients of all six factors were all larger than or equal to 0.8 (Liu, 2007). The TPGP contains 40 six-point Likert-type scale items representing six areas of teacher perceptions of grading practices, four multiple-choice items regarding how often certain measurements are taken (tests, assignments, quizzes), and seven demographic questions asking for gender, subject areas taught, grade levels taught, teacher age, degree type, years of experience, and area of certification. This questionnaire was chosen for use in this study because it utilizes the Theory of Planned Behavior as a theoretical frame, just as this study does. Also, the instrument measures teacher perceptions of grading practices, and very few studies have been conducted on teacher perceptions of grading practices. A different instrument, the Survey of Assessment and Grading Practices –Elementary and Secondary Form, was developed by McMillan and Workman (1999). This instrument used a six-point Likert-type scale with 56 items and emphasized teacher criteria in making grading decisions, but did not specifically address perceptions of grading practices. For these reasons, the TPGP was chosen to measure teacher perceptions of grading practices for this study.

The second area examined in this study was teacher perceptions of student motivation. "Many questionnaire instruments exist for assessing students' motivation, primarily as self-report, but fewer instruments are available for assessing teachers' perceptions of their students' motivation" (Hardre', Davis, & Sullivan, 2008, p. 155). Many researchers have assessed teacher perceptions of student motivation utilizing interviews (Atkinson, 2000; D'Amico, Matthes, Sankar, Merchant, & Zurita, 1996; Dolezal, Welsh, Pressley, & Vincent, 2003). These studies gathered detailed information through interviews that were time consuming to conduct and analyze. There existed a

need for a quicker method of assessing teacher perceptions of student motivation

(Hardre', Davis, & Sullivan, 2008). To assess teacher perceptions of student motivation,

this study used the Perceptions of Student Motivation (PSM) questionnaire, developed

and validated by Hardre', Davis, and Sullivan (2008). This questionnaire is comprised of

two parts. The first is the General Motivation section, which assesses overall perceptions

of student motivation. The second part is the Reasons section, which assesses the

perceived reasons for students' lack of motivation (Hardre', et al., 2008). The PSM was

validated with samples from the United States and East Asia, and demonstrated a

reliability of 0.90 on the general motivation subscale for the United States sample and

0.89 for the East Asian sample. Additionally, the PSM demonstrated a reliability in the

four subscales of teacher perceptions of the reasons for students' lack of motivation of

greater than 0.7 in all four subscales. This instrument was chosen for its ease of

administration and its examination of teacher perceptions of student motivation, not self-

reported actions or student beliefs. Additionally, by using quantitative instruments to

measure both teacher perceptions of grading practices and teacher perceptions of student

motivation, the research questions focusing on a relationship between the two could be

explored.

Approximately 400 teachers were invited to participate in this study, with a

desired response rate of fifty percent, and a minimum response rate of thirty percent.

Three hundred and seven teachers responded to all of the questions in both surveys, for a

response rate of approximately 77%. Approval from superintendents was requested in

order to gather information from teachers in their district. A packet was sent to the

superintendent of each school district selected for participation. This packet included a

letter explaining the purposes of the study, a copy of the TPGP and the PSM, and an informed consent form. The signature of the superintendent on the informed consent form granted permission for the researcher to include the school district in the study. Some superintendents chose to respond with consent via email as the researcher's email address was provided to superintendents as well.

After superintendent approval, the researcher contacted principals of the high schools in each district participating to explain the purpose of the study and seek their participation. The same information sent to the superintendent was given to the principal, including an informed consent form. The principal's signature on the informed consent form granted permission for the researcher to include the school in the study. Similar to some superintendents, several principals chose to respond with consent via email as the researcher's email address was provided.

Once approval was gained from the principal, a letter was sent to all high school teachers in the building encouraging the teachers to participate in the study. This letter was sent via email to the principal with instructions to forward to all staff members, along with a direct link to the two survey instruments, which were transcribed to online versions. Precautions were taken to ensure anonymity when completing the online surveys. No teacher was asked to identify their school or county where their school is located, nor did teachers identify themselves other than through demographic questions of gender, subject areas taught, grade levels taught, teacher age, degree type, years of experience, and area of certification. The completed surveys were sent electronically to the researcher via the online survey program. Follow-up emails were sent to teachers

reminding those who did not complete the surveys to do so after two weeks and again after six weeks. There was no consequence to the teachers who chose to not participate in this study.

Data Analysis

The items of the TPGP are divided into six subscales centered around six areas of grading: Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, and Perceived Self-efficacy of the grading process (Liu, 2007). The items of the PSM are divided into two sections, General Motivation and Causes. Within the motivation scale there are three subscales: Effort, Engagement, and General Interest. Within the causes scale there are five subscales: Home Factors, Current Relevance/Value, Aspirations/Future Utility, Peer Factors, and Personal Factors. The reliability coefficients for the TPGP subscales are all greater than 0.7, and the reliability of the PSM General Motivation section is 0.90 and the Causes section is greater than 0.7.

After the surveys were completed and returned electronically, the data was downloaded into an Excel spreadsheet and analyzed using the Statistical Package for Social Sciences (SPSS). Data was analyzed in two steps: 1) Descriptive statistics (item means, standard deviations, frequencies) and 2) Multivariate analyses (correlations, MANOVA, Chi-square, F-tests).

Descriptive statistics

Descriptive data for the sample group (gender, subject areas taught, grade levels taught, teacher age, degree type, years of experience, and area of certification) is

presented in a summary report. Data for each item and factor was analyzed by computing mean and standard deviations for each demographic group, and presented in table and narrative forms. Variables included gender, subject areas taught, grade levels taught, teacher age, degree type, years of experience, and area of certification. Factors included Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, Perceived Self-efficacy of the grading process, Effort, Engagement, General Interest, Home Factors, Current Relevance, Aspirations, Peer Factors, and Personal Factors. These factors were taken directly from the survey instruments using the item numbers identified corresponding to each factor.

Multivariate analysis

Data was analyzed to answer the research questions and hypotheses of this study. The following statistical analyses were used: Pearson Product Moment Correlation and MANOVA. Correlation was used to measure the strength of linear relationship between the independent variables (gender, years of teaching experience, subject areas taught, grade levels taught, teacher age, degree type, years of experience, and area of certification) and the dependent variables (Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, Perceived Self-efficacy of the grading process, Effort, Engagement, General Interest, Home Factors, Current Relevance, Aspirations, Peer Factors, and Personal Factors). Correlation was used to measure the strength of the linear relationship between the perceptions of grading practices variables (Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, Perceived Self-efficacy of the grading process) and the perceptions of student motivation

variables (Effort, Engagement, General Interest, Home Factors, Current Relevance, Aspirations, Peer Factors, and Personal Factors). The correlation coefficient describes the extent to which two sets of data are related (Hinkle, Wiersman, & Jurs, 1998).

MANOVA was used to test the null hypotheses and the interaction between independent variables and fixed factors (gender, years of teaching experience, subject areas taught, grade levels taught, teacher age, degree type, years of experience, and area of certification). These analyses have the advantage of showing whether the fixed factors interacted in their effects on the perceptions of grading practices and perceptions of student motivation variables. Analyses were performed using the Statistical Package for Social Sciences (SPSS 19).

Chi-square tests were used to test the null hypotheses and determine any differences in factors considered when assigning final grades between groups based on fixed factors of gender, years of teaching experience, and subject areas taught.

A general criterion for the interpretation of the significance of correlation coefficients (Best, 1959, p. 240) in this study was:

Coefficient	Relationship
+/-.80 to +/-1.00	High or Very High
+/-.60 to +/-.79	Substantial or Marked
+/-.40 to +/-.59	Moderate
+/-.20 to +/-.39	Low or Slight
0 to +/-.19	Negligible

Summary

After a review of literature on teacher grading practices, student motivation, and teacher perceptions of both areas, it was evident that little was known about the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation. The goal of this research was to investigate secondary school teachers perceptions of grading practices, secondary school teacher perceptions of student motivation, and the relationship between the two. The participants of this study were drawn from a random sample of 307 high school teachers in a Midwest state during August and September, 2011. The teachers were categorized by gender, years of teaching experience, subject areas taught, grade levels taught, teacher age, degree type, years of experience, and area of certification.

The data was gathered through two electronic surveys, the Teachers' Perceptions of Grading Practices (TPGP) survey and the Perceptions of Student Motivation (PSM) survey, both created and validated by other researchers and given previously in both written and electronic formats (Liu, 2007; Hardre', Davis, & Sullivan, 2008). The data was analyzed using descriptive statistics and multivariate analyses which include Pearson Product Moment Correlation, MANOVA, and Chi-square tests.

CHAPTER FOUR

Results of Data Analysis

In this chapter, the data analyses are presented. The primary purpose of this study was to examine the relationship between secondary school teacher perceptions of grading practices and their perceptions of student motivation. Three hundred and seven volunteer subjects completed the Teacher Perceptions of Grading Practices (TPGP) and Perceptions of Student Motivation (PSM) surveys and provided the data. Data was analyzed in two steps: 1) Descriptive statistics (item means, standard deviations, frequencies) and 2) Multivariate analyses (correlations, MANOVA, F-tests, and Chi-Square).

Research Questions

The following research questions were addressed with descriptive and inferential statistics:

RQ1: Is there a statistically significant relationship between overall teacher perceptions of grading practices and overall teacher perceptions of student motivation?

RQ2: Is there a statistically significant relationship between individual factors of teacher perceptions of grading practices (Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, and Perceived Self-efficacy of the grading process) and individual components of teacher perceptions of student motivation (Effort, Engagement, General Interest, Home Factors, Current Relevance, Aspirations/Future Utility, Peer Factors, and Personal Factors)?

RQ3: Are there statistically significant gender differences between the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation?

RQ5: Are there statistically significant differences between the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation by subject area of teacher perceptions?

RQ4: Are there statistically significant differences between the mean scores for individual factors of teacher perceptions of grading practices and individual factors of teacher perceptions of student motivation by years of teaching experience?

Characteristics of Respondent Population

Data regarding the make-up of those who responded to the survey instruments, arranged by gender, age, years of experience, subject area taught, and degree type are presented in Table 1. A total of three hundred and seven secondary school teachers completed all of the questions in both surveys, with one hundred and five males and two hundred and two females completing the surveys. Teachers from many subject areas participated with math, English, and elective teachers making up most of the group, followed by social studies, science, and special education teachers. Additionally, 76.2% of the respondents have a master's degree, and four respondents have a doctorate.

Table 1

Frequency: Numbers, Percentages, and Groups Involved in Study

Gender	Number	% of sample
Male	105	34.2%
Female	202	65.8%
TOTAL	307	100%

Age	Number	% of sample
20-30	77	25.1%
31-35	45	14.7%
36-40	56	18.2%
41-45	36	11.7%
46-50	39	12.7%
51-55	41	13.4%
55+	13	4.2%
TOTAL	307	100%

Years of Experience	Number	% of sample
0-5	64	20.8%
6-10	63	20.5%
11-15	69	22.5%
16-20	46	15.0%
21-25	38	12.4%
25+	27	8.8%
TOTAL	307	100%

Subject Area	Number	% of sample
Math	58	18.9%
English	57	18.6%
Social Studies	43	14.0%
Science	41	13.4%
Special Education	38	12.4%
Electives	70	22.8%
TOTAL	307	100%

Degree Type	Number	% of sample
Bachelor's	69	22.5%
Master's	234	76.2%
Doctorate	4	1.3%
TOTAL	307	100%

Research Question One

Results of Correlation Analysis Between the Teacher Perceptions of Grading

Practices (TPGP) and the Perceptions of Student Motivation (PSM) Surveys

Pearson Product Moment Correlations (*r*) were used to measure the relationship between Teacher Perceptions of Grading Practices (TPGP) and teacher Perceptions of Student Motivation (PSM). For the pair of surveys the value of the correlation between the two was calculated using the mean of each survey question. This correlation analysis was used to answer Research Question One.

The Pearson Product Moment Correlation (*r*) was used to compute the correlations amongst the two surveys using item means. The analysis found a statistically significant negligible positive correlation between teacher perceptions of grading practices and perceptions of student motivation, *r* = 0.132, p<.05.

The Pearson Product Moment Correlation (*r*) was also used to compute correlations amongst all of the questions on each survey using raw scores. Table C1 shows the results of this analysis. The analysis found multiple negligible and slight positive and negative correlations between individual items of each survey given. There were two hundred and twenty statistically significant correlations between individual items of the TPGP and PSM out of a possible eight hundred correlations at the .05 or .01 levels, which is 27.5% of possible correlations.

Results of the Pearson Product Moment Correlation analysis found a statistically significant negligible positive correlation between teacher perceptions of grading

practices and teacher perceptions of student motivation, $r = 0.132$, p<.05, as well as multiple statistically significant correlations between individual items of both surveys; therefore, the null hypothesis is rejected.

<div align="center">**Research Question Two**</div>

Results of Correlation Analyses Between Individual Factors of the Teacher Perceptions of Grading Practices (TPGP) and the Perceptions of Student Motivation (PSM) Surveys

Pearson Product Moment Correlations (*r*) were computed to measure the relationship between individual factors of Teacher Perceptions of Grading Practices (TPGP) and Perceptions of Student Motivation (PSM). The factors within the TPGP are Importance, Usefulness, Student Effort, Student Ability, Teacher Grading Habits, and Perceived Self-Efficacy of Grading. The factors within the PSM are Effort, Engagement, General Interest, Home Factors, Current Relevance, Aspirations/Future Utility, Peer Factors, and Personal Factors. This analysis is presented in Table C2. The analysis found eighteen statistically significant correlations at the .05 or .01 level out of a possible thirty-two. Of these correlations, seventeen were positive and varied in strength from negligible to moderate, and one statistically significant correlation was a negligible negative correlation. The highest statistically significant correlation was between Usefulness of grading and student General Interest in school, $r = .550$, p<.01. Of all the statistically significant correlations, only one of the eighteen was negative: Importance of grading and Peer Factors influencing motivation, $r = -.142$, p<.05. Of all of the factors within perceptions of grading, Grading Self-Efficacy had the greatest number of

statistically significant correlations with perceptions of motivation with six out of 8

(75%), and Usefulness of grading had the fewest number of statistically significant

correlations, albeit the highest correlation, with perceptions of motivation, with 1 out of 8

(12.5%). Of all the factors within perceptions of motivation, two factors had four out of a

possible six (67%) statistically significant correlations: General Interest and Home

Factors, and three factors had only one correlation out of a possible six (17%) statistically

significant correlations: Effort, Engagement, and Personal Factors.

The Pearson Product Moment Correlation analysis found a statistically significant

slight correlation between teacher perceptions of the importance of grading (Importance)

and perceptions of students' general interest in school (General Interest), $r = .386$, p<.01,

a statistically significant negligible correlation between teacher perceptions of the

importance of grading (Importance) and perceptions of peer factors that influence

motivation (Peer Factors), $r = -.142$, p<.05. A statistically significant moderate

correlation was found between teacher perceptions of the usefulness of grading

(Usefulness) and perceptions of students' general interest in school (General Interest), r

$= .550$, p<.01. A statistically significant slight correlation was found between teacher

perceptions of student effort in grading (Student Effort) and four factors of perceptions of

motivation: perceptions of students' general interest in school (General Interest), $r = .200$,

p<.01; perceptions of the influence of home factors on motivation (Home Factors), r

$= .218$, p<.01; perceptions of how students view school in regards to their current

situations (Current Relevance), $r = .163$, p<.01; and perceptions of how students view

school in regards to their future (Aspirations/Future Utility), $r = .173$, p<.01. Teacher

perceptions of student ability in regards to grading had statistically significant negligible

correlations with two factors of teacher perceptions of student motivation: Home Factors, $r = .184$, p<.01 and Aspirations/Future Utility, $r = .195$, p<.01. Teacher perceptions of their own grading habits (Teacher Grading Habits) had significant correlations with Home Factors, $r = .146$, p<.05 and Aspirations/Future Utility, $r = .173$, p<.01. Finally, teacher perceptions of their own self-efficacy with respect to grading (Grading Self-Efficacy) had statistically significant slight or negligible correlations with six factors of teacher perceptions of student motivation: perceptions of student effort (Effort), $r = .124$, p<.05; perceptions of student engagement in school (Engagement), $r = .151$, p<.01; General Interest, $r = .213$, p<.01; Home Factors, $r = .171$, p<.01; Peer Factors, $r = .196$, p<.01; and Personal Factors, $r = .237$, p<.01. Statistically significant correlations were found between every factor of teacher perceptions of grading practices and at least one factor of teacher perceptions of student motivation, therefore, the null hypothesis was rejected.

Table 2

Correlations Between Individual Factors of the Teacher Perceptions of Grading Practices and Perceptions of Student Motivation Surveys

	Effort	Engagement	General Interest	Home Factors	Current Relevance	Aspirations/ Future Utility	Peer Factors	Personal Factors
Importance	-.077	-.107	.386**	-.075	-.043	-.009	-.142*	-.061
Usefulness	.023	-.084	.550**	-.036	-.004	.047	-.107	.064
Student Effort	.023	-.036	.200**	.218**	.163**	.173**	.093	.094
Student Ability	-.059	-.101	.097	.184**	.110	.195**	.077	.034
Teacher Grading Habits	-.048	.006	.010	.146*	.122*	.173**	.051	-.062
Grading Self Efficacy	.124*	.151**	.213**	.171**	.043	.071	.196**	.237**

Note: *p<.05; **p<.01

Research Question Three

Results of Analyses of Differences in Mean Scores Between Genders

A Univariate Analysis of Variance (ANOVA) was used to examine between –

group differences in the mean scores of the six factors of teacher perceptions of grading

practices and the eight factors of perceptions of student motivation across gender (male

and female). Mean scores of each factor and distributions were examined across gender.

Additionally, Chi-square tests were used to examine differences in means and frequency

differences of specific grading practices across gender.

Analysis One: Univariate ANOVA of mean differences for factors between

genders.

An ANOVA was conducted to investigate mean differences for each factor of

perceptions of grading practices and perceptions of student motivation by gender. Table

3 presents the mean and standard deviation for each factor across gender, Levene's Test

for Equality of Variances and results of ANOVA. The ANOVA results revealed that

males had statistically significant higher perceptions of grading practices in regard to the

overall Usefulness of grading than females, $F(1, 305)=4.738$, p<.05. In terms of teacher

perceptions of Self-Efficacy in grading males had statistically significant higher

perceptions of their Self-Efficacy than females, $F(1, 305)=4.516$, p<.05. There were no

statistically significant differences in mean scores for perceptions of student motivation

factors across gender.

Table 3

Means (Standard Deviations) for Group Comparison on Each Factor by Gender

Factors	Male (n=105)	Female (n=202)	Levene's Test for Equality of Variances	Univariate F & Significant Level	Partial Eta Square
Importance	3.827 (.71)	3.758 (.62)	F(1, 305)=.006	F(1, 305)=.764	.002
Usefulness	3.784 (.55)	3.657 (.45)	F(1, 305)=1.681	F(1,305)=4.738*	.015
Student Effort	3.181 (.78)	3.184 (.71)	F(1, 305)=1.130	F(1, 305)=.002	.000
Student Ability	3.475 (.74)	3.576 (.54)	F(1, 305)=8.140**	F(1, 305)=1.876	.006
Teacher Grading Habits	3.162 (.92)	3.243 (.98)	F(1, 305)=.679	F(1, 305)=.490	.002
Perceived Self Efficacy	2.629 (.84)	2.427 (.76)	F(1, 305)=1.076	F(1,305)=4.516*	.015
Effort	4.533 (.72)	4.588 (.61)	F(1, 305)=2.670	F(1, 305)=.482	.002
Engagement	4.841 (.74)	4.972 (.65)	F(1, 305)=.416	F(1, 305)=2.511	.008
General Interest	3.391 (1.04)	3.282 (1.04)	F(1, 305)=.028	F(1, 305)=.745	.002
Home Factors	4.634 (1.22)	4.721 (1.06)	F(1, 305)=1.372	F(1, 305)=.382	.001
Current Relevance	5.003 (1.05)	5.102 (.91)	F(1,305)=3.106	F(1,305)=.736	.002
Aspirations / Future Utility	4.238 (1.13)	4.490 (1.12)	F(1, 305)=.018	F(1, 305)=3.467	.011
Peer Factors	4.067 (1.73)	3.988 (1.69)	F(1, 305)=.264	F(1, 305)=.148	.000
Personal Factors	4.676 (1.60)	4.537 (1.64)	F(1, 305)=.031	F(1, 305)=.506	.002

Note: *p<.05; **p<.01

Analysis Two: Frequency differences in factors teachers consider in grading between genders.

Teachers were asked to respond to what factors they considered when they assigned final grades for a semester. These factors included formal achievement measures (e.g., tests/quizzes), student effort, student ability, and classroom behavior. Chi-square analyses were conducted to examine whether male teachers and female teachers significantly differed on the factors they considered when assigning final grades. Tables C2 through C5 present cross-tabulated data and Chi-square results for each analysis. The results indicate that male and female teachers do not statistically significantly differ on including the factors of formal achievement, $\chi^2(5) = .082$, p>.05 and student ability, $\chi^2(5) = 2.158$, p>.05 when assigning final grades. However, male and female teachers were statistically significantly different on whether or not they considered student effort, $\chi^2(5) = 4.433$, p<.05, and student behavior, $\chi^2(5) = 5.468$, p<.05, with males considering effort and behavior more frequently than females when assigning final grades.

Analysis Three: Frequency differences in giving quizzes, minor assignments, and major tests between genders.

Teachers were asked to respond to questions regarding the frequency of giving quizzes, minor assignments, and major tests that count for a grade. The results indicate that male and female teachers were not statistically significantly different on the frequency of giving quizzes, $\chi^2(5) = 6.267$, p>.05. The results also indicate that male and female teachers were not statistically significantly different on the frequency of giving minor assignments, $\chi^2(5) = 3.141$, p>.05. Finally, the results indicate that male and

female teachers were not significantly different on the frequency of giving major tests or exams, $\chi^2(5) = 6.267$, p>.05.

Summary

Results indicate that male and female teachers differ statistically significantly in terms of perceptions of overall usefulness of grading and perceptions of grading self-efficacy, with males having statistically significantly higher perceptions of both factors. Results also indicate statistically significant differences in factors used when assigning final grades, with male teachers more likely to consider the factor of effort when assigning final grades, while female teachers were more likely to consider the factor of behavior when assigning final grades. Finally, results of the analysis indicate that there is no statistically significant difference between genders in frequency of quizzes, minor assignments, or major tests given. Due to statistically significant differences between genders on some individual factors of perceptions of grading practices and perceptions of student motivation along with differences between which factors are used to calculate grades, the null hypothesis is rejected.

<div align="center">

Research Question Four

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Results of Analyses of Differences in Mean Scores Between Subject Area Taught

A Multivariate Analysis of Variance (MANOVA) was used to examine between – group differences in the means of the six factors of teacher perceptions of grading practices and the eight factors of perceptions of student motivation across subject area taught (math, science, english, social studies, special education, elective). The means and

distributions of factors were examined across subject area taught. Additionally, Univariate Analyses of Variance (ANOVA) were conducted on each factor across subject area taught to determine statistically significant differences in means. Finally, Chi-square tests were used to examine differences in specific grading practices across subject area taught.

Analysis One: Multivariate analysis of mean differences for factors between subject area taught.

A MANOVA was conducted to investigate mean differences for each factor of perceptions of grading practices and perceptions of student motivation across subject area taught. Bartlett's Test of Sphericity was conducted to determine if there was sufficient correlation between the dependent variable factors of teacher perceptions of grading practices and perceptions of student motivation. The results were statistically significant, indicating sufficient correlation to proceed with the MANOVA. Next, multivariate tests were conducted to determine if the mean differences in factors of perceptions of grading practices and perceptions of student motivations were statistically significant between subject areas taught. The results of the Hotelling's Trace test were statistically significant, $F(70, 1432)=1.874$, p<.01, showing that the multivariate effect of subject area taught on the factors of perceptions of grading practices and student motivation is statistically significant.

An ANOVA was then conducted to investigate mean differences for each individual factor between teachers of different subject areas. Table 4 presents the mean and standard deviation for each factor across subject area taught, Levene's Test for

Equality of Variances and results of the ANOVA. The ANOVA results revealed statistically significant differences between teachers of different subjects for the factors Importance of grading, $F(5, 301)=2.249$, p<.05, Usefulness of grading, $F(5, 301)=2.583$, p<.05, including Student Effort in grading, $F(5, 301)=2.958$, p<.05, students' General Interest in school, $F(5, 301)=2.618$, p<.05, the influence of Home Factors on motivation, $F(5, 301)=2.294$, p<.05, and the influence of Peer Factors on motivation, $F(5, 301)=2.262$, p<.05.

These results revealed that Social Studies teachers perceive the Importance of grading at a higher level than other subject areas, with Special Education teachers perceiving the Importance of grading at the lowest level of the subject areas, $F(5, 301)=2.249$, p<.05. The results revealed that Math teachers perceive the Usefulness of grading at a higher level than the other subject areas, and that three subject areas, English, Science, and Special Education, perceived the Usefulness of grading the lowest, $F(5, 301)=2.583$, p<.05. The results indicate that Special Education teachers perceive Student Effort as more important in grading than other subject areas, and that Math teachers include Effort the least, $F(5, 301)=2.958$, p<.05. The results indicate that Math teachers felt students had the highest General Interest in school while English teachers felt the lowest, $F(5, 301)=2.618$, p<.05. The results also indicate that Science teachers perceive the highest that Home Factors influence student motivation while Math teachers perceive that factor the lowest, $F(5, 301)=2.294$, p<.05. Finally, the results revealed that English teachers perceived the highest that Peer Factors influence student motivation while Math teachers perceive this factor the lowest, $F(5, 301)=2.262$, p<.05.

Table 4

Means (Standard Deviations) for Group Comparisons on Each Factor Between Subject Area Taught

Factors	Subject Area Taught						Levene's Test for Equality of Variances	Univariate F & Significance Level	Partial Eta Square
	Math (n=58)	English (n=57)	Social Studies (n=43)	Science (n=41)	Special Education (n=38)	Elective (n=70)			
Importance	3.9 (.81)	3.7 (.81)	4.0 (.43)	3.8 (.60)	3.5 (.58)	3.8 (.50)	F(5,301)=3.623**	F(5,301)=2.249*	.036
Usefulness	3.9 (.49)	3.6 (.57)	3.8 (.36)	3.6 (.55)	3.6 (.39)	3.7 (.46)	F(5,301)=2.33*	F(5,301)=2.583*	.041
Student Effort	2.9 (.76)	3.2 (.70)	3.3 (.64)	3.2 (.74)	3.4 (.67)	3.3 (.78)	F(5,301)=0.930	F(5,301)=2.958*	.047
Student Ability	3.3 (.53)	3.7 (.63)	3.6 (.52)	3.5 (.55)	3.6 (.62)	3.6 (.72)	F(5,301)=0.967	F(5,301)=2.183	.035
Teacher Grading Habits	3.3 (1.1)	3.0 (.86)	3.1 (.89)	3.0 (1.1)	3.5 (.88)	3.3 (.88)	F(5,301)=1.421	F(5,301)=2.095	.034
Perceived Self Efficacy	2.5 (.68)	2.5 (.83)	2.2 (.78)	2.7(.88)	2.4 (.60)	2.6 (.86)	F(5,301)=1.706	F(5,301)=1.976	.032
Effort	4.5 (.52)	4.6 (.69)	4.4 (.70)	4.6 (.68)	4.5 (.66)	4.7 (.65)	F(5,301)=0.531	F(5,301)=1.170	.019
Engagement	4.9 (.66)	4.9 (.72)	4.7 (.71)	5.0 (.66)	4.9 (.75)	5.0 (.63)	F(5,301)=0.701	F(5,301)=1.545	.025
General Interest	3.8 (.96)	3.0 (1.2)	3.5 (.93)	3.3 (1.1)	3.3 (.79)	3.2 (1.1)	F(5,301)=2.880*	F(5,301)=2.618*	.042
Home Factors	4.4 (1.2)	4.8 (1.0)	4.6 (1.2)	5.0 (.99)	4.9 (1.0)	4.6 (1.1)	F(5,301)=0.338	F(5,301)=2.294*	.037
Current Relevance	4.8 (1.1)	5.2 (.77)	5.1 (.91)	5.2 (.77)	5.2 (.96)	5.0 (1.1)	F(5,301)=1.274	F(5,301)=1.643	.027
Future Utility	4.2 (1.3)	4.4 (.94)	4.4 (.98)	4.6 (.98)	4.7 (1.2)	4.3 (1.3)	F(5,301)=1.566	F(5,301)=0.891	.015
Peer Factors	3.6 (1.6)	4.6 (1.8)	4.3 (1.6)	3.9 (1.8)	3.8 (1.5)	3.9 (1.7)	F(5,301)=1.477	F(5,301)=2.262*	.036
Personal Factors	4.2 (1.7)	5.1 (1.5)	4.6 (1.6)	4.6 (1.4)	4.2 (1.8)	4.7 (1.6)	F(5,301)=0.715	F(5,301)=2.142	.034

Note: *=p<.05; **=p<.01

Analysis Two: Frequency differences in factors teachers consider in grading between subject area taught.

Teachers were asked to respond to what factors they considered when they assigned final grades for a semester. These factors included formal achievement measures (e.g., tests/quizzes), student effort, student ability, and classroom behavior. Chi-square analyses were conducted to examine whether subject area teachers differed on the factors they considered when assigning final grades. Tables C9 through C12 present cross-tabulated data and Chi-square results for each analysis. The results indicate that subject area teachers do not differ statistically significantly on including the factors of formal achievement and student behavior when assigning final grades. However, subject area teachers were statistically significantly different on whether or not they considered student effort when assigning final grades, $\chi^2(5) = 11.318$, p<.05, with social studies teachers considering student effort most frequently and science teachers considering effort least frequently when assigning final grades. Additionally, subject area teachers were significantly different on whether or not they considered student ability when assigning grades, $\chi^2(5) = 16.921$, p<.01, with special education teachers considering student ability most frequently and science teachers considering student effort least frequently when assigning final grades.

Analysis Three: Frequency differences in giving quizzes, minor assignments, and major tests between subject area taught.

Teachers were asked to respond to questions regarding the frequency of giving quizzes, minor assignments, and major tests that count for a grade. Tables C13 through

C15 present cross-tabulated and Chi-square results for each analysis. The results indicate that subject area teachers differed significantly on the frequency of giving quizzes, $\chi^2(5) = 26.505$, p<.05. The results also indicate that subject area teachers differed significantly on the frequency of giving minor assignments, $\chi^2(5) = 52.545$, p<.01. Finally, the results indicated that subject area teachers differed significantly on the frequency of giving major tests or exams, $\chi^2(5) = 44.861$, p<.01.

Summary

Results indicate that subject area teachers differ in their perceptions of overall Importance of grading, overall Usefulness of grading, including Student Effort in grades, students' General Interest in school, the impact of Home Factors on motivation, and the impact of Peer Factors on motivation. Due to statistically significant differences between subject area teachers on some individual factors of perceptions of grading practices and perceptions of student motivation along with statistically significant differences on which factors are used to calculate grades as well as the frequency of giving various assessments between subject area teachers, the null hypothesis is rejected.

Research Question Five

Results of Analyses of Differences in Mean Scores Between Years of Experience Levels

A Multivariate Analysis of Variance (MANOVA) was used to examine between-group differences in the means of the six factors of teacher perceptions of grading practices and the eight factors of perceptions of student motivation across years of

experience (0-5, 6-10, 11-15, 16-20, 21-25, 25+ years). Factor response means and distributions were examined across years of experience. Additionally, Univariate Analyses of Variance (ANOVA) were conducted on each individual factor across years of experience to determine statistically significant differences in means. Finally, Chi-square tests were used to examine differences in means and frequency differences for specific grading and assessment practices across years of experience.

Analysis One: Multivariate analysis of mean differences for factors between years of experience levels.

A MANOVA was conducted to investigate mean differences for each factor of perceptions of grading practices and perceptions of student motivation across years of experience. Bartlett's Test of Sphericity was conducted to determine if there was sufficient correlation between the dependent variable factors of teacher perceptions of grading practices and perceptions of student motivation. The results were statistically significant, indicating sufficient correlation to proceed with the MANOVA. Next, multivariate tests were conducted to determine if the mean differences in factors of perceptions of grading practices and perceptions of student motivation were statistically significant across years of experience. The results of the Hotelling's Trace test show that the multivariate effect of years of experience on perceptions of grading practices and student motivation is not statistically significant, $F(70, 1432)=1.109$, $p>.05$., therefore, the null hypothesis is accepted.

While the MANOVA was not significant, the differences between mean scores of individual experience levels on each measure was investigated to determine any

differences between the various experience levels and their perceptions of grading practices and student motivation. An ANOVA was conducted to investigate mean differences for each individual factor between teachers of various experience levels. Table C23 presents the mean and standard deviation for each factor across years of experience, Levene's Test for Equality of Variances and the results of the ANOVA. The ANOVA results revealed statistically significant differences between teachers of different experience levels for the factors Perceived Self-Efficacy, $F(5, 301)=2.276$, p<.05, the influence of Home Factors, $F(5, 301)=2.819$, p<.05, and Current Relevance, $F(5, 301)=2.627$, p<.05.

Results indicate that teachers with 0-5 years experience perceive their Self-Efficacy with respect to grading at a higher level than other experience levels, and teachers with 6-10 years and teachers with 21-25 years perceiving their Self-Efficacy lowest, $F(5, 301)=2.276$, p<.05. The results also indicate that teachers with 16-20 years experience perceive Home Factors as having a higher impact on student motivation than other experience levels, and teachers with 21-25 years experience perceive Home Factors as having a lower impact on student motivation, $F(5, 301)=2.819$, p<.05. Finally, the results indicate that teachers with 16-20 years experience perceive Current Relevance as having a higher impact on student motivation than did teachers with other experience levels, and teachers with 21-25 years experience perceive Current Relevance as having a lower impact, $F(5, 301)=2.627$, p<0.05. Due to statistically significant differences between means for individual factors between teachers of various experience levels the null hypothesis is rejected.

Table 5

Means (Standard Deviations) for Group Comparisons on Each Factor Between Years of Experience

	Years of Experience						Levene's Test for Equality of Variances	Univariate F & Significance Level	Partial Eta Square
Factors	0-5 (n=64)	6-10 (n=63)	11-15 (n=69)	16-20 (n=46)	21-25 (n=38)	25+ (n=27)			
Usefulness	3.7 (.46)	3.7 (.55)	3.7 (.46)	3.6 (.53)	3.6 (.52)	3.8 (.34)	F(5, 301) = 1.202	F(5, 301) = .638	.010
Student Effort	3.2 (.67)	3.1 (.83)	3.1 (.67)	3.4 (.76)	3.1 (.69)	3.5 (.73)	F(5, 301) = .999	F(5, 301) = 2.247	.036
Student Ability	3.5 (.71)	3.6 (.63)	3.5 (.61)	3.6 (.57)	3.6 (.57)	3.6 (.55)	F(5, 301) = .552	F(5, 301) = .229	.004
Teacher Grading Habits	3.2 (.94)	3.3 (.95)	3.1 (.93)	3.2 (1.1)	3.3 (.84)	3.3 (1.1)	F(5, 301) = 1.024	F(5, 301) = .347	.006
Perceived Self Efficacy	2.7 (.77)	2.3 (.78)	2.6 (.83)	2.5 (.83)	2.3 (.65)	2.4 (.79)	F(5, 301) = .914	F(5, 301) =2.276*	.036
Effort	4.5 (.62)	4.5 (.51)	4.7 (.74)	4.6 (.82)	4.5 (.51)	4.6 (.61)	F(5, 301) = 1.377	F(5, 301) = .653	.011
Engagement	4.9 (.73)	4.9 (.70)	4.9 (.63)	4.9 (.80)	4.9 (.55)	4.9 (.72)	F(5, 301) = 1.356	F(5, 301) = .024	.000
General Interest	3.2 (1.1)	3.2 (1.0)	3.6 (.95)	3.1 (1.1)	3.2 (1.2)	3.6 (.89)	F(5, 301) = 1.277	F(5, 301) = 1.646	.027
Home Factors	4.8 (1.1)	4.6 (1.0)	4.7 (1.1)	5.1 (1.1)	4.2 (1.1)	4.7 (1.3)	F(5, 301) = .818	F(5, 301) =2.819*	.045
Current Relevance	5.2 (.85)	5.0 (.80)	5.1 (1.0)	5.3 (.85)	4.6 (1.2)	5.2 (1.2)	F(5, 301) = 2.062	F(5, 301) =2.627*	.042
Future Utility	4.4 (1.1)	4.3 (.99)	4.4 (1.2)	4.7 (1.2)	4.1 (1.0)	4.6 (1.3)	F(5, 301) = .978	F(5, 301) = 1.479	.024
Peer Factors	4.3 (1.6)	3.8 (1.6)	4.0 (1.7)	4.3 (1.9)	3.7 (1.6)	3.9 (1.8)	F(5, 301) = .898	F(5, 301) = .844	.014
Personal Factors	4.7 (1.5)	4.6 (1.6)	4.4 (1.6)	5.2 (1.5)	4.2 (1.7)	4.3 (1.8)	F(5, 301) = .323	F(5, 301) = 2.168	.035

Note: *=p<.05; **=p<.01

Analysis Two: Frequency differences in factors teachers consider in grading between years of experience levels.

Teachers were asked to respond to what factors they considered when they assigned final grades for a semester. These factors included formal achievement measures (e.g., tests/quizzes), student effort, student ability, and classroom behavior. Chi-square analyses were conducted to examine whether teachers with varied years of experience differed on the factors they considered when assigning final grades. Tables C16 through C19 present cross-tabulated data and Chi-square results for each analysis. The results indicate that teachers of varied years of experience do not differ statistically significantly on any of the factors they include when assigning final grades, including formal achievement measures, $\chi^2(5) = 6.768$, p>.05, student effort, $\chi^2(5) = 3.051$, p>.05, student ability, $\chi^2(5) = 4.240$, p>.05, and classroom behavior, $\chi^2(5) = 5.575$, p>.05.

Analysis Three: Frequency differences in giving quizzes, minor assignments, and major tests between years of experience levels.

Teachers were asked to respond to questions regarding the frequency of giving quizzes, minor assignments, and major tests that count for a grade. Chi-square analyses were conducted to examine whether teachers with varied years of experience differed on the frequency of giving various assessments. Tables C20 through C22 present cross-tabulated and Chi-square results for each analysis. The results indicate that teachers of varied years of experience differ statistically significantly on the frequency of giving major tests and exams, $\chi^2(5) = 34.595$, p<.01, with most 0-5 year teachers giving major tests on a monthly basis and most of the other groups giving major tests about once every

two weeks. The results also indicate that teachers with varied experience levels do not differ statistically significantly on the frequency of giving quizzes, $\chi^2(5) = 19.714$, p>.05, or on the frequency of minor assignments, $\chi^2(5) = 29.463$, p>.05.

Summary

Results of the MANOVA indicate that teachers of different experience levels do not differ at a statistically significant level in their overall perceptions of grading practices and student motivation. Results of the ANOVA do indicate that there are statistically significant differences for one factor in perceptions of grading practices, perceived Self-Efficacy, and two factors in perceptions of student motivation, Home Factors and Current Relevance. Based on the MANOVA results there is no statistically significant difference in perceptions based on years of experience and the null hypothesis is accepted. However, based on the ANOVA results there are statistically significant differences for individual factors amongst the various experience levels, the null hypothesis is rejected.

Additional Information

Additional information is presented in Tables C23 and C24. These results show the percentage of respondents who chose a particular agreement level with each question or statement posed in both surveys. The Teachers Perceptions of Grading Practices (TPGP) survey used a five point Likert-type scale to ask about various aspects of perceptions of grading. The TPGP survey also asked about the types of achievement factors teachers include in a final grade calculation and how frequently various

assessments are given. The Perceptions of Student Motivation (PSM) survey used a seven point Likert-type scale to ask about various aspects of perceptions student motivation.

Summary

Pearson Product Moment Correlation analysis was used to examine the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation. A Univariate Analysis of Variance (ANOVA) was used to examine between –group differences in the means of the six factors of teacher perceptions of grading practices and the eight factors of perceptions of student motivation across gender (male and female). A Multivariate Analysis (MANOVA) was used to examine between – group differences in the means of the six factors of teacher perceptions of grading practices and the eight factors of perceptions of student motivation across subject area taught and years of experience. Additionally, Univariate Analyses (ANOVA) were conducted on each individual factor across subject area taught and years of experience on both measures to determine statistically significant differences in means. Finally, Chi-square tests were used to examine differences in means and frequency differences of specific grading practices across subject area taught and years of experience.

CHAPTER FIVE

Discussion and Conclusions

The primary purpose of this study was to examine the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation. A second purpose was to determine if there were any statistically significant differences in perceptions of teachers of different genders, different subject areas taught, and varied years of experience. This chapter includes the following sections: (a) Research Findings and Conclusions; (b) Study Implications; (c) Study Limitations; and (d) Ideas for Future Research.

Research Findings and Conclusions

Two survey instruments, the Teacher Perceptions of Grading Practices (TPGP) and the Perceptions of Student Motivation (PSM), were given to three hundred and seven high school teachers in a four county region in a Midwestern state. The TPGP assessed perceptions about six factors of grading, including Importance, Usefulness, Student Effort, Student Ability, Teachers' Grading Habits, and Perceived Self-efficacy of grading using a Likert-type scale. The PSM assessed perceptions about eight factors of student motivation, including Effort, Engagement, General Interest, Home Factors, Current Relevance, Aspirations/Future Utility, Peer Factors, and Personal Factors also using a Likert-type scale. Descriptive statistics and Pearson Product Moment Correlations were used to examine the relationship between the various identified factors. A Univariate Analysis of Variance (ANOVA) was used to examine between-group differences in mean scores of all the factors between gender (male and female), and Multivariate Analysis of

Variance (MANOVA) was used to examine between-group differences in mean scores of all the factors between different subject areas and varied years of experience. Additionally, Chi-square tests were used to examine differences regarding specific grading practices between genders, subject areas, and experience levels.

The Theory of Planned Behavior (TPB) provided a useful framework for reviewing the surveys used in this study. According to the TPB, teachers' intentions, subjective norms, and perceived control within grading and motivation can influence teachers' actual grading and motivational behavior (Ajzen, 1991). Teacher beliefs may lead to the formation of a behavioral intention about grading and motivation and consequently to actual grading and motivational practices (Liu, 2007). Assessment of these perceptions provided the basis for this research study.

Research Question One

The Pearson Product Moment Correlation (*r*) was used to compute the correlations amongst the two surveys using item means. The analysis found a statistically significant negligible positive correlation between teacher perceptions of grading practices and perceptions of student motivation, $r = 0.132$, p<.05.

The Pearson Product Moment Correlation (*r*) was also used to compute correlations amongst all of the questions on each survey using raw scores. The analysis found multiple negligible and slight positive and negative correlations between individual items of each survey given. There were two hundred and twenty statistically significant

correlations between individual items of the TPGP and PSM out of a possible eight hundred correlations at the .05 or .01 levels, which is 27.5% of possible correlations.

These findings suggest that, while slight, there is a statistically significant correlation between teacher perceptions of grading practices and perceptions of student motivation. These findings were consistent with previously reviewed literature contending that grading and motivation are related, especially when teachers consider the impact grading has on motivation, and that teachers are concerned about student motivation and believe that grades can directly impact student motivation (Brookhart, 1993; 1994; 1997; McMillan & Lawson, 2001; McMillan, Myran, & Workman, 2002; McMunn, Schenck, & McColskey, 2003; Stiggins, Frisbie, & Griswold, 1989). Understanding this relationship could help teachers better realize the impact their grading practices have on student motivation and possibly shape grading intentions and motivational strategies teachers use in the classroom. This is especially important considering previously reviewed research which suggests that grading practices help students form perceptions of self-efficacy and ability, and influence student motivation to learn and try new tasks (Bandura, 1997; Brookhart, 2004). Grades can increase or decrease a student's self-efficacy beliefs, which impact student motivation and success in school. A person with high self-efficacy will attempt more difficult tasks than a person with low self-efficacy, and attribute failure to different reasons that can be controlled, such as effort. Grades can also impact a student's beliefs about their own abilities, which affect what students attribute success or failure to (Covington, 2005; Covington, Spratt, & Omelich, 1980). The current study's results suggest a relationship exists between teacher perceptions of grading practice and perceptions of student motivation which

supports previously reviewed research and suggests that teachers do believe that grading and motivation are connected within the school setting.

Research Question Two

Pearson Product Moment Correlations (*r*) were computed to measure the relationship between individual factors of Teacher Perceptions of Grading Practices (TPGP) and Perceptions of Student Motivation (PSM). The analysis found eighteen statistically significant correlations at the .05 or .01 level out of a possible thirty-two. Of these correlations, seventeen were positive and varied in strength from negligible to moderate, and one statistically significant correlation was a negligible negative correlation. The highest statistically significant correlation was between Usefulness of grading and student General Interest in school. Of all the statistically significant correlations, only one of the eighteen was negative: Importance of grading and Peer Factors influencing motivation. Of all of the factors within perceptions of grading, Grading Self-Efficacy had the greatest number of statistically significant correlations with perceptions of motivation with six out of 8 (75%), and Usefulness of grading had the fewest number of statistically significant correlations, albeit the highest correlation, with perceptions of motivation, with 1 out of 8 (12.5%). Of all the factors within perceptions of motivation, two factors had four out of a possible six (67%) statistically significant correlations: General Interest and Home Factors, and three factors had only one correlation out of a possible six (17%) statistically significant correlations: Effort, Engagement, and Personal Factors.

These findings are consistent with previously reviewed literature contending that grading and motivation are related, and that teachers believe various factors within grading will directly influence student motivation (Brookhart, 1993; 1994; 1997; McMillan & Lawson, 2001; McMillan, Myran, & Workman, 2002; McMunn, Schenck, & McColskey, 2003; Stiggins, Frisbie, & Griswold, 1989). These findings suggest that teachers believe the Importance and Usefulness of grading, along with Student Effort, should impact student motivation and interest in school. These findings also suggest that teachers who place importance on Student Effort when calculating grades likely do so because they believe it directly influences students' General Interest in school, feelings of Current Relevance, and Future Aspirations. Teachers also believe that Student Effort is influenced by Home Factors, and teachers who include student ability in their grading calculations tend to believe that Home Factors play a role in motivation as well. Additionally, of all the motivational factors reviewed in this study, Home Factors was the one factor with the highest number of correlations with grading, suggesting that teachers place a large emphasis on those Home Factors in influencing student motivation, more so than Peer Factors or Personal Factors. This may be because these Home Factors are factors that teachers cannot directly influence at school, unlike the other factors of motivation reviewed. Interestingly, Effort and Engagement were only correlated with Grading Self-Efficacy, suggesting that teachers feel more confident in their own grading abilities when they can judge the effort put forth by students and the students' engagement levels in their classrooms. Grading Self-Efficacy had the highest number of correlations with factors of motivation, suggesting that teachers feel more confident in their own grading abilities if they feel they can accurately judge motivational components

that contribute to student performance in their classroom. Finally, of all the grading practices reviewed, including Student Effort in a final grade had a high number of correlations with motivation, suggesting that teachers believe effort on the students' part is vital to student motivation and wish to reward positive effort and punish a lack of effort using the grading process. This is consistent with previously reviewed literature from Brookhart (1993), who found that teachers formally and informally include conceptions of student effort in assigning grades because they are concerned with student motivation, self-esteem, and the social consequences of their grading procedures, as well as Stiggins, Frisbie, and Griswold (1989) who found that 50 percent of teachers incorporated student ability into grading, and 86 percent considered effort and motivation in grading.

Research Question Three

A Univariate Analysis of Variance (ANOVA) was used to examine between – group differences in the mean scores of the six factors of teacher perceptions of grading practices and the eight factors of perceptions of student motivation across gender (male and female). Mean scores of each factor and distributions were examined across gender. Additionally, Chi-square tests were used to examine differences in means and frequency differences of specific grading practices across gender. The ANOVA results revealed that males had statistically significant higher perceptions of grading practices in regard to the overall Usefulness of grading and their grading Self-Efficacy than females. Additionally, Chi-square results indicate that male and female teachers do not statistically significantly differ on including the factors of formal achievement and student ability when assigning final grades. However, male and female teachers were statistically

significantly different on whether or not they considered student effort and student behavior, with males considering effort and behavior more frequently as factors when assigning final grades. Finally, Chi-square results indicate that male and female teachers were not statistically significantly different on the frequency of giving quizzes, the frequency of giving minor assignments, and the frequency of giving major tests or exams.

These results suggest that male and female teachers do in fact differ in their perceptions of grading practices, particularly in terms of the Usefulness of grading and Self-efficacy of grading, where men feel grading is very useful and also feel more confident in their own grading than women. These results also suggest that men include effort and behavior in calculations of final grades more frequently than women do. A previously reviewed study found that 72 percent of teachers surveyed raised the grades of low ability students, with 25 percent of those teachers indicating "high effort" as one reason for the increase, and another 40 percent of the participants indicating that student behavior and attitude contributed to increased grades (Cross and Frary, 1996). The results of the current study support these previous findings.

Interestingly, previously reviewed research (Cizek, Fitzgerald, & Rachor, 1996) concluded that teacher characteristics (gender, grade level, years of experience) has no significant impact on whether or not a teacher had knowledge about district grading policies, but this study did not address specific differences in grading practices or beliefs. Other reviewed studies found that teachers were concerned about motivation and self-esteem and included factors such as effort in their grading practices (Brookhart, 1993, 1994; Stiggins, Frisbie, & Griswold, 1989). None of these studies, however, discussed

any differences related to gender, indicating an area for future study. Additionally, the original study that used the Teacher Perceptions of Grading Practices (TPGP) survey did not analyze results for differences between genders, even though the demographic information was available from the survey results (Liu, 2007). Also, the study that first used the Perceptions of Student Motivation (PSM) survey also did not analyze results based on gender. The results of the current study suggest that the differences between men and women may be related to concern about student motivation, with men including effort and behavior more frequently in an attempt to influence student motivation.

Men also had higher perceptions of their Self-efficacy with respect to the grading process than women did. Previous results indicated that teachers who had higher Self-efficacy in grading also felt that student effort was an important factor in motivation. This suggests that men, who reported a higher Self-efficacy in grading than women, include student effort in final grades based on a belief that effort is an important factor in motivation. Oftentimes, effort is something that teachers attempt to define, basing effort on time spent on task or on students seeking out additional supports or challenges. Teachers, and in particular males, as this study suggests, seem more confident in their own grading practices when they can physically see this effort and feel like this effort should be rewarded in some way within the grading system. This is congruent with previously reviewed literature contending that every teacher has a personal philosophy of grading that is influenced by their own value system, and that teacher grading practices are more a matter of preference and values than expert recommendations (Frisbie & Waltman, 1992).

These results also indicate that men reported actually including student effort and behavior in final grades at a higher rate than women, connecting to previously reviewed research regarding Attribution theory and the idea that students who attribute success to high effort levels will believe their effort was the key determinant in that success, and students who exerted maximum effort but failed at a task will attribute the failure to lack of ability (Brookhart, 2004; Pintrich & Schunk, 1996; Weiner, 1979, 1985, 1986, 1992). A belief that effort played a large role in success is a positive motivator and leads to exerting maximum effort on later tasks, and a belief that ability played a large role in a lack of success is a negative motivator, leading to not only a lack of effort on later tasks but a lack of confidence in one's ability to complete a task. These results suggest that teachers, especially males, want to reward effort within a grading context. These results also support previously reviewed research that teachers include behavior in calculating final grades, whether the inclusion is to serve as a reward for positive behavior or a punishment for negative behavior (Cross & Frary, 1996; Friedman & Manley, 1991; Frary, Cross, & Weber, 1993; McMillan, 2001; 2002, Truog & Friedman, 1996).

Research Question Four

A Multivariate Analysis of Variance (MANOVA) was used to examine between – group differences in the means of the six factors of teacher perceptions of grading practices and the eight factors of perceptions of student motivation across subject area taught (math, science, english, social studies, special education, elective). Additionally, Univariate Analyses of Variance (ANOVA) were conducted on each factor across subject area taught to determine statistically significant differences in means. Finally, Chi-square

tests were used to examine differences in specific grading practices across subject area taught and frequency in giving various assessments. The original studies that first used the Teacher Perceptions of Grading Practices (TPGP) and the Perceptions of Student Motivation (PSM) surveys did not analyze results based on subject areas taught (Hardre', et al., 2008; Liu, 2007). This current study, however, used demographic data to differentiate results, including analyzing differences between teachers of various subject areas.

Previously reviewed research examined the effect subjects taught had on grading factors used by teachers and no statistically significant differences were found between subject areas (McMillan, Myran, and Workman, 2002). The current study, however, did find statistically significant differences between teachers of different subject areas regarding perceptions of grading practices and student motivation. Other research has suggested that teacher characteristics, including, subject areas taught, may impact grading decisions (Liu, 2007). Multiple studies examining teacher grading systems and the factors that are included in determining grades have focused on the factors and academic enablers used by teachers within a "hodgepodge" system despite established measurement recommendations (Cross & Frary, 1996; Frary, Cross, & Weber, 1993; Plake & Impara, 1993; Stiggins & Conklin, 1992; Stiggins, Frisbie, & Griswold, 1989). Many studies found that teachers use multiple factors when determining student grades (Brookhart, 1993, 1994; McMillan & Lawson, 2001; Stiggins, Frisbie, & Griswold, 1989). However, few studies examined the differences between teachers of different subject areas, suggesting this is an area for further research.

Univariate Analyses of Variance (ANOVA) were conducted to investigate mean differences for each individual factor between teachers of different subject areas. The results suggest that subject area teachers perceive factors of grading and motivation at differing levels of importance. In this study, Social Studies teachers perceive the Importance of grading at a higher level than other subject areas, Math teachers perceive the Usefulness of grading at a higher level than the other subject areas and felt students had the highest General Interest in school, Special Education teachers perceive Student Effort as more important in grading than other subject areas, Science teachers perceive the highest that Home Factors influence student motivation, and English teachers perceived the highest that Peer Factors influence student motivation.

Chi-square analyses were conducted to examine whether subject area teachers differed on the factors they considered when assigning final grades. These results indicate subject area teachers were statistically significantly different on whether or not they considered student effort and ability when assigning final grades, with Social Studies teachers considering student effort most frequently and special education teachers considering student ability most frequently.

Multiple studies were reviewed that investigated the "hodgepodge" system teachers use for grading (Cross & Frary, 1996; Frary, Cross, & Weber, 1993; Plake & Impara, 1993; Stiggins & Conklin, 1992; Stiggins, Frisbie, & Griswold, 1989). Many studies found that teachers use multiple factors when determining student grades (Brookhart, 1993, 1994; McMillan & Lawson, 2001; Stiggins, Frisbie, & Griswold, 1989). Some studies found that teachers were concerned about motivation and self-

esteem and included factors such as effort in their grading practices (Brookhart, 1993, 1994; Stiggins, Frisbie, & Griswold, 1989). None of these studies, however, investigated any differences between teachers of various subject areas as the current study did, therefore connections to previous research are limited to generalizations regarding differences in factors used for grading and motivation on an overall basis, and not specific to different subject areas.

Additionally, multiple studies were reviewed that investigated student motivation and the impact teachers can have on motivation (Bandura, 1997; Brophy & Good, 1974; Chung, 2002; Greene, Miller, Crowson, Duke, & Akey, 2005; Hardre', 2001; Hardre' & Sullivan, 2007; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004).   However, none of these studies analyzed differences between specific groups of teachers, such as teachers of various subject areas; therefore connections between the current study's results and previous research are limited to generalizations about teachers and motivational beliefs and not to specific groups of teachers.

The results of this study seem to indicate that subject area does play a role in perceptions about various aspects of grading and student motivation. Few might be surprised to see that the results suggest Special Education teachers value Student Effort more highly than other subject areas given the nature of students these teachers typically work with and the maximum efforts students with special needs may need to exhibit to be successful in school. What may be surprising is that Social Studies teachers reported actually including student effort in a final grade more often than other subject areas. These results also connect to previously reviewed research regarding Attribution theory

and the idea that students who attribute success to high effort levels will believe their effort was the key determinant in that success, and students who exerted maximum effort but failed at a task will attribute the failure to lack of ability (Brookhart, 2004; Pintrich & Schunk, 1996; Weiner, 1979, 1985, 1986, 1992). A belief that effort played a large role in success is a positive motivator, and a belief that ability played a large role in a lack of success is a negative motivator, and these results suggest that teachers, especially Special Education and Social Studies, want to reward effort within a grading context. Additionally, while there were no statistically significant differences in teachers perceptions of Student Ability regarding grading practices, Special Education teachers reported actually including student ability in grade calculations at a level statistically significantly different than other subject areas. This suggests that while teachers may believe ability should not play a role in grading, teachers do believe ability does play a role in student motivation. These results support previously reviewed research regarding Self-efficacy, Attribution theory, and Self-worth theory which suggests that ability plays a significant role in motivation, especially for students (Bandura, 1997; Brown & Weiner, 1984; Covington, 1984, 1989; Covington & Beery, 1976; Covington & Omelich, 1979a, 1979b, 1981, 1984a; Pajares & Schunk, 2001; Weiner, 1979, 1985, 1986, 1992; Weiner, Nierenberg, & Goldstein, 1976). Incidentally, few of the previously reviewed studies examined differences in motivational beliefs between teachers of different subject areas, as the current study did, suggesting an additional area for further research.

The results of the current study also found that subject area teachers differed statistically significantly on how often they assigned various assessment measures, including minor quizzes, major tests, and minor assignments.

Research Question Five

A Multivariate Analysis of Variance (MANOVA) was used to examine between-group differences in the means of the six factors of teacher perceptions of grading practices and the eight factors of perceptions of student motivation across years of experience (0-5, 6-10, 11-15, 16-20, 21-25, 25+ years). Additionally, Univariate Analyses of Variance (ANOVA) were conducted on each individual factor across years of experience to determine statistically significant differences in means. Finally, Chi-square tests were used to examine differences in means and frequency differences for specific grading and assessment practices across years of experience.

The results of the MANOVA show that the multivariate effect of years of experience on perceptions of grading practices and student motivation is not statistically significant; however, ANOVA results revealed statistically significant differences between teachers of different experience levels for the factors Perceived Self-Efficacy, Home Factors, and Current Relevance. Results indicate that teachers with 0-5 years of experience perceive their Self-Efficacy with respect to grading at a higher level than other experience levels, and that teachers with 16-20 years of experience perceive Home Factors and Current Relevance as having a higher impact on student motivation than other experience levels. The original studies that first used the Teacher Perceptions of Grading Practices (TPGP) and the Perceptions of Student Motivation (PSM) surveys did not analyze results using demographic factors such as years of experience as the current study did.

The results regarding teacher Self-efficacy with the grading process are very interesting, indicating that teachers who have the least amount of experience perceive their own ability to grade students and their grading self-efficacy at a higher level than teachers of any other experience level. Previously reviewed research described the lack of formal training most teachers receive regarding grading and measurement expert recommendations (Allen, 2005; Brookhart, 2004; Guskey, 2004a, 2004b; Guskey & Bailey, 2001; Stiggins, 1993). However, perhaps this supports the idea that more institutions are directing more attention to grading and newer teachers are receiving more formal training in their university programs, as previously reviewed research noted (Bonesronning, 1999, 2004; Brookhart, 1993, 1994; McMillan & Lawson, 2001; McMillan, Myran, & Workman, 2002; McMillan & Nash, 2000). Additionally, previously reviewed research that concluded that teacher characteristics, such as years of experience, had no significant impact on whether or not a teacher had knowledge about district grading policies, but did find that years of experience influenced individual achievement, with more experienced teachers being 1.14 times more likely to assign grades reflecting individual achievement on standards (Cizek, Fitzgerald, & Rachor, 1996). The current study focused on teacher perceptions, which may account for the differences between teachers of various experience levels, and indicate that newer teachers, but not specifically younger teachers, have a higher confidence level in their own grading abilities. These results only examine years of experience and not a teacher's chronological age, indicating an area for future research. Interestingly, one group of teachers with the lowest perceived Self-efficacy of grading was the teachers with 6-10 years of experience, suggesting that as teachers become more experienced within their

job their perceptions of their own grading abilities decrease, reflecting perceptual changes after having time to develop a comfort level with the profession of teaching.

Previously reviewed research regarding the Theory of Planned Behavior (TPB) described perceived behavioral control as one factor that can be used to predict behavioral intentions, and therefore actual behaviors (Ajzen, 1988, 1991). The results also indicate that teachers with 16-20 years of experience perceive Home Factors and Current Relevance as having a higher impact on student motivation than other experience levels. Home Factors, such as parent support and help, are things that are out of the perceived behavioral control of the teacher. Current Relevance is a student's belief that what they are learning will have a direct impact on their current life, and therefore is important to learn and do, which some teachers may perceive as also outside of their behavior control. Additionally, while not statistically significantly different that other groups, this experience level did perceive the impact that Peer Factors and Personal Factors have on motivation higher than other groups. The results suggest that teachers with 16-20 years of experience place an emphasis on other people, especially students and their families, when it comes to student motivation and less emphasis on their own roles and actions in fostering student motivation. Perhaps this is due to the lack of perceived behavioral control over these factors. According to Ajzen (1988), the Theory of Planned Behavior has two important features. First, the TPB assumes that perceived behavioral control has motivational implications for intentions. Second, the TPB includes a potential direct connection between perceived behavioral control and actual behavior. According to Liu (2007), "in other words, after controlling the effects of attitude toward the behavior and subjective norm, perceived behavioral control can affect

behavior indirectly via intentions, and it can also predict the behavior directly" (p. 38). The results, when examined using the TPS, suggest that teachers with 16-20 years of experience to not perceive behavioral control over many factors that contribute to student motivation and therefore do not take any actions that would enhance student motivation, attributing motivation instead to factors outside of teacher control. These beliefs do not appear to align with previously reviewed research which revealed that teacher actions in the classroom play a strong role in student motivation (Ames, 1992; Anderman & Anderman, 1999; Cocks & Watt, 2004; Urdan, 2004; Urdan & Midgley, 2003; Urdan, Kneisel & Mason, 1999).

Chi-square analyses were conducted to examine whether teachers with varied years of experience differed on the factors they considered when assigning final grades as well as the frequency of giving various assessments. Results indicate that teachers of varied experience levels do not statistically significantly differ on the factors they include in final grades nor in the frequency of giving minor quizzes and assignments. One area these groups did differ on was the frequency of giving major tests, with a majority of 0-5 years of experience teachers giving major tests monthly and a majority of the rest of teachers giving major tests about every two weeks. These results suggest that while teachers perceive their Self-efficacy with respect to grading differently, they do not differ on what they actually report should factor into final grades. These results may suggest that teachers with a higher Self-efficacy in grading assess student with major tests less frequently than teachers with lower Self-efficacy in grading, but none of the analysis indicated a direct correlation between these two grading factors.

Additional Information

Teachers were asked to respond to questions regarding their perceptions of grading practices and student motivation on two separate Likert-type surveys, the Teacher Perceptions of Grading Practices (TPGP) and the Perceptions of Student Motivation (PSM) surveys. Frequency responses for each of the items on those surveys were examined. Based on the perceptions of high school teachers it is clear that grading and motivation are important. Over 85% of teachers agreed that grading has an important role in classroom assessment, and approximately 70% of teachers agreed that high grades can motivate students to learn. Also, 72% of teachers reported actually including student effort and hard work in their final grade calculations. Based on the perceptions of high school teachers, factors outside of a teacher's control play a large role in student motivation. Over 70% of teachers believe that students lack effort at school because of a lack of home support, and, surprisingly, over 54% of teachers felt that students are not motivated to learn because they are just lazy.

Study Implications

The purpose of this study is to promote greater understanding of the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation. Since little previous research studied the relationship between these perceptions, the results of this study might be used by researchers to further investigate the connections between grading and motivational beliefs and the impact that both have on today's students and school systems. The results of this study might also be used by school district teachers, administrators, and school system policy makers to develop

professional development programs for teachers regarding grading practices and motivational impact on students in the hope of not just shaping actual practices but also belief systems about the role that grading and the teacher play in student motivation.

The gender differences within the results of this study in the areas of grading practices and student motivation have implications for the field of education. Male high school teachers reported higher perceptions in the Importance of grading and in their own Self-efficacy of grading. Male teachers also reported including student effort and behavior in final grade calculations more frequently than female teachers. These results suggest that schools may need to provide gender specific professional development opportunities and that principals and other administrators should be aware of the gender differences with respect to grading and motivation when conducting teacher observations and evaluations. Awareness of these differences may lead to different conversations about student learning and motivation occurring between administrators and male and female teachers, which may help reduce the differences between genders. While further investigation of these differences is justifiable, the results of this study indicate that there are differences between male and female teachers in their perceptions of grading and motivation.

The subject area differences within the results of this study in the areas of grading practices and student motivation also have implications for the field of education. While previously reviewed research found no differences between teachers of different subject areas (McMillan, Myran, and Workman, 2002), the current study did find statistically significant differences. More specifically, subject area teachers differed in their

perceptions of the Importance and Usefulness of grading, including Student Effort in grading, students' General Interest in school, and the influence of Home Factors and Peer Factors on motivation. Additionally, subject area teachers differed on including student effort and student ability in final grade calculations. These results suggest that schools may need to provide subject area specific professional development opportunities and principals and other administrators should be aware of the subject area differences with respect to grading and motivation when conducting teacher observations and evaluations. Awareness of these differences may lead to different conversations about student learning and motivation occurring between administrators and subject area teachers, which may help reduce the differences. Additionally, many large high schools have multiple administrators who each supervise different subject areas, and knowledge of the subject area differences in grading and motivation perceptions could lead to different ways to approach school improvement planning and staff meetings. Further investigation of these differences between subject areas is certainly called for, especially given the differences between this study and previous studies.

Additionally, the experience level differences within the results of this study have implications for the field of education as well. Teachers with the least amount of experience reported the highest Self-efficacy with respect to grading and gave major tests less frequently than other experience levels. Teachers with 16-20 years of experience reported that Home Factors and Current Relevance have an impact on student motivation at higher rates than other experience levels. These results suggest that teacher preparation programs are providing newer teachers with training in grading that allows them to feel more confident about their ability to grade students, despite previously

reviewed research suggesting that teachers lack formal training in grading processes

(Allen, 2005; Brookhart, 2004; Guskey, 2004a, 2004b; Guskey & Bailey, 2001; Stiggins,

1993). However, these results could also suggest that newer teachers have not gained the

time and experience necessary to examine their own grading behaviors and begin to

develop doubts about their ability to accurately grade students. This could lead

administrators to work with newer teachers to examine their grading beliefs and how to

accurately grade students within their classrooms. These results also suggest that more

experienced teachers tend to attribute motivational factors to things that are outside of

their perceived control. These differences could lead to targeted professional

development about a teacher's role in student motivation, specifically for more

experienced teachers.

Finally, the results of this study suggest that teachers of different genders, subject

areas, and experience levels consider a variety of factors in their grading, which include

formal achievement measures, and non-achievement measures such as student effort,

ability, and behavior. These results support the former finding that teachers use a

hodgepodge of factors in grading (Brookhart, 1993, 1994; Cross & Frary, 1996; Frary,

Cross, & Weber, 1993; McMillan & Lawson, 2001; Plake & Impara, 1993; Stiggins &

Conklin, 1992; Stiggins, Frisbie, & Griswold, 1989). For school administrators and

policy makers, one implication of this study is that as long as teachers consider academic

achievement factors as the most important in determining final grades, consideration of

other factors may also be reasonable. Another implication is that there needs to be

professional development in all areas of grading and student motivation that is more

aligned to measurement experts' recommendations in order to better measure true academic achievement rather than a combination of achievement and academic enablers.

Study Limitations

This study had some limitations. First, the data was collected from high schools in a four county region in a Midwestern state, which may not be a representative sample of the target population of all high schools. For future research, the ability to randomly sample from high schools across multiple states would provide a more representative sample. For instance, a multi-staged sampling technique could be applied, first by randomly selecting states and then randomly selecting high school teachers from each of these states. Additionally, this study focused specifically on high school teachers, and is not generalizable to elementary and middle school teachers.

Second, although the web-based surveys used had benefits such as reduced cost, data collection speed and the ability to send the survey to multiple potential respondents, the surveys also had the disadvantage of lack of sampling control. False identity and duplicate responding might be an issue for web-based surveys but the design minimized these errors as much as possible.

Third, demographic data regarding age and college degree type were collected; however, no data analysis was conducted utilizing these demographic differences, and these potential differences should be investigated in future studies.

Finally, it was assumed that all respondents were teachers certified in the subject areas they reported, however, since this information is solely based on teacher responses

and those responses were anonymous, there is no way to verify that all participants were certified high school teachers.

Ideas for Future Research

Some topics might be interesting for future research. First, since this study only focused on teachers' perceptions of grading practices and student motivation, future research should extend the gender, subject area, and experience level comparisons of actual grading practices and motivational strategies. For instance, it would be an interesting study to investigate the possible differences in formats of classroom assessments, such as projects, term papers, portfolios, and essays between different genders, subject areas, and experience levels. Another interesting study could investigate the motivational strategies each group of teachers apply and use within their own classrooms and any differences that may arise.

Second, the data of the current study was collected from a four county region in a Midwestern state. Future research should consider collecting data from multiple states in a variety of geographical regions and socioeconomic areas, and investigate whether there might be differences in perceptions and grading practices between states and socioeconomic groups.

Third, this study investigated the effects of gender, subject area taught, and years of experience on perceptions of grading practices and student motivation. Further research should investigate additional variables, including teacher age, degree type, and school level. Potential differences might exist across these variables.

Finally, the results of this study revealed that high school teachers consider multiple factors when determining grades, including academic achievement and also nonachievement factors such as effort, ability, and behavior. This finding supported previously reviewed literature that discrepancies exist between teacher grading practices and the recommendations of measurement experts (Allen, 2005; Brookhart, 1993, 1994; Stiggins, Frisbie, & Griswold, 1989). It might be interesting to explore reasons why these discrepancies still exist and why teachers do not always follow recommended practices.

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APPENDIX A

Survey of Teachers' Perceptions of Grading Practices

Directions: This survey should take approximately 10 minutes to complete.

Part I: Please indicate your level of agreement with each of the following statements by circling one of the following responses. Please circle only one response choice per question.

Use the following key:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Grading means assigning grades to students in order to inform them of how well they are learning.

	SD	D	N	A	SA
1. Grading is an important criteria for judging students' progress					
2. Grading has an important role in classroom assessment					
3. Grading has a positive effect on students' academic achievement					
4. Grading practices are important measures of student learning					
5. Grading practices are important measures of student achievement					
6. Grading has a strong impact on students' learning					
7. Grading helps me categorize students as above average, average, and below average					
8. Grading can help me improve instruction					

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9. Grading can encourage good work by students					
10. Grading helps me in deciding what curriculum to cover					
11. Grading is a good method for helping students indentify their weaknesses in a content area					
12. Grading can keep students informed about their progress					
13. Grading provides information about student achievement					
14. Grading documents my instructional effectiveness					
15. Grading provides feedback to my students					
16. High grades can motivate students to learn					
17. I consider student effort when I grade					
18. I give higher report card grades for students who show greater effort					
19. I will pass a failing student if he or she puts forth effort					
20. Grades are based on students' completion of homework					
21. Grades are based on the degree to which students participate in class					
22. Grades are based on a student's improvement					
23. I consider student ability in grading					
24. Grades are based on students' problem solving ability					
25. Grades are based on students' critical thinking skills					

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26. Grades are based on students' independent thinking ability					
27. Grades are based on students' collaborative learning ability					
28. Grades are based on students' writing ability					
29. I tend to use letters (e.g., A, B, C) rather than numbers (e.g. 95%) in grading					
30. If a student fails a test, I will offer him/her a second chance to take the test					
31. I often give students opportunities to earn extra credit					
32. I often look at the distribution of grades for the whole class after I finish grading					
33. I have my own grading procedure					
34. I often confer with my colleagues on grading criteria					
35. Grading is the easiest part of my role as a teacher					
36. It is easy for me to recognize strong effort by a student					
37. It is easy for me to assess student achievement with a single grade or score					
38. It is easy for me to rank order students in terms of achievement when I am grading					
39. It is difficult to measure student effort					
40. Factors other than a student's actual achievement on a test or quiz make it difficult for me to grade					

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Part II. Please respond to the following questions.

1. What factors do you consider when you assign final grades for a marking period or a semester? (check all that apply)

    ☐ Formal achievement measures (e.g., tests/quizzes)

    ☐ Student effort/hard work

    ☐ Student ability

    ☐ Classroom behavior (e.g., laudatory or disruptive behavior)

    ☐ Other (please specify)

2. How often do you give quizzes that count for a grade? (Check only one answer)

    ☐ At least once a week

    ☐ About once every two weeks, but not every week

    ☐ About once a month

    ☐ Sometimes, but less than once a month

3. How often do you give minor assignments that count for a grade? (Check only one answer)

    ☐ About everyday

    ☐ Several times each week, but not everyday

    ☐ About once a week

    ☐ About once every two weeks, but not every week

    ☐ About once a month

    ☐ Sometimes, but less than once a month

4. How often do you give major tests or exams that count for a grade? (Check only one answer)

    ☐ At least once a week

    ☐ About once every two weeks, but not every week

    ☐ About once a month

    ☐ Sometimes, but less than once a month

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SECTION III

Directions: Please provide the following demographic information

I am (circle one): FEMALE   MALE

Subjects you are
teaching:_____

Grade levels:_____

My age is: _____

I have the following degrees (circle each that applies): Bachelor's   Master's
Doctorate

I have been a teacher for _____ years

Area of Certification/Teacher
preparation:_____

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APPENDIX B

Perceptions of Student Motivation Questionnaire

For the following questions, please respond regarding how true each statement is for the students in your class. Indicate how true each statement is from your perspective, using the following response scale:

Not at all true		More not true than true		More true than not		Very much true
1	2	3	4	5	6	7

1. The students in this class really try to learn.

Not at all true		More not true than true		More true than not		Very much true
1	2	3	4	5	6	7

2. My students work at learning new things in this class.

Not at all true		More not true than true		More true than not		Very much true
1	2	3	4	5	6	7

3. My students generally pay attention and focus on what I am teaching

Not at all true		More not true than true		More true than not		Very much true
1	2	3	4	5	6	7

4. The students in this class generally do class-related tasks and assignments willingly

Not at all true		More not true than true		More true than not		Very much true
1	2	3	4	5	6	7

5. The students in this class don't put forth much effort to learn the content

Not at all true		More not true than true		More true than not		Very much true
1	2	3	4	5	6	7

6. My students are often distracted or off task, and I have to bring them back to focus on the topic or work at hand.

Not at all true		More not true than true		More true than not		Very much true
1	2	3	4	5	6	7

7. In general, my students are genuinely interested in what they are asked to learn in my class

Not at all true		More not true than true		More true than not		Very much true
1	2	3	4	5	6	7

Hardre', P.L., Davis, K.A., & Sullivan, D.W. (2008). Measuring teacher perceptions of the "how" and "why" of student motivation. Educational Research and Evaluation, 14(2), 155-179.

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8. Generally, my students are unmotivated because their parents don't care about or value education	Not at all true		More not true than true		More true than not		Very much true
	1	2	3	4	5	6	7

9. When my students aren't engaged in school, it's because they don't see the value of what they are being asked to learn	Not at all true		More not true than true		More true than not		Very much true
	1	2	3	4	5	6	7

10. If students aren't motivated to learn in my class, it is often because they don't have aspirations that connect to education, like plans to go on to college	Not at all true		More not true than true		More true than not		Very much true
	1	2	3	4	5	6	7

11. Students often lack effort at school because they don't have support at home	Not at all true		More not true than true		More true than not		Very much true
	1	2	3	4	5	6	7

12. If students don't see the point of learning the content, then they aren't motivated to learn it	Not at all true		More not true than true		More true than not		Very much true
	1	2	3	4	5	6	7

13. Some of my students just have too many home problems to make school a priority	Not at all true		More not true than true		More true than not		Very much true
	1	2	3	4	5	6	7

14. Most often, if students aren't engaged in my class, it's because they don't see the relevance of the content in their world	Not at all true		More not true than true		More true than not		Very much true
	1	2	3	4	5	6	7

Hardre', P.L., Davis, K.A., & Sullivan, D.W. (2008). Measuring teacher perceptions of the "how" and "why" of student motivation. Educational Research and Evaluation, 14(2), 155-179.

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15. Some of my students aren't motivated to work in school because education has no place in the futures they see for themselves	Not at all true	More not true than true	More true than not	Very much true
	1 2	3 4	5 6	7

16. Generally, the students in my class who are not interested in learning are that way because of peer pressure to devalue school	Not at all true	More not true than true	More true than not	Very much true
	1 2	3 4	5 6	7

17. Most often, if students aren't working in my class, it's because they don't see how useful this information can be	Not at all true	More not true than true	More true than not	Very much true
	1 2	3 4	5 6	7

18. Negative peer pressure is one big reason why some of my students are not motivated to learn in school	Not at all true	More not true than true	More true than not	Very much true
	1 2	3 4	5 6	7

19. Some students are not motivated to learn because they are just lazy	Not at all true	More not true than true	More true than not	Very much true
	1 2	3 4	5 6	7

20. Some students in my class just don't care about learning—period	Not at all true	More not true than true	More true than not	Very much true
	1 2	3 4	5 6	7

Hardre', P.L., Davis, K.A., & Sullivan, D.W. (2008). Measuring teacher perceptions of the "how" and "why" of student motivation. Educational Research and Evaluation, 14(2), 155-179.

APPENDIX C

Table C1

Individual Item Correlations Between Teacher Perceptions of Grading Practices and
Perceptions of Student Motivation Surveys

	PSM1	PSM2	PSM3	PSM4	PSM5	PSM6	PSM7	PSM8	PSM9	PSM10
TPGP1	-.009	-.071	0.32	.121*	-.158**	-.234**	.156**	-.163**	-.138*	.057
TPGP2	.005	-.071	.043	.109	-.115*	-.227**	.156**	-.097	-.053	.075
TPGP3	.036	-.039	.085	.074	-.007	-.210**	.139*	-.141*	-.140*	.017
TPGP4	-.012	-.103	.035	.025	-.035	-.184**	.051	-.060	-.105	.078
TPGP5	.089	-.016	.139*	.042	-.089	-.192**	.230**	-.115*	.041	.068
TPGP6	.062	-.023	.067	-.055	-.017	-.120*	.112	-.060	-.018	.047
TPGP7	-.123*	-.046	-.080	-.062	.096	-.030	-.089	.046	.058	.121*
TPGP8	.158**	-.050	.084	.060	-.045	-.185**	.238**	-.148**	0.75	.032
TPGP9	.028	.061	.023	.141*	-.124*	-.165**	.113*	-.140*	-.127*	.076
TPGP10	-.018	.051	-.018	.029	.041	-.061	.039	.004	-.070	-.038
TPGP11	.073	.055	.023	.095	-.078	-.109	.204**	-.064	-.005	.024
TPGP12	-.043	.064	-.084	.143*	-.121*	-.124*	.063	-.059	-.032	.090
TPGP13	.062	-.013	.099	-.082	.069	-.043	.022	-.035	.149**	.053
TPGP14	.017	.085	-.029	.204**	-.150**	-.120*	.155**	-.070	-.147*	-.028
TPGP15	.171**	.052	.142*	-.026	-.017	-.094	.141*	-.156**	.110	-.064
TPGP16	-.026	-.085	.011	-.187**	.145*	-.020	-.046	.078	.188**	.059
TPGP17	-.083	-.011	-.057	-.012	.123*	-.015	-.048	.078	.121*	.128*
TPGP18	-.098	-.171**	-.009	-.168**	.226**	.078	-.065	.116*	.219**	.142*
TPGP19	-.125*	-.103	-.051	-.039	.127*	.042	-.015	.112	.050	.092
TPGP20	.007	-.157**	.037	-.186**	.121*	-.002	.017	.004	-.021	.103
TPGP21	.039	-.115*	.039	-.167**	.176**	.104	.051	.170**	.136*	.116*
TPGP22	-.061	-.040	-.013	.020	.054	.032	.030	.071	.021	.083
TPGP23	-.034	-.169**	-.024	-.088	.183**	.027	-.044	.159**	.166**	.037
TPGP24	-.067	-.046	-.101	-.012	.062	.112	-.042	.117*	-.048	.117*
TPGP25	.024	-.159**	.021	-.055	.063	.020	.137*	-.017	.039	.061
TPGP26	-.114*	-.106	-.177	-.028	-.030	.116*	-.008	.087	-.074	.120*
TPGP27	.055	-.096	-.020	-.024	.002	.037	.076	.079	.097	.117*
TPGP28	-.041	-.075	-.108	-.023	-.005	.069	.011	.127*	.071	.099
TPGP29	.025	-.052	.033	-.091	.229**	.032	.014	.100	-.002	-.089
TPGP30	-.079	.004	-.118*	.132*	-.131*	-.036	.041	-.016	.015	.039
TPGP31	-.048	-.143*	.028	-.114*	.229**	.092	.007	.224**	.206**	.114*
TPGP32	-.049	-.001	-.009	.156**	-.061	-.092	-.028	-.098	-.035	-.008
TPGP33	.055	-.028	.014	.021	.064	-.083	.025	-.012	.072	-.002
TPGP34	.003	.091	.003	.126*	-.190**	.009	.032	-.024	-.072	-.019
TPGP35	-.008	-.036	.086	-.068	.170**	.189**	-.055	.187**	.007	-.042
TPGP36	.051	.050	.059	.118*	.008	.037	-.025	.049	.017	.106
TPGP37	-.007	-.077	.112*	-.132*	.219**	.165**	-.031	.190**	.036	-.103
TPGP38	-.016	-.021	.035	-.092	.117*	.134*	-.110	.234**	-.009	.038
TPGP39	.037	.027	-.018	.002	.042	.023	.074	-.041	.083	-.068
TPGP40	-.078	.019	-.070	-.018	.077	.153**	-.094	.160**	.130*	.075

Note: * p<.05, **p<.01   (continued)

Table C1 (continued)

	PSM11	PSM12	PSM13	PSM14	PSM15	PSM16	PSM17	PSM18	PSM19	PSM20
TPGP1	-.016	-.068	-.080	-.044	.013	-.103	-.160**	-.156**	-.092	-.074
TPGP2	.048	.009	-.033	.018	.060	-.128*	-.156**	-.169**	-.074	-.085
TPGP3	.009	-.074	-.098	-.099	-.047	-.105	-.175**	-.126*	-.052	-.063
TPGP4	.005	-.058	-.110	.022	.045	-.054	-.081	-.112	-.029	-.020
TPGP5	.067	.052	.016	.021	.068	-.079	-.057	-.111	-.022	-.040
TPGP6	.073	-.007	.009	.123*	.051	-.085	-.064	-.080	-.008	-.004
TPGP7	.066	.013	-.054	.109	.104	-.063	-.006	-.072	.012	.051
TPGP8	.063	-.129*	.027	-.098	.115*	-.184**	.000	-.169**	-.013	-.104
TPGP9	-.078	-.059	-.088	-.059	-.011	-.150**	-.178**	-.145*	-.143*	-.123*
TPGP10	-.031	.015	-.036	.016	-.041	.069	.017	.033	-.037	.015
TPGP11	.051	-.034	-.070	.013	-.016	.018	-.017	.068	-.018	.022
TPGP12	-.062	-.039	-.010	-.018	.111	-.162**	-.107	-.172**	-.059	-.058
TPGP13	.054	.006	.090	.075	.126*	-.078	.023	-.033	.064	-.036
TPGP14	-.117*	-.102	-.116*	-.104	-.089	-.065	-.131*	-.069	-.167**	-.138*
TPGP15	.041	-.132*	.070	-.104	.070	-.147*	.027	-.135*	-.008	-.127*
TPGP16	.171**	.091	.133*	.140*	.203**	.037	.096	.032	.135*	.000
TPGP17	.129*	.160**	.142*	.196**	.128*	.096	.135*	.047	.036	.037
TPGP18	.240**	.144*	.174**	.193**	.148**	.061	.155**	.113*	.067	-.010
TPGP19	.024	.116*	.003	.115*	.010	.109	.051	.099	-.036	.042
TPGP20	.156**	-.031	.086	-.019	.070	-.051	-.036	-.057	.147**	.036
TPGP21	.246**	.011	.174**	.029	.115*	.058	.085	.085	.161**	.120*
TPGP22	.090	.112*	.092	.068	-.006	.087	.041	.110	.045	.071
TPGP23	.239**	.172**	.199**	.178**	.154**	.063	.218**	.087	.045	.047
TPGP24	.041	.090	.067	.087	.133*	.059	-.026	.053	-.016	.049
TPGP25	.171**	-.028	.052	.030	.239**	-.016	.036	-.015	.043	-.017
TPGP26	.087	.053	-.057	.059	.117*	.025	-.040	.076	-.030	.010
TPGP27	.167**	-.100	.159**	.067	.214**	-.041	.078	-.015	.022	.012
TPGP28	.063	-.017	.007	.163**	.076	.145*	.079	.152**	.021	.058
TPGP29	.006	-.085	.034	.033	-.055	.191**	.092	.147**	.154**	.100
TPGP30	-.108	-.003	.027	-.021	.031	-.044	.034	-.028	-.293**	-.085
TPGP31	.202**	.117*	.169**	.125*	.179**	.106	.201**	.110	.072	.123*
TPGP32	-.153**	-.089	-.150**	-.036	-.081	-.154**	-.115*	-.144*	-.193**	-.150**
TPGP33	.060	.049	-.021	.054	.070	.038	.159**	.000	.110	.107
TPGP34	-.007	-.059	-.022	-.035	-.001	-.003	-.012	-.011	-.082	.027
TPGP35	.069	-.008	.085	.030	.096	.100	.164**	.061	.109	.141*
TPGP36	.044	.116*	.033	.128*	-.017	.076	.065	.002	.034	.028
TPGP37	.008	-.036	-.016	.023	-.074	.184**	.118*	.153**	.186**	.139*
TPGP38	.008	.017	.022	.166**	.025	.177**	.160**	.170**	.222**	.187**
TPGP39	.022	-.046	.043	.018	.114*	-.019	.110	.058	-.031	.006
TPGP40	.059	-.115*	.176**	-.062	.027	-.013	.070	-.066	-.065	-.195**

Note: * p<.05, **p<.01

Table C2

Chi-Square Analysis of Formal Achievement Measures by Gender

Gender	n	Yes	No	χ^2
Male	105	99	6	.082
		94.3%	5.7%	
Female	202	192	10	
		95.05%	4.95%	
Total	307	291	16	

Note: *p<.05, **p<.01

Table C3

Chi-Square Analysis of Student Effort by Gender

Gender	N	Yes	No	χ^2
Male	105	79	26	4.433*
		75.2%	24.8%	
Female	202	128	74	
		63.4%	36.6%	
Total	307	207	100	

Note: *p<.05, **p<.01

Table C4

Chi-Square Analysis of Student Ability by Gender

Gender	n	Yes	No	χ^2
Male	105	50	55	2.158
		47.6%	52.4%	
Female	202	114	88	
		56.4%	43.6%	
Total	307	164	143	

Note: *p<.05, **p<.01

Table C5

Chi-Square Analysis of Classroom Behavior by Gender

Gender	n	Yes	No	χ^2
Male	105	40	65	5.468*
		38.1%	61.9%	
Female	202	51	151	
		25.2%	74.8%	
Total	307	105	202	

Note: *p<.05, **p<.01

Table C6

Chi-Square Analysis of Quizzes by Gender

Gender	n	1[a]	2[b]	3[c]	4[d]	χ^2
Male	105	32	47	13	13	6.267
		30.5%	44.8%	12.4%	12.4%	
Female	202	62	112	15	13	
		30.7%	55.4%	7.4%	6.4%	
Total	307	94	159	28	26	

Note: *p<.05, **p<.01

a: at least once a week;

b: about once every two weeks, but not every week;

c: about once a month;

d: sometimes, but less than once a month

Table C7

Chi-Square Analysis of Minor Assignment by Gender

Gender	n	1[a]	2[b]	3[c]	4[d]	5[e]	6[f]	χ^2
Male	105	31	43	15	10	1	5	3.141
		29.5%	41.0%	14.3%	9.5%	1.0%	4.8%	
Female	202	58	79	40	11	3	11	
		28.7%	39.1%	19.8%	5.4%	1.5%	5.4%	
Total	307	89	122	55	21	4	16	

Note: *p<.05, **p<.01

a: about every day;

b: several times each week, but not every day;

c: about once a week;

d: about once every two weeks, but not every week;

e: about once a month;

f: sometimes, but less than once a month

Table C8

Chi-Square Analysis of Major Test or Exam by Gender

Gender	n	1[a]	2[b]	3[c]	4[d]	χ^2
Male	105	32	47	13	13	6.267
		30.5%	44.8%	12.4%	12.4%	
Female	202	62	112	15	13	
		30.7%	55.4%	7.4%	6.4%	
Total	307	94	159	28	26	

Note: *p<.05, **p<.01

a: at least once a week;

b: about once every two weeks, but not every week;

c: about once a month;

d: sometimes, but less than once a month

Table C9

Chi-Square Analysis of Formal Achievement Measures by Subject Area Taught

Subject Area	n	Yes	No	χ^2
Math	58	56	2	7.118
		96.6%	3.4%	
English	57	56	1	
		98.2%	1.8%	
Social Studies	43	41	2	
		95.3%	4.7%	
Science	41	38	3	
		92.7%	7.3%	
Special Education	38	33	5	
		86.8%	13.2%	
Elective	70	67	3	
		95.7%	4.3%	
Total	307	291	16	

Note: *p<.05, **p<.01

Table C10

Chi-Square Analysis of Student Effort by Subject Area Taught

Subject Area	N	Yes	No	χ^2
Math	58	33	25	11.318*
		56.9%	43.1%	
English	57	36	21	
		63.2%	26.8%	
Social Studies	43	34	9	
		79.1%	20.9%	
Science	41	23	18	
		56.1%	43.9%	
Special Education	38	28	10	
		73.7%	26.3%	
Elective	70	53	17	
		75.7%	24.3%	
Total	307	207	100	

Note: *p<.05, **p<.01

Table C11

Chi-Square Analysis of Student Ability by Subject Area Taught

Subject Area	n	Yes	No	χ^2
Math	58	23	35	16.921**
		39.7%	60.3%	
English	57	36	21	
		63.2%	36.8%	
Social Studies	43	25	18	
		58.1%	41.9%	
Science	41	14	27	
		34.1%	65.9%	
Special Education	38	26	12	
		68.4%	31.6%	
Elective	70	40	30	
		57.1%	42.9%	
Total	307	164	143	

Note: *p<.05, **p<.01

Table C12

Chi-Square Analysis of Student Behavior by Subject Area Taught

Subject Area	n	Yes	No	χ^2
Math	58	13	45	7.501
		22.4%	79.6%	
English	57	18	39	
		31.6%	68.4%	
Social Studies	43	13	30	
		30.2%	69.8%	
Science	41	7	34	
		17.1%	82.9%	
Special Education	38	14	24	
		36.8%	63.2%	
Elective	70	26	44	
		37.1%	62.9%	
Total	307	91	216	

Note: *p<.05, **p<.01

Table C13

Chi-Square Analysis of Quizzes by Subject Area Taught

Subject	n	1[a]	2[b]	3[c]	4[d]	χ^2
Math	58	25	29	3	1	26.505*
		43.1%	50.0%	5.2%	1.7%	
English	57	14	36	6	1	
		24.6%	63.2%	10.5%	1.8%	
Social Studies	43	15	22	2	4	
		34.9%	51.2%	4.7%	9.3%	
Science	41	14	19	3	5	
		34.1%	46.3%	7.3%	12.2%	
Special Education	38	10	18	7	3	
		26.3%	47.4%	18.4%	7.9%	
Elective	70	16	35	7	12	
		22.9%	50.0%	10.0%	17.1%	
Total	307	94	159	28	26	

Note: *p<.05, **p<.01

a: at least once a week;

b: about once every two weeks, but not every week;

c: about once a month;

d: sometimes, but less than once a month

Table C14

Chi-Square Analysis of Minor Assignment by Subject Area Taught

Subject	n	1[a]	2[b]	3[c]	4[d]	5[e]	6[f]	χ^2
Math	58	27	16	7	1	0	7	52.542**
		46.6%	27.6%	12.1%	1.7%	0%	12.1%	
English	57	17	20	15	2	0	3	
		29.8%	35.1%	26.3%	3.5%	0%	5.3%	
Social Studies	43	8	27	6	1	1	0	
		18.6%	62.8%	14.0%	2.3%	2.3%	0%	
Science	41	9	21	7	3	0	1	
		22.0%	51.2%	17.1%	7.3%	0%	2.4%	
Special Education	38	13	16	4	4	1	0	
		34.2%	42.1%	10.5%	10.5%	2.6%	0%	
Elective	70	15	22	16	10	2	5	
		21.4%	31.4%	22.9%	14.3%	2.9%	7.1%	
Total	307	89	122	55	21	4	16	

Note: *p<.05, **p<.01

a: about every day;

b: several times each week, but not every day;

c: about once a week;

d: about once every two weeks, but not every week;

e: about once a month;

f: sometimes, but less than once a month

Table C15

Chi-Square Analysis of Major Test or Exam by Subject Area Taught

Subject	n	1[a]	2[b]	3[c]	4[d]	χ^2
Math	58	0	15	41	2	44.861**
		0%	25.9%	70.7%	3.4%	
English	57	1	11	38	7	
		1.8%	19.3%	66.7%	12.3%	
Social Studies	43	3	20	16	4	
		7.0%	46.5%	37.2%	9.3%	
Science	41	1	20	15	5	
		2.4%	48.8%	36.6%	12.2%	
Special Education	38	0	13	17	8	
		0%	34.2%	44.7%	21.1%	
Elective	70	1	23	27	19	
		1.4%	32.9%	38.6%	27.1%	
Total	307	6	102	154	45	

Note: *p<.05, **p<.01

a: at least once a week;

b: about once every two weeks, but not every week;

c: about once a month;

d: sometimes, but less than once a month

Table C16

Chi-Square Analysis of Formal Achievement Measures by Years of Experience

Experience	n	Yes	No	χ^2
0-5 years	64	60	4	6.768
		93.8%	6.2%	
6-10 years	63	60	3	
		95.2%	4.8%	
11-15 years	69	65	4	
		94.2%	5.8%	
16-20 years	46	41	5	
		89.1%	10.9%	
21-25 years	38	38	0	
		100%	0%	
25+ years	27	27	0	
		100%	0%	
Total	307	291	16	

Note: *p<.05, **p<.01

Table C17

Chi-Square Analysis of Student Effort by Years of Experience

Experience	n	Yes	No	χ^2
0-5 years	64	45	19	3.051
		70.3%	29.7%	
6-10 years	63	40	23	
		63.5%	36.5%	
11-15 years	69	43	26	
		62.3%	37.7%	
16-20 years	46	31	15	
		67.4%	32.6%	
21-25 years	38	27	11	
		71.1%	28.9%	
25+ years	27	21	6	
		77.8%	22.2%	
Total	307	207	100	

Note: *p<.05, **p<.01

Table C18

Chi-Square Analysis of Student Ability by Years of Experience

Experience	n	Yes	No	χ^2
0-5 years	64	37	27	4.240
		57.8%	42.2%	
6-10 years	63	30	33	
		47.6%	52.4%	
11-15 years	69	37	32	
		53.6%	46.4%	
16-20 years	46	29	17	
		63.0%	37.0%	
21-25 years	38	17	21	
		44.7%	55.3%	
25+ years	27	14	13	
		51.9%	48.1%	
Total	307	164	143	

Note: *p<.05, **p<.01

Table C19

Chi-Square Analysis of Student Behavior by Years of Experience

Experience	n	Yes	No	χ^2
0-5 years	64	20	44	5.575
		31.3%	68.7%	
6-10 years	63	19	44	
		30.2%	69.8%	
11-15 years	69	15	54	
		21.7%	78.3%	
16-20 years	46	17	29	
		37.0%	63.0%	
21-25 years	38	9	29	
		23.7%	76.3%	
25+ years	27	11	16	
		40.7%	59.3%	
Total	307	91	216	

Note: *p<.05, **p<.01

Table C20

Chi-Square Analysis of Quizzes by Years of Experience

Experience	n	1[a]	2[b]	3[c]	4[d]	χ^2
0-5 years	64	13	38	8	5	19.714
		20.3%	59.4%	12.5%	7.8%	
6-10 years	63	24	31	5	3	
		38.1%	49.2%	7.9%	4.8%	
11-15 years	69	21	37	7	4	
		30.4%	53.6%	10.1%	5.8%	
16-20 years	46	11	21	6	8	
		23.9%	45.7%	13.0%	17.4%	
21-25 years	38	13	18	2	5	
		34.2%	47.4%	5.3%	13.2%	
25+ years	27	12	14	0	1	
		44.4%	51.9%	0%	3.7%	
Total	307	94	159	28	26	

Note: *p<.05, **p<.01

a: at least once a week;

b: about once every two weeks, but not every week;

c: about once a month;

d: sometimes, but less than once a month

Table C21

Chi-Square Analysis of Minor Assignment by Years of Experience

Experience	n	1[a]	2[b]	3[c]	4[d]	5[e]	6[f]	χ^2
0-5 years	64	20	26	12	3	1	2	29.463
		31.3%	40.1%	18.8%	4.7%	1.6%	3.1%	
6-10 years	63	14	23	14	6	1	5	
		22.2%	36.5%	22.2%	9.5%	1.6%	7.9%	
11-15 years	69	19	27	11	8	0	4	
		27.5%	39.1%	15.9%	11.6%	0%	5.8%	
16-20 years	46	12	21	8	0	1	4	
		26.1%	45.7%	17.4%	0%	2.2%	8.7%	
21-25 years	38	11	12	10	4	1	0	
		28.9%	31.6%	26.3%	10.5%	2.6%	0%	
25+ years	27	13	13	0	0	0	1	
		48.1%	48.1%	0%	0%	0%	3.7%	
Total	307	89	122	55	21	4	16	

Note: *p<.05, **p<.01

a: about every day;

b: several times each week, but not every day;

c: about once a week;

d: about once every two weeks, but not every week;

e: about once a month;

f: sometimes, but less than once a month

Table C22

Chi-Square Analysis of Major Test or Exam by Years of Experience

Experience	n	1[a]	2[b]	3[c]	4[d]	χ^2
0-5 years	64	0	11	46	7	34.595**
		0%	17.2%	71.9%	10.9%	
6-10 years	63	4	17	29	13	
		6.3%	27.0%	46.0%	20.6%	
11-15 years	69	1	32	27	9	
		1.4%	46.4%	39.1%	13.0%	
16-20 years	46	0	14	26	6	
		0%	30.4%	56.5%	13.0%	
21-25 years	38	1	19	13	5	
		2.6%	50%	34.2%	13.2%	
25+ years	27	0	9	13	5	
		0%	33.3%	48.1%	18.5%	
Total	307	6	102	154	45	

Note: *$p<.05$, **$p<.01$

a: at least once a week;

b: about once every two weeks, but not every week;

c: about once a month;

d: sometimes, but less than once a month

Table C23

Frequency of Responses of the Teachers' Perceptions of Grading Practice (TPGP) survey

SD = Strongly Disagree   D = Disagree   N = Neutral   A = Agree   SA = Strongly Agree   M = Mean   SD = Standard Deviation

	SD	D	N	A	SA	M	SD
1. Grading is an important criteria for judging students' progress	1.3%	4.9%	10.1%	62.87%	20.85%	3.97	0.79
2. Grading has an important role in classroom assessment	0.33%	4.88%	8.47%	62.54%	23.78%	4.04	0.74
3. Grading has a positive effect on students' academic achievement	0.98%	8.14%	25.41%	56.35%	9.12%	3.64	0.80
4. Grading practices are important measures of student learning	1.3%	9.12%	16.94%	59.61%	13.03%	3.73	0.85
5. Grading practices are important measures of student achievement	1.3%	7.17%	17.26%	61.89%	12.38%	3.77	0.81
6. Grading has a strong impact on student learning	0.98%	18.24%	18.57%	52.12%	10.10%	3.52	0.94
7. Grading helps me categorize students as above average, average, and below average	6.19%	16.94%	23.45%	45.60%	7.82%	3.32	1.04
8. Grading can help me improve instruction	1.63%	4.89%	6.19%	62.87%	24.43%	4.04	0.81
9. Grading can encourage good work by students	0.65%	6.19%	13.36%	63.52%	16.29%	3.89	0.77
10. Grading helps me in deciding what curriculum to cover	14.33%	28.34%	16.94%	33.88%	6.51%	2.90	1.20
11. Grading is a good method for helping students identify their weaknesses in a content area	2.28%	9.12%	9.45%	65.47%	13.68%	3.79	0.87
12. Grading can keep students informed about their progress	0.65%	0.98%	3.91%	71.34%	23.13%	4.15	0.59

Table C23 continued

13. Grading provides information about student achievement	2.61%	10.42%	8.79%	64.17%	14.01%	3.77	0.91
14. Grading documents my instructional effectiveness	5.86%	20.52%	22.48%	45.93%	5.21%	3.24	1.03
15. Grading provides feedback to my students	0.65%	1.95%	1.63%	72.96%	22.80%	4.15	0.60
16. High grades can motivate students to learn	1.30%	9.77%	19.22%	51.14%	18.57%	3.76	0.91
17. I consider student effort when I grade	4.89%	8.47%	17.26%	49.84%	19.54%	3.71	1.03
18. I give higher report card grades for students who show greater effort	10.75%	26.06%	23.78%	29.97%	9.45%	3.01	1.17
19. I will pass a failing student if he or she puts forth effort	7.82%	19.22%	30.62%	36.48%	5.86%	3.13	1.04
20. Grades are based on students' completion of homework	13.03%	29.97%	18.57%	34.85%	3.58%	2.86	1.14
21. Grades are based on the degree to which students participate in class	8.47%	25.73%	18.24%	43.65%	3.91%	3.09	1.09
22. Grades are based on a student's improvement	1.95%	21.82%	23.78%	49.19%	3.26%	3.30	0.91
23. I consider student ability in grading	4.23%	11.73%	20.52%	52.12%	11.40%	3.55	0.98
24. Grades are based on students' problem solving ability	1.30%	8.47%	22.80%	60.59%	6.84%	3.63	0.79
25. Grades are based on students' critical thinking ability	2.61%	4.56%	19.22%	65.80%	7.82%	3.72	0.78
26. Grades are based on students' independent thinking ability	1.95%	6.51%	18.57%	63.52%	9.45%	3.72	0.80
27. Grades are based on students' collaborative learning ability	4.56%	14.66%	25.73%	51.79%	3.26%	3.35	0.93
28. Grades are based on students' writing ability	5.21%	19.22%	23.45%	45.94%	6.19%	3.29	1.01
29. I tend to use letters (e.g., A,B,C) rather than numbers (e.g., 95%) in grading	19.54%	51.47%	13.03%	13.36%	2.61%	2.28	1.01

Table C23 continued

30. If a student fails a test I will offer him/her a second chance to take the test	7.82%	17.59%	13.68%	38.11%	22.80%	3.50	1.24
31. I often give students opportunities to earn extra credit	15.31%	29.97%	9.77%	36.81%	8.14%	2.93	1.27
32. I often look at the distribution of grades for the whole class after I finish grading	3.91%	12.05%	5.54%	58.96%	19.54%	3.78	1.02
33. I have my own grading procedure	2.61%	14.66%	18.57%	52.12%	12.05%	3.56	0.97
34. I often confer with my colleagues on grading criteria	4.23%	17.26%	13.68%	53.75%	11.08%	3.50	1.04
35. Grading is the easiest part of my role as a teacher	28.99%	37.79%	13.03%	14.66%	5.54%	2.30	1.19
36. It is easy for me to recognize strong effort by students	1.30%	9.77%	17.59%	59.93%	11.40%	3.70	0.84
37. It is easy for me to assess student achievement with a single grade or score	22.48%	48.21%	12.05%	14.33%	2.93%	2.27	1.05
38. It is easy for me to rank order students in terms of achievement when I am grading	4.23%	36.48%	25.41%	30.94%	2.93%	2.92	0.98
39. It is difficult to measure student effort	6.51%	35.18%	16.61%	33.88%	7.82%	3.01	1.13
40. Factors other than a student's actual achievement on a test or quiz make it difficult for me to grade	4.89%	31.27%	22.48%	37.46%	3.91%	3.04	1.02

Table C23 continued

41. What factors do you consider when you assign final grades for a marking period or a semester?

   * Formal Achievement measures (tests/quizzes)—95% considered this factor

   * Student effort/hard work—72% considered this factor

   * Student ability—58% considered this factor

   * Classroom behavior—31% considered this factor

   * Other—16% considered this, mostly homework

42. How often do you give quizzes that count for a grade?

   * At least once a week—30% of teachers

   * About once every two weeks, but not every week—52% of teachers

   * About once a month—9% of teachers

   * Sometimes, but less than once a month—9% of teachers

Table C23 continued

43. How often do you give minor assignments that count for a grade?

  * About everyday—30% of teachers

  * Several times each week, but not everyday—40% of teachers

  * About once a week—17% of teachers

  * About once every two weeks, but not every week—6% of teachers

  * About once a month—2% of teachers

  * Sometimes, but less than once a month—6% of teachers

44. How often do you give major tests or exams that count for a grade?

  * At least once a week—0%

  * About once every two weeks, but not every week—33%

  * About once a month—52%

  * Sometimes, but less than once a month—15%

Table C24

Frequency of Responses of the Perceptions of Student Motivation (PSM) survey

	Not at all true	More NOT TRUE than true			More TRUE than not	Very much true	Mean	Standard Deviation
1. The students in my classes really try to learn	0.65%	1.30%	4.89%	11.73%	40.07%	35.18%	6.19%	5.20	1.05
2. My students work at learning new things in my classes	0.00%	2.28%	3.91%	12.05%	34.53%	38.44%	8.79%	5.29	1.07
3. My students generally pay attention and focus on what I am teaching	0.65%	0.98%	3.91%	9.44%	37.79%	41.69%	5.54%	5.30	1.00
4. My students generally do class-related tasks and assignments willingly	0.65%	2.93%	4.23%	12.70%	43.32%	30.94%	5.21%	5.09	1.09
5. My students don't put forth much effort to learn the content	8.47%	21.50%	39.09%	11.40%	11.07%	7.17%	1.30%	3.22	1.39
6. My students are often distracted or off task, and I have to bring them back to focus on the topic or work at hand	0.98%	13.68%	16.94%	19.22%	17.59%	25.73%	5.86%	4.39	1.55
7. In general, my students are genuinely interested in what they are asked to learn in my class	1.95%	5.21%	6.84%	19.87%	42.35%	20.20%	3.58%	4.70	1.23

(continued)

Table C24 continued

8. Generally my students are unmotivated because their parents don't care about or value education	6.84%	19.54%	15.31%	14.66%	27.36%	10.10%	6.19%	3.91	1.67
9. When my students aren't engaged in school, it's because they don't see the value of what they are being asked to learn	1.30%	4.56%	5.86%	16.94%	38.76%	23.45%	9.12%	4.94	1.27
10. If students are not motivated to learn in my class, it is often because they don't have aspirations that connect to education, like plans to go on to college	4.23%	24.43%	15.64%	17.26%	15.96%	17.26%	5.21%	3.89	1.68
11. Students often lack effort at school because they don't have support at home	1.30%	2.28%	9.12%	15.64%	38.11%	20.52%	13.03%	5.01	1.29
12. If students don't see the point of learning the content, then they aren't motivated to learn it	0.34%	0.98%	2.93%	9.45%	41.04%	29.64%	15.64%	5.41	1.05
13. Some of my students just have too many home problems to make school a priority	1.30%	4.56%	6.51%	13.68%	25.73%	34.85%	13.36%	5.16	1.37

Table C24 continued

14. Most often, if students aren't engaged in my class, it's because they don't see the relevance of the content in their world	1.30%	2.93%	11.07%	15.31%	40.39%	21.50%	7.49%	4.85	1.25
15. Some of my students aren't motivated to work in school because education has no place in the futures they see for themselves	2.61%	8.14%	9.77%	16.61%	39.41%	17.92%	5.54%	4.58	1.39
16. Generally, the students in my class who are not interested in learning are that way because of peer pressure to devalue school	6.19%	21.82%	14.98%	15.96%	15.31%	17.59%	8.14%	3.98	1.78
17. Most often, if students aren't working in my class, it's because they don't see how useful this information can be	2.28%	5.86%	10.75%	22.48%	22.48%	27.36%	8.79%	4.74	1.45
18. Negative peer pressure is one big reason why some of my students are not motivated to learn in school	6.51%	18.89%	16.29%	15.64%	16.29%	16.61%	9.77%	4.05	1.79
19. Some students are not motivated to learn because they are just lazy	5.86%	10.42%	8.47%	19.87%	18.89%	22.80%	13.68%	4.59	1.74
20. Some students in my class just don't care about learning—period	5.86%	9.77%	12.38%	16.27%	19.54%	20.20%	15.96%	4.58	1.78

APPENDIX D

Consent Forms and IRB Approval

1. General Consent Form
2. Superintendent Consent
3. Principal Consent
4. Teacher Consent
5. Letter to Teachers
6. IRB Approval Form

Department of Education

Informed Consent for Participation in Research Activities
THE RELATIONSHIP BETWEEN SECONDARY SCHOOL TEACHER PERCEPTIONS
OF GRADING PRACTICES AND SECONDARY SCHOOL TEACHER PERCEPTIONS OF STUDENT
MOTIVATION

Participant _____   HSC Approval Number _____

Principal Investigator: Matthew Bailey, Doctoral Student   PI's Phone Number: 314-757-7421
University Sponsor: Kathleen Sullivan Brown, Ph.D.   Sponsor Phone Number: 314-516-5788

1. You are invited to participate in a research study conducted by Matthew Bailey and Dr. Kathleen Sullivan Brown. The purpose of this research is to examine the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation.

2. a) Your participation will involve
   ➢ Completing two online surveys regarding your perceptions about grading practices and about student motivation.

   ➢ A link will be sent to you via email from your building administrator directing you to the survey site.

Approximately 400 high school teachers may be involved in this research at the University of Missouri-St. Louis.

   b) The amount of time involved in your participation will be approximately 20 minutes
   c) Any data collected is anonymous and will be destroyed once the project is completed.

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

4. There are no direct benefits for you participating in this study

5. Your participation is voluntary and you may choose not to participate in this research study or withdraw your consent at any time. You will NOT be penalized in any way should you choose not to participate or 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 that may result from this study. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection) that would lead to disclosure of your data as well as any other information collected by the researcher.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Matthew Bailey at 314-757-7421 or Dr. Kathleen Sullivan Brown at 314-516-5788. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research, at 516-5899

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 hereby consent to my participation in the research described above.

_____   _____
Participant's Signature   Date

_____   _____
Signature of Investigator or Designee   Date

Statement of Support for Participation in Research Activities
THE RELATIONSHIP BETWEEN SECONDARY SCHOOL TEACHER PERCEPTIONS
OF GRADING PRACTICES AND SECONDARY SCHOOL TEACHER PERCEPTIONS OF STUDENT
MOTIVATION

Participant District_____   HSC Approval Number _____

Principal Investigator: Matthew Bailey, Doctoral Student   PI's Phone Number: 314-757-7421
University Sponsor: Kathleen Sullivan Brown, Ph.D.   Sponsor Phone Number: 314-516-5788

1. Your school district is invited to participate in a research study conducted by Matthew Bailey and Dr. Kathleen Sullivan Brown. The purpose of this research is to examine the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation.

2. a) Your district participation will involve
   ➤ High school teachers completing two online surveys regarding your perceptions about grading practices and about student motivation. A link to the online survey will be emailed to teachers by building principals.
Approximately 400 high school teachers may be involved in this research at the University of Missouri-St. Louis.

   b) The amount of time involved for teachers will be approximately 20 minutes, 10 minutes for each survey
   c) Any data collected is anonymous and will be stored on a password protected computer.

4. There are no known risks associated with this research.

4. There are no direct benefits for your district participating in this study

5. Your district participation is voluntary and you may choose not to participate in this research study or withdraw your district consent at any time. Your district will NOT be penalized in any way should you choose not to participate or withdraw.

6. We will do everything we can to protect privacy. As part of this effort, your teacher identities will not be revealed in any publication that may result from this study. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection) that would lead to disclosure of your district data as well as any other information collected by the researcher.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Matthew Bailey at 314-757-7421 or Dr. Kathleen Sullivan Brown at 314-516-5788. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research, at 516-5899

   As Principal Investigator, I am requesting your permission as District Superintendent to contact your High School Principals and request that they allow their high school teachers to participate in this research project. Once a building Principal agrees to participation, I will send an email to the building principal to forward to all high school

staff. Please feel free to contact Matthew Bailey with any questions or concerns you may have regarding this research project.

> **I have read this Statement of Support and have been given the opportunity to ask questions. I will also be given a copy of this form for my records. I hereby support my district's participation in the research described above.**

Superintendent's Signature	Date

Signature of Investigator or Designee	Date

College of Education

8001 Natural Bridge Road
St. Louis, Missouri 63121-4499
Telephone: 314-516-5944
E-mail: mtbqm2@umsl.edu

Statement of Support for Participation in Research Activities
THE RELATIONSHIP BETWEEN SECONDARY SCHOOL TEACHER PERCEPTIONS OF GRADING PRACTICES AND SECONDARY SCHOOL TEACHER PERCEPTIONS OF STUDENT MOTIVATION

Participant High School_____   HSC Approval Number _____

Principal Investigator: Matthew Bailey, Doctoral Student   PI's Phone Number: 314-757-7421
University Sponsor: Kathleen Sullivan Brown, Ph.D.   Sponsor Phone Number: 314-516-5788

1. Your school is invited to participate in a research study conducted by Matthew Bailey and Dr. Kathleen Sullivan Brown. The purpose of this research is to examine the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation.

2. a) Your school participation will involve
    ➢ High school teachers completing two online surveys regarding your perceptions about grading practices and about student motivation. A link to the online survey will be emailed to you to distribute to teachers.
Approximately 400 high school teachers may be involved in this research at the University of Missouri-St. Louis.

    b) The amount of time involved for teachers will be approximately 20 minutes, 10 minutes for each survey
    c) Any data collected is anonymous and will be stored on a password protected computer.

5. There are no known risks associated with this research.

4. There are no direct benefits for your school participating in this study

5. Your school participation is voluntary and you may choose not to participate in this research study or withdraw your school consent at any time. Your school will NOT be penalized in any way should you choose not to participate or withdraw.

6. We will do everything we can to protect privacy. As part of this effort, your teacher identities will not be revealed in any publication that may result from this study. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection) that would lead to disclosure of your school data as well as any other information collected by the researcher.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Matthew Bailey at 314-757-7421 or Dr. Kathleen Sullivan Brown at 314-516-5788. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research, at 516-5899

    As Principal Investigator, I am requesting your permission as Building Principal to contact your teachers and request participate in this research project. Once you agree to participation, I will send an email to you to forward to all high

school staff. Please feel free to contact Matthew Bailey with any questions or concerns you may have regarding this research project.

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

Principal's Signature	Date

Signature of Investigator or Designee	Date

College of Education

8001 Natural Bridge Road
St. Louis, Missouri 63121-4499
Telephone: 314-516-5944
E-mail: mtbqm2@umsl.edu

Informed Consent for Participation in Research Activities
THE RELATIONSHIP BETWEEN SECONDARY SCHOOL TEACHER PERCEPTIONS
OF GRADING PRACTICES AND SECONDARY SCHOOL TEACHER PERCEPTIONS OF STUDENT
MOTIVATION

Participant _____   HSC Approval Number _____

Principal Investigator: Matthew Bailey, Doctoral Student   PI's Phone Number: 314-757-7421
University Sponsor: Kathleen Sullivan Brown, Ph.D.   Sponsor Phone Number: 314-516-5788

1. You are invited to participate in a research study conducted by Matthew Bailey and Dr. Kathleen Sullivan Brown. The purpose of this research is to examine the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation.

2. a) Your participation will involve
   ➢ Completing two online surveys regarding your perceptions about grading practices and about student motivation. A link to the online survey will be emailed to you by your principal.
Approximately 400 high school teachers may be involved in this research at the University of Missouri-St. Louis.

   b) The amount of time involved will be approximately 20 minutes, 10 minutes for each survey
   c) Any data collected is anonymous and will be stored on a password protected computer.

6. There are no known risks associated with this research.

4. There are no direct benefits for your participation in this study

5. Your participation is voluntary and you may choose not to participate in this research study or withdraw your consent at any time. You will NOT be penalized in any way should you choose not to participate or withdraw.

6. We will do everything we can to protect privacy. As part of this effort, your identity will not be revealed in any publication that may result from this study. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection) that would lead to disclosure of your data as well as any other information collected by the researcher.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Matthew Bailey at 314-757-7421 or Dr. Kathleen Sullivan Brown at 314-516-5788. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research, at 516-5899

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 hereby consent to my participation in the research described above.

_____   _____
Participant's Signature   Date

_____   _____
Signature of Investigator or Designee   Date

College of Education

Informational Letter for Teachers
THE RELATIONSHIP BETWEEN SECONDARY SCHOOL TEACHER
PERCEPTIONS OF GRADING PRACTICES AND SECONDARY
SCHOOL TEACHER PERCEPTIONS OF STUDENT MOTIVATION

Principal Investigator: Matthew Bailey, Doctoral Student   PI's Phone Number: 314-757-7421
University Sponsor: Kathleen Sullivan Brown, Ph.D.   Sponsor Phone Number: 314-516-5788

Dear Teacher—

You are invited to participate in a research study examining the relationship between teacher perceptions of grading practices and teacher perceptions of student motivation. Your building principal will email you a link to two online surveys. Both of these surveys are anonymous and take approximately 10 minutes each to complete, for a total time of approximately 20 minutes.

All of your responses are completely anonymous, and any data collected will be stored on a password protected computer. No identifying data will be collected that in any way will link your answers to you or your school building.

Your participation is greatly appreciated and will be extremely valuable in this research project. Please note that participation is voluntary and you may discontinue participation at any point during completion of the surveys.

The surveys used are the Teacher Perceptions of Grading Practices (TPGP) and the Perceptions of Student Motivation (PSM). Each of these has been used in other research projects as well. Both surveys ask you to provide your opinions, or perceptions, of the questions or statements given.

Thank you so much for taking time out of your busy schedule to participate in this research. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Matthew Bailey at 314-757-7421 or Dr. Kathleen Sullivan Brown at 314-516-5788. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research, at 516-5899

Office of Research Administration

One University Boulevard
St. Louis, Missouri 63121-4499
Telephone: 314-516-5899
Fax: 314-516-6759
E-mail: ora@umsl.edu

DATE:	June 30, 2011
TO:	Matthew Bailey
FROM:	University of Missouri-St. Louis IRB
PROJECT TITLE:	[246947-2] THE RELATIONSHIP BETWEEN SECONDARY SCHOOL TEACHER PERCEPTIONS OF GRADING PRACTICES AND SECONDARY SCHOOL TEACHER PERCEPTIONS OF STUDENT MOTIVATION
REFERENCE #:	
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
DECISION DATE:	June 30, 2011
REVIEW CATEGORY:	Exemption category # *1*

The chairperson of the University of Missouri-St. Louis IRB has APPROVED has reviewed the above mentioned protocol for research involving human subjects and determined that the project qualifies for exemption from full committee review under Title 45 Code of Federal Regulations Part 46.101b. The time period for this approval expires one year from the date listed above. You must notify the University of Missouri-St. Louis IRB in advance of any proposed major changes in your approved protocol, e.g., addition of research sites or research instruments.

You must file an annual report with the committee. This report must indicate the starting date of the project and the number of subjects to date from start of project, or since last annual report, whichever is more recent.

Any consent or assent forms must be signed in duplicate and a copy provided to the subject. The principal investigator must retain the other copy of the signed consent form for at least three years following the completion of the research activity and they must be available for inspection if there is an official review of the UM-St. Louis human subjects research proceedings by the U.S. Department of Health and Human Services Office for Protection from Research Risks.

This action is officially recorded in the minutes of the committee.

If you have any questions, please contact Carl Bassi at 314-516-6029 or bassi@umsl.edu. Please include your project title and reference number in all correspondence with this committee.