

## The Arguments and Data in Favor of Minimum Grading

*JAMES CARIFIO AND THEODORE CAREY*  
University of Massachusetts-Lowell

The arguments and for and against minimum grading systems have grown increasingly more intense and acrimonious in the past decade. However, there has been an absence of empirical data, theory and clear comparative analyses of conflicting points of view. Critics of minimum grading contend that the practice will produce grade inflation and social promotions of *those students receiving minimum grades* as the two chief arguments against minimum grading practices. In our retrospective study, we found no evidence of grade inflation or social promotion of those students receiving minimum grades in a large urban High School using a school-wide *macro* minimum grading system over a seven-year period. We also found most of the benefits posited by minimum grading theory, including students who received minimum grades doing significantly better on state exams than would be predicted by the overall GPA's with the opposite results being true for the other students in this High School. The far-reaching implications of these results for educators looking to implement fairer and more accurate student assessment are discussed here, including the documented benefits of minimum grading as sound educational and grading policy, and the need of a minimum-grading component in any sound grading system.

School grading practices have long been the subject of heated discussion; yet, the debates concerning student assessment and teacher grading methods have grown more intense over the past decade. This increased attention comes as teachers, administrators, and parents realize that traditional grading schemes, in place and largely unchanged for over 100 years, are proving insufficient in meeting the demands of the 21<sup>st</sup> Century. Specifically, grading schemes instituted at a time when only a few advantaged students were either expected or allowed to advance to the higher levels of learning cannot adequately serve the increasingly diverse population of students found in today's schools – especially at a time when traditional rates of student attrition and failure are now deemed unacceptably high. Researchers and various educational theorists examining the need for grading reform have produced a large and growing body of literature that suggests several large-scale reforms (e.g., Brookhart, 2003; Guskey, 2006; Reeves, 2004; Wormeli, 2006). It is in this environment that increasing numbers of schools have begun experimenting with *minimum grading*, one common component of most recommended grading reforms. Minimum grading is a specific grading practice and/or policy that is focused on particular subgroups students who are unfairly failed due to intermittent performance failures that current grading systems “average out” (in one way or another) to a failing grade or grades. Minimum grading is *not* about all grading and grading practices and problems. Therefore, it is important to stay focused on the exact problem minimum grading is about and designed to address and not go off on other tangents, which is a common response of many relative to this topic and the specific problem minimum grading addresses, which is very narrowly focused and defined.

The origins of minimum grading can be found in a variety of strategies designed to address the different problems associated with students who post a first quarter grade so low that there remains little probability of the student passing a year long course, leaving few options for the student to recover or make effective use of the remaining school year (Craft, 1997; Dunham, 2008; Guskey, 2004). One popular and administratively easy to implement form of the practice involves raising catastrophically low student quarter or term grades to a predetermined minimum, which is typically a 50 on the 100-point grading scale. Although the student is still assigned a failing quarter grade, the student is left in a better position to recover from the early failure and eventually pass the course. This practice or “flavor” of minimum grading is referred to as *macro minimum grading*. In *micro minimum grading*, classroom teachers apply minimum grading to each individual test, quiz or assignment grade *during* the marking quarter, as opposed to waiting until the marking term ends. This article, it should be noted, focuses on *macro minimum grading*, as that is the level on which actual empirical data is available, although the operations of macro and micro minimum grading practices are not much different in theory (see Carifio & Carey, 2009 for details).

Students fail for many reasons, but minimum grading is a specific grading practice targeted at a very specific cause of student failure: poor performances early in the learning process that put the student in so deep of a hole that recovering is not a reasonable possibility. As such, minimum grading targets a small but well-defined subgroup of students. Further, students who consistently post failing grades *are not* likely to benefit from minimum grading. Nor will students who post consistently good grades. Only students whose failing performances are intermittent, and who are now failed when their course grade is unfairly skewed by one or two failing performances *will benefit* from receiving a minimum grade. Therefore, it is important to stay focused on the exact problem minimum grading is about and designed to address and not go off on other grade and grading related tangents, which is a common response of many relative to this topic and the specific problem minimum grading addresses, which is very narrowly focused and defined.

Proponents of minimum grading claim the practice does more than just pass a few students who would otherwise fail. They argue that minimum grading works to keep struggling students engaged in academic activities by contributing positively to student motivation – primarily through maintaining a healthy locus of control within the student and keeping hope alive that passing the course is still a possibility (Guskey, 1994, 2004; Reeves, 2004). Critics of these modified grading schemes argue that the practice is a softening of minimum competency requirements that offers an unfair and unearned assistance to low performing students, presents students with a falsely optimistic view of their abilities, and, by assigning grades that are not justified by demonstrated levels of academic performance, contributes to overall grade inflation and social promotion (Friess, 2008; Richmond, 2008).

In this article, we examine the practice of minimum grading in the larger context of the debates concerning grading reform. We evaluate the various claims made by proponents of minimum grading within a working framework of what constitutes accepted grading practice. Likewise, we test critics’ claims by examining the empirical evidence found in the records of one high school where school-wide minimum grading has been successfully implemented for over a decade. Our conclusion is that minimum grading is a low-cost, easy to implement reform that is based on sound educational and psychology theory. Further, it greatly benefits a small but important

subset of students in several different ways without negatively or deleteriously affecting other important factors and considerations.

We also argue that minimum grading is wise policy, as it both protects students and teachers by minimizing, if not neutralizing, the numerous extraneous factors that bias grades and grading, many of which are most often unintended and therefore can be difficult to check or minimize in other ways. It is this policy-related feature and function of “minimum” or “minimizing” in *minimum grading*, moreover, that may be its most important feature and contribution to instruction and education, particularly in situations where there is extensive student and/or teacher diversity, particularly in situations where there is extensive variation in student performances and/or teacher assessment practices as it builds in safe-guards and protections that help diminish the role of extraneous factors in grading students. The result is better accuracy and better equity in the grades assigned to students and a far lessened possibility that poor grades are due to teacher-bias, particularly on the average across many courses and semesters. It is these safeguarding features of minimum grading that should make it particularly attractive to teachers and administrators, as well as to students and parents.

### **Grades and Grading**

Increasingly, grades are made to serve a number of varied and conflicted purposes. Indeed, much of the controversy surrounding minimum grading (and grading in general) often centers on what constitutes the primary purposes of grading and whether grading itself is primarily *formative* or *summative* in nature. That is, do grades exist mainly to aid the student in the process of learning by providing the salient, formative feedback needed to inform future instructions and academic activities, or are grades mainly a means for ranking students against one another for the purposes of rationing future academic and professional opportunity? Much of the literature concerning grading acknowledges the primacy of providing grades that inform the learning process. Brookhart (2009) writes that, in an ideal world where the aims and goals of student assessment rest exclusively in providing the student with formative feedback during the learning process, there would be little need for the kinds of grading systems in common use today.

Complicating matters are the obligations of the school under the social contract to bear witness that students have mastered required skills. Communities that have made large investments in public education are expecting graduates to become self-sufficient and self-supporting, and expect schools to certify that this is indeed true. The current controversies surrounding grading in general and minimum grading in particular are better understood in this wider social context, rather than solely in the perspectives provided by educational models or learning theory. Similar to the current accountability trends in education and the establishing of state standards, current trends in grading reform cannot be fully understood without understanding the considerable social and political pressures on schools to provide clear and accurate assessments of student progress.

However, if student grades are to serve any of these informative purposes, they must provide a fair, undistorted and unbiased reporting of student academic progress and achievement. When schools assign grades that are inflated, skewed or simply based on uneven standards applied in an uneven manner, they cannot possibly fulfill these critical social responsibilities (Cherry &

Ellis, 2005). A review of the literature reveals that major contributors to such distortions are the wide variation in teacher-to-teacher grading methods evident in most schools and the inherent inequities found in the traditional 100-point grading scale (e.g., Brookhart, 2003; Guskey, 2006, Reeves, 2004; Wormeli, 2006).

The current implementations of 100-point grading stand in sharp contrast to the original use of the 100-point scale in the 19<sup>th</sup> century, when an average grade was assumed to be a 50, and grades either above 75 or below 25 were rare (Smallwood, 1935). Modern grading schemes more typically define an average grade as a 75 and set the passing threshold at 65. This non-linearity of scale not only increases the probability of an assigned grade being an *F*, but makes the grading process susceptible to having a few failing grades dominate a much larger number of passing grades (Guskey, 2002; Reeves, 2004). This non-linearity dramatically increases the likelihood for negative skewing, and virtually eliminates the possibility for any positive skewing, leaving a badly lopsided scale that is heavily gamed against the student.

In his book *Fair Isn't Always Equal*, Wormeli (2006) contends that student grades must align with “clear and consistent evidence” of student performance (p. 32). When a student’s performance is inconsistent, the 100-point grading scale, combined with the common practice of averaging, the results can be a grade unfairly skewed by one or two low, atypical performances. If these performances occur early in the marking term, then the significant trend of student improvement and even eventual complete mastery can be lost in the final assigned grade. Minimum grading was primarily designed to mediate this negative skewing.

Further, it should also be noted that some systems and grading approaches attempted to ameliorate the unfairness of traditional grading and such negative skewing by using weighted averages and capping how much certain assessment types can contribute the student’s final grade. However, such approaches are a tacit admission that minimum grading is needed and is minimum grading of a kind by the “back door.” Additionally, these weighted grading systems can often contribute to what Reeves (2008) calls *semester killers*; namely, single test or project grades that can make or break an entire course grade, leaving all other student work irrelevant or under-valued. If the student has a catastrophic one time failure on a very highly weighted item in the weighted average system used, this one event could unfairly skew the grade or even fail the student, resulting in the very same problem that the weighted averaging system was looking to prevent or at least minimize. Weighted or unweighted averaging is not the problem, nor is weighting by different classes and types of assessments and test, which also has all of the exact same problems as just pointed out for weighted averaging systems. The core and unavoidable problem is the effects of *intermittent catastrophic failures* on a student’s overall average and grade.

Another common misconception and misunderstanding of minimum grading is the often made argument that the need for minimum grading can simply be eliminated by switching from a 0 to 100 grading scale to a 0.0 to 4.0 grading scale as is commonly used in private schools and post-secondary institutions. Wormeli (2006, pp. 138–139) provides an extended and convincing argument that the 0.0 to 4.0 scale commonly used in colleges and universities is largely isomorphic to the 0 to 100 scale and that scaling is once again not the core problem. Although schools may consider switching to the 4.0 scale for a number of other reasons, Wormeli

demonstrates that short of setting a minimum threshold (i.e., grade) of *1.0* in the 4.0 scale, the skewing of student averages due to zeroes or low outlying scores will remain largely the same as the 0 to 100 point scale and unaddressed by such a change. The core problem is the effects of intermittent catastrophic events (i.e., failures), which are essentially *non-linear*, on the *linear* dynamics, operations and conceptualization of all current grading systems and practices that do not have a minimum grading component as part of their essentially and inherently linear system (see Carifio & Carey, 2009 for further details). In the end, the need for a minimum grading component, approach or policy in any grading system is unavoidable due to several different technical factors and human factors associated with both students and teachers as well.

By design, minimum grading is also effective in mediating the variation found in assigned grades that are due to teacher-to-teacher differences in grading methods. Brookhart's (1993, 1994) seminal studies of grading reveal wide variation in teacher grading practices and a larger than expected number of factors used when determining student grades. Although traditional tests and quizzes are almost always considered, other factors include evaluations of class participation, homework, projects, oral presentations, notebook reviews, labs and lab reports, effort, neatness, behavior and attendance – even a teacher's personal assessment of a student's traits and personal characteristics. Generally, the more complicated and complex grading structures grow, the less likely they are to be understood by students and parents and the more susceptible they become to gaming, bargaining, and unfair distortion. These variations, combined with the sheer number of factors that may influence assigned grades and the various weights these factors are assigned, results in a situation where a student's assigned grade may be as dependent on the method of grading as it is on the student's academic performance. In some cases, whether a student passes or fails may depend simply on which teacher is assigning the grade.

Attempts at grading reform and efforts to make report cards more meaningful for parents and students have had mixed success. Many of these reforms look to solve the problem by issuing separate assessments for different aspects of student performance. Guskey (2006) recommends assigning separate grades for “product, process, and progress” (p. 673) as one way to reduce the confounding that occurs when one grade is forced to serve too many purposes. Tomlinson and McTighe (2006) recommend separate grades for “*achievement of goals...progress toward goals, and...work habits*” (p. 135). However, these multiple grading schemes can often add yet another layer to an already complex student assessment process. The result is more work on the part of the classroom teacher and a mixed and confusing message being sent home to students and parents.

In attempting to address these unwanted variations in teacher grading methods, one must understand the effects of these variations on assigned grades. Again, the nature of the current 100-point grading scale, with passing defined as a *65* and average define as a *75*, implies that little of this teacher-to-teacher variance will be found at the high end of the scale, but instead will be concentrated at the lower end of the scale, where a disproportionate two-thirds of the 100-point scale represents a failing grade. The result is that these hodgepodge grading systems uniformly work against the student, more so against students whose performances are inconsistent across criteria and where an unusually poor performance in just one of the many factors used in determining a student grade will invariably skew the final average in a largely unintended and certainly unfair way. Think just for a moment of the effects on the final grade of

a marginally passing but quiet student when the teacher assigns a class participation grade of zero because the student does not partake in class discussions. School-wide minimum grading works to mediate this skewing and thus adds some much needed stability to assigned grades.

### **Motivation**

Although the arguments for minimum grading are most often made in terms of the mathematics of grading, proponents of the practice also contend that minimum grading can work to enhance student learning, in part by keeping students better engaged in academic activities by contributing positively to student motivation (Guskey, 2004; Wormeli, 2006). Although official school policies primarily discuss grading in terms of reporting student progress, educators have long noted the motivational aspects of grading, including an increase in student interest and performance in response to issued reports (Smallwood, 1935). More modern literature reveals that assigned grades affect student confidence, self-efficacy, motivation, and future performance (Brookhart, 1994; Docan, 2006; Guskey, 1994), factors that have long been acknowledged as major predictors of how much effort an individual will expend toward attaining a goal and how long the effort will be sustained (Bandura, 1977; 1997). Yet, traditional and still commonly used grading policies remain largely uninformed by accepted models of motivation, resulting in grading that often (and often unwittingly) produce opposite results from those intended (Covington, 1984; Kohn, 1993). Specifically under-considered in current grading schemes are the emotional effects that catastrophically low grades can have on student psyches.

It is more than a simple truism that as much can be learned in failing as in succeeding. Research shows that students who sustain effort, even in failure, are more likely to see failure as temporary and as part of the learning process and will indeed learn from their mistakes when the failure is not crushing (Roediger & Finn, 2010). However, these kinds of experiences are missing, and these traits are unlikely to be developed when students are put in situations of *hopeless failure*. The assigning of even a small number of catastrophically low grades, especially early in the marking term, before student self-efficacy can be established, can create this sense of helplessness.

Minimum grading actually empowers teachers and schools rather than disempowers them, as it lessens, dampens out and neutralizes most of the negatives aspects of grades and grading in school learning and in the behavioral processes while creating a climate of caring, hope and support, particularly for those student whose growth and development will most probably always be an intermittent and somewhat chaotic process and path. Minimum grading is a first step and key component in creating a *culture of compassion and caring* in a learning organization, classroom or school.

### **Grade Inflation and Social Promotion**

To the extent that minimum grading leads to the assigning of grades free of negative skewing and other distortions and are thus better aligned with student performance and achievement, minimum grading practices align with the primary informative purposes of grading. However, critics of the practice argue that by assigning grades beyond what is “earned,” minimum grading

over-reports student achievement, contributing to overall grade inflation, and inducing social promotion (e.g., Friess, 2008; Richman, 2008).

*Grade inflation* has become an omnibus term, used to describe a wide range of grading effects. Traditionally, *explicit grade inflation* referred to a theorized, overall increase in the level of assigned grades over time when there is no corresponding increase in academic performance. More recently, grade inflation has come to describe, “when a grade is viewed as being less rigorous than it ought to be” (Milton, Pollio, & Eison, 1986, p. 29). *Implicit grade inflation* refers to the assigning of grades that inappropriately over-report student academic performance due to changing teacher practice or institutional policies (Hu, 2006). One result of these changes can be *grade disparity*, when different grading practices are applied in an uneven or unfair manner, providing a systematic advantage (or disadvantage) to one group of students over another. These last definitions most closely echo the concerns of critics of minimum grading.

To determine if indeed minimum grading contributes to overall grade inflation or induces social promotion, we analyzed seven years of grading data from a large urban high school where school-wide minimum grading had been implemented for over a decade. In looking for possible evidence of grade inflation, we were careful not just to determine if minimum grading led to the assigning of grades that were higher than what would otherwise have been assigned, but specifically looked to determine if these assigned grades were over-reporting student academic achievement for students who received minimum grades as measured independently on state accountability tests.

The details and results of our completed analysis were recently published in *Educational Researcher* (Carey & Carifio, 2012). Our results indicated that, even after minimum grading has taken place, the grades assigned to struggling students were still *under-reporting* student academic achievement when compared to the better performing students who did not benefit from minimum grading. In fact, our results show that, after adjusting for grade point average, the students who had received minimum grades were *outperforming* their peers who had never received a minimum grade on the Massachusetts state exams. The Massachusetts State exams, it should be noted, have been rated the top state exams that measure academic achievement in the United States by the National Center for Education Statistics (NCES, 2007).

The importance of these results cannot be understated and these results carry implications far beyond the immediate questions concerning minimum grading. These results certainly contradict critics’ claims that struggling students are unfairly benefitting from minimum grading. Indeed, our results are consistent with claims found in the literature that common grading schemes can often lead to the assigning of punishingly low grades that are neither earned nor deserved (e.g., Reeves, 2004; Wormeli, 2006).

Likewise, we searched the school’s grading data for any evidence of social promotion resulting from the school’s minimum grading policies. Of the 343,425 sets of grades assigned to 10,958 students during the seven years included in the study, only 1159 sets (just 0.3%) began with the assigning of a minimum grade of 50 and ended with the student passing the course. Clearly, the number of passing grades issued as a direct result of the minimum grading policies at the studied high school could not possibly exceed this 0.3%. We also found that this number did not reach

the level of statistical significance at the  $p < 0.01$  level when the seven years of data is considered as a whole. Any claims that minimum grading was leading to large numbers of students passing courses they would otherwise be failing were clearly not true. Again, the empirical data analyses that justify these conclusions are presented in detail in the *Educational Researcher* article (Carey & Carifio, 2012).

Yet, even as we acknowledge that these 1159 cases where a student passed a course after being assigned a minimum grade represent a small and perhaps statistically non-significant number, we must stress that these results are anything but insignificant to the students, teachers, and administrators at the studied school. Administrators are well aware of not only the emotional costs, but also the financial costs of student failure. Tally the costs to the district each time a student is forced to repeat a failed course, attend summer school to complete a failed course, or be enrolled in a credit recovery program to make up failed courses. Multiply these costs by 1159 (or approximately 165 failed courses per year) and this will provide a conservative estimate of the monetary savings realized by the district by its implementation of its (low-to-no-cost) minimum grading policy. In the case of the high school we studied, this cost saving was roughly one million dollars over the seven-year period -- money that could be spent on other education activities.

Importantly, these cases were not concentrated in the grading records of a few struggling students. Over the seven years included in the study, 925 (8.4%) of the 10,958 students (or approximately 142 students each year) realized the immediate benefit of passing at least one course after being assigned a minimum grade. How many of these 925 would have been more likely to drop the course they eventually passed had they not received the minimum grade? How many would have been more likely to quit school altogether, rather than maintain efforts in classes where passing the course had become a virtual impossibility? Indeed, how many uncounted students stayed in classes that they still eventually failed, but remained better engaged in their academic pursuits and thus, were more likely to learn from their experiences, and thus were better prepared for future pursuits?

### **Concluding Thoughts**

Whenever attempts are made to address student failure, it must be remembered that students fail for many different reasons and therefore no single remedy or one reform is likely to magically eliminate student failure from our schools. One reason students fail is early catastrophic failure – when students get off to such a poor start that recovery seems an impossibility. Minimum grading was designed primarily to address this one reason.

The evidence presented here supports the claims that minimum grading is both a low-cost and low-risk strategy, is based on sound educational and psychology theory, and greatly benefits a small but important subset of students in several different ways without negatively or deleteriously affecting other important factors and considerations. Specifically, the evidence presented here supports the view that minimum grading works to mediate the inherent inequities of traditional grading schemes, but does so only on a limited scale and for a relatively small subset of students and in a way that does not induce grade inflation or social promotion.

Further, the results here align with a growing body of literature that reveals a conspicuous lack of evidence confirming the existence of grade inflation. Establishing the existence of grade inflation requires establishing not only that higher grades are being assigned, but also that these higher grades are undeserved. As discussed earlier, previous studies offer no consistent or compelling evidence that assigned grades are indeed significantly higher than those assigned ten, twenty or even fifty years ago, and the few studies that document such increases typically fail to eliminate any number of alternate explanations for these rises, including that possibility that students are indeed demonstrating higher levels of academic achievement. The results of these earlier studies, as do the analyses of the grading data from our subject school presented here, support previously published conclusions (Kohn, 2002) that the concerns over grade inflation are largely exaggerated, and that the disproportionate attention the topic receives in the popular press is unjustified.

As our recent study (Carey & Carifio, 2012) has clearly shown, grades are a measure of and reflect several extraneous factors other than just objective measures of achievement in both an inflating and deflating manner, and thus cannot be considered to be synonymous, isomorphic and in one-one correspondence with objective achievement. Minimum grading and minimum grading policies dampen down the influences of these extraneous factors and thus achieve affective and desired societal ends and goals that the 100-point grading system does not. Specifically, minimum grading dampens down and smoothes out various biases and problems in the teaching-learning process and in schools and actually *protects* teachers and schools and subsets of students in the current environment. This built-in *a priori* protection also produces positive affect and psychology safety and capital for teachers, students, parents, schools and other as well including policy makers. By focusing on these positive aspects of minimum grading and the other positive affective and long-term benefits of keeping students in schools (and the immediate and long-term costs saving of doing so), the many benefits of minimum grading and minimum grading as a macro level school policy become readily apparent.

Grading (and minimum grading) is only one aspect or component of a classroom (and school) *learning* management system, which in fact should be comprised of several important and interacting components. Unfortunately, too many teachers and principals and educational professionals and policy makers in particular see grading as the *only* classroom management system (or at least the most powerful or easiest to manipulate), which is the root of many problems. The concept of minimum grading is particularly challenging and even threatening to such educators, as it appears to be (at first glance) a major diminution of teacher authority, power of management and a major lessening or weakening of what is thought to be the major power and causal variable by such people for influencing and shaping student behavior.

The counter-intuitive irony, in fact, is that minimum grading actually makes grades and grading a more powerful variable in a total classroom and school learning management system while at the same time protecting the teacher as well as the student from various biases that are, consciously or unconsciously, operating in the grading process. By reducing teacher reliance on over-simplified models of using grades as rewards and punishments, minimum grading forces educators to focus on the other components of classroom learning management and the myriad of ways in which they interact and facilitate or impede or even prevent learning. Minimum grading is not the only component or tool in a classroom or school learning management system and that

is a point that needs to be clearly understood. It is a powerful component and tool in classroom and school management learning system for all of the many reasons we have stated and explicated.

Well-crafted policies are supposed to be purposeful, have explicit underlying theory and supporting evidence of some kind, and constitute a conscious design to achieve explicit goals with acceptable anticipated and unanticipated consequences. The current 100-point grading system does not meet these criteria, but most minimum grading systems do at both the macro and micro levels. Minimum grades and grading allows teachers and schools to shift roles and functions from being the *shop foreman* or *boss/paymaster* to being to being coach, counselor, mentor and guide to the learning process as well as teacher and evaluator. This shift in no way releases teachers or schools from their societal obligations of publically bearing witness to and warranting that achievement and desired social behaviors have occurred to levels stated that can be clearly and unambiguously interpreted by others.

Currently, minimum grading and minimum grading systems, as we have defined them, are the only approach and policy that achieves all of the criteria and ends of schooling and learning stated above while safeguarding equity by minimizing many of the major extraneous factors that often unfairly influence grading even if it is only for subsets of students and teachers. Minimum grading is a wise policy in a diverse society as well as in institutions that want to positively and concretely communicate a culture of caring, hope and compassion, while at the same time asserting that everyone in the end must meet the institution's minimum learning and outcome standards. Minimum grading is a policy that accomplishes so much at such small costs, while achieving such large savings in both financial and human capital terms, that one must really wonder why it is not the norm currently but rather both the classroom and institutional exception as one component of grading practices and policies at both levels.

### References

- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman and Co.
- Brookhart, S. M. (1993). Teachers' grading practices: Meaning and values. *Journal of Educational Measurement*, 30, 123-142.
- Brookhart, S. M. (1994). Teachers' grading: Practice and theory. *Applied Measurement in Education*, 7(4), 279-301.
- Brookhart, S. (2003). Developing measurement theory for classroom assessment purposes and uses. *Educational Measurement: Issues and Practice*, 22(4), 5-12.
- Brookhart, S. M. (2009). *Grading* (2nd ed.). New York: Merrill.
- Carey, T., & Carifio, J. (2012). The minimum grading controversy: Results of a quantitative study of seven years of grading data. *Educational Researcher*, 41(6), 201-208.

- Carifio, J., & Carey, T. (2009). A Critical Examination of Current Minimum Grading Policy Recommendations. *The High School Journal*, November-December, 23-37.
- Cherry, T. L., & Ellis, L. V. (2005). Does rank order grading improve student performance? Evidence from a classroom experiment. *International Review of Economics Education*, 4(1), 9-19.
- Covington, M. V. (1992). *Making the grade: A self-worth perspective on motivation and school reform*. New York: Cambridge University Press.
- Craft, H. (1997). Grading: The games we play. *Principal*, 77(2), 57-58.
- Docan, T. N. (2006). Positive and negative incentives in the classroom: An analysis of grading systems and student motivation. *Journal of Scholarship of Teaching and Learning*, 6(2), 21-40.
- Dunham, L. (2008). Why zeros should not be permitted. *Principal*, 87(3), 62.
- Friess, S. (2008, May 19). At some schools, failure goes from zero to 50. *USAToday*. Retrieved from <http://usatoday.com>
- Guskey, T. R. (1994). Making the grade: What benefits students? *Educational Leadership*, 52(2), 14-20.
- Guskey, T. R. (2002). Computerized gradebooks and the myth of objectivity. *Phi Delta Kappan*, 83(10), 775.
- Guskey, T. R. (2004). 0 alternatives. *Principal Leadership: High School Edition*, 5(2), 49-53.
- Guskey, T. R. (2006). Making high school grades meaningful. *Phi Delta Kappan*, 87(9), 670-675.
- Hu, S. (2006). Beyond grade inflation: Grading problems in higher education. *ASHE Higher Education Report Series*, 30(6). San Francisco: Jossey Bass.
- Kohn, A. (1993). *Punished by rewards: The trouble with gold stars, incentive plans, A's, praise and other bribes*. Boston: Houghton Mifflin Co.
- Kohn, A. (2002). The dangerous myth of grade inflation. *The Chronicle of Higher Education*, 49(11), B7.
- Milton, O., Pollio, H. R., & Eison, J. A. (1986). *Making sense of college grades*. San Francisco: Jossey-Bass.

- National Center for Education Statistics (2007). *Mapping 2005 state proficiency standards onto the NAEP scales* (NCES 2007-482). U.S. Department of Education. Washington, DC: Author.
- Reeves, D. R. (2004). The case against the zero. *Phi Delta Kappan*, 86(4), 324-326.
- Richmond, E. (2008, February 4). A floor for failing grades: Parents, educators debate whether kids should get 50 points for doing nothing. *Las Vegas Sun*. Retrieved from [www.lasvegassun.com](http://www.lasvegassun.com)
- Roediger, H., & Finn, B. (2010). The plusses of getting it wrong. *Scientific American Mind*, 21(1), 38-41.
- Smallwood, M. L. (1935). *An historical study of examinations and grading systems in early American universities*. Cambridge, MA: Harvard University Press.
- Tomlinson, C. A., & McTighe, J. (2006). *Integrating differentiated instruction & understanding by design: Connecting content and kids*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Wormeli, R. (2006). *Fair isn't always equal: Assessing and grading in the differentiated classroom*. Portland, ME: Stenhouse Publishers.