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Is Standards-Based Grading Effective?

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ABSTRACT

This analysis explores the essential criteria necessary to define standards-based grading (SBG) and to judge its effectiveness. Findings reveal that although many schools today are initiating SBG reforms, there's little consensus on what "standards-based grading" actually means. As a result, SBG implementation is widely inconsistent due to an array of factors, including varying and uneven guidance provided by SBG proponents. Without precisely knowing what defines SBG and the clear criteria for judging its effectiveness, uncertainty, confusion, frustration, and resistance are leading educators to abandon SBG efforts altogether. The researchers conclude that there are three essential criteria necessary to define SBG and to judge its effectiveness in schools. When these criteria are discussed, applied, and met consistently, findings indicate that SBG can effectively serve its primary purpose - as an important tool for communicating students' performance with students and parents.

We have to talk about standards-based grading.

Although many schools today are initiating standards-based grading reforms, little consensus exists about what "standards-based grading" (SBG) actually means (Knight & Cooper, 2019; Welsh, 2019). Well-intentioned education leaders dive headlong into what they have been told is SBG, a more effective means to approach grading, in hopes of resolving a variety of grading problems - particularly wide variation in teachers' grading policies and rampant inconsistency between students' grades and their scores on external measures of achievement. Yet all too often, SBG change efforts don't bring about anticipated improvements because they frequently begin with little or no discussion of the intended goals or specific success criteria. The resulting uncertainty, frustration, and resistance has led to public controversy and the subsequent

abandonment of efforts to implement any reforms in grading altogether (Miller, 2021; Murray, 2019; Rado, 2016; St. George, 2017).

To answer the question "Is standards-based grading effective?" requires 3 crucial steps. First, we must define "standards-based grading," specifying precisely what it is and what it is not. Second, we must identify clear criteria for judging the effectiveness of any system of grading and reporting. And third, we must determine how well standards-based grading meets those criteria.

What is standards-based grading?

Standards-based grading is simply the new name attached to grading systems in which students' achievement and progress in school are evaluated based on their proficiency in meeting clearly articulated learning standards (Tomlinson & McTighe, 2006). Other names include "competency-based grading" and "proficiency-based grading." The primary purpose of SBG is to accurately communicate what students have learned and are able to do, rather than simply tally the accumulation of points derived from different achievement indicators and noncognitive (behavioral) factors like work completion, attendance, and effort. Advocates describe SBG as a more accurate and more meaningful method of reporting on student learning than most traditional grading methods (O'Connor, 2017; Townsley & Buckmiller, 2016).

Welsh (2019) describes 3 defining criteria for SBG (also see, Guskey & Bailey, 2001, 2010). First, teachers report student performance based on key grade level or course standards rather than single content-area grades. Second, student achievement is communicated using a limited number of performance categories, usually 3 to 5, that describe students' progress toward learning expectations such as *Beginning* or *Proficient.* And third, academic achievement grades are reported separately from information related to noncognitive (behavioral) factors such as effort, homework completion, and class participation (Guskey, 1996). Some SBG proponents add a fourth criteria of multiple opportunities for students to demonstrate their proficiency (Beatty, 2013; Townsley & Buckmiller, 2016), but this relates more to assessment policies than to grading and reporting. Successful implementation of SBG depends on key stakeholders, especially teachers, students, parents, school leaders, district administrators, and school board members, having a clear understanding of these 3 criteria and the rationale behind them.

A century of research affirms that traditional grades are generally unreliable measures of students' academic performance (Brookhart et al., 2016), largely because most teachers include aspects of students' behavior in the grades they assign. In deciding students' report card grades, teachers typically consider data gathered from assessments, quizzes, compositions, and projects together with evidence of class participation, homework completion, effort, and attendance. To determine students' final grades, they sum across these weighted categories, determine a cumulative total, and then assign a grade based on that total. Teachers include noncognitive indicators in determining grades primarily as tools for behavior management. The result, however, is an amalgamated "hodgepodge" grade (Brookhart, 1991, p. 36) that is impossible to interpret accurately because it indiscriminately mixes achievement and noncognitive (behavioral) factors that may or may not be related.

With standards-based grading, grades communicate how well students have mastered specific learning standards (Iamarino, 2014; Link, 2013). Teachers who implement SBG no longer record a single grade for each subject area or course, but instead report students' performance on key standards assigned to a particular grade at the elementary level or course at the middle or high school levels. Students' performance is described using performance indicators that clarify learning expectations and allow teachers to communicate precisely how well students are meeting those expectations. These levels are sometimes distinguished on "performance rubrics," "proficiency scales" or "learning progressions," which typically include 3 to 5 levels that describe students' progress toward mastery of each standard. This continuum of learning allows teachers to more accurately communicate students' achievement and learning progress to parents, to students, and to others.

Does SBG improve student achievement?

Let's be clear: *No grading system by itself improves student learning*. Why would we expect it to? Changing grading does not alter the curriculum (i.e., what is taught) or instruction (i.e., how it is taught) - the 2 major factors that determine what and how well students learn. Grading is simply a way of communicating evaluations of the results of assessments and other evidence on students' performance. However, better grading can provide clearer and more accurate information on students' learning that then can be used as *a basis for making improvements*.

Standards-based grading provides a wealth of information to help teachers adjust their instruction based on evidence of students' performance. With SBG, teachers can see precisely which standards require more practice or additional instruction. As a result, they can better target their efforts to remedy learning gaps and address students' minor learning difficulties before they become major learning problems (Guskey & Link, 2019; Link, 2018). In addition, SBG helps students gain more precise feedback on their learning progress.

By ensuring achievement grades reflect students' performance on specific standards, teachers are compelled to be more transparent about those standards (McMillian, 2009). No longer will students have to guess what is important to learn or what needs to be done to meet expectations. With assessments aligned to specific standards, differentiated instruction becomes easier because of clearer assessment results and better information about students' learning needs. Teachers can clearly communicate each lesson's purpose and engage students in learning-centered conversations. With explicit performance expectations, students can take greater ownership of their learning and feel safer intellectually because they have the language to express *why* they are engaged in the work and *what they need to do* to be successful.

Despite its rationality and widespread popularity, SBG remains largely unstudied. As Welsh (2019) notes, although "many guidelines exist to advise practitioners on SBG implementation, these are largely based on the general research of grading" (p. 114). Empirical research that examines the strength of the association between standard-based grades and external measures of academic performance are just beginning to emerge (e.g., Fisher et al., 2011; Knight & Cooper, 2019; Selbach-Allen et al., 2020; Welsh et al., 2013). Although these studies show that SBG generally yields a stronger relationship between grades and external measures of student achievement, no evidence indicates that SBG *improves* student achievement. In addition, because

SBG is neutral with regard to the curriculum, it also does not compel teachers to focus on understanding, transfer, or other higher-level student learning goals or standards. Rather, it simply requires teachers to be explicit and transparent about the learning goals or standards.

Standards-based grading and classroom assessments

Although SBG is not about assessment policies and practices, poorly designed and untrustworthy assessments can make successful implementation of any grading system impossible. For grades to be accurate and meaningful, they must be based on reliable and valid assessment evidence. In essence, the quality of grades depends on the quality of the evidence (Guskey, 2015). Yet, contrary to popular belief, assessments and assessment practices themselves are not a part of the criteria that define SBG. That's because assessments and grading have different purposes. Assessments measure student performance. Grades communicate evaluations of assessment results.

Despite the separate aims of assessment and grading, some SBG proponents prescribe specific assessment practices under the SBG label. Notably, proponents stress assessment retakes and call for allowing students multiple opportunities to reassess until they demonstrate mastery of the standard(s). Their contention is that providing students with multiple opportunities to reassess improves their self-concept and builds relationships with teachers (Dueck, 2011), better prepares students for real life (Wormeli, 2011), and better communicates what students have learned rather than their ability to accumulate points (O'Connor, 2017). Nevertheless, there is little empirical evidence confirming these benefits. While quality assessments are necessary to ensure accurate and trustworthy grades, reassessments themselves don't bring about more accurate or trustworthy assessment results. Therefore, including this requirement in SBG initiatives not only adds confusion to what SBG actually means, it also can bring about unreliable outcomes. Furthermore, reassessment policies that allow for unlimited retakes can be unrealistic and ignite teacher push back and controversy, especially at the secondary level (Miller, 2021). Given vast curriculum coverage expectations, innumerable assessment retakes can cause burdensome workloads for teachers (Scarlett, 2018; Townsley, 2019).

Most importantly, if assessments are not well aligned with learning goals and standards, retaking the assessment will not improve student learning (Lalley & Gentile, 2009).

Assessments become meaningful when teachers use results to provide students with feedback on their learning progress and to guide efforts to improve the quality of their teaching. After all, assessments alone do little to improve student learning or teaching quality. How teachers and students *use the assessment results* is what matters most. Teachers must follow assessments with high-quality corrective instruction that is qualitatively different from their initial instruction, in order to help students remedy whatever learning errors the assessment identified (Bloom, 1968; Guskey, 1997, 2015). Only after that does a second chance for students to succeed on a reassessment become meaningful.

A recent study by Guskey and Link (2022) showed that teachers trust classroom assessment results as one of the most valid sources of evidence of students' learning. These assessments include formative assessments, quizzes, writing assignments, performances, and demonstrations.

Teachers trust the results from classroom assessments because of their direct relationship to classroom instructional goals for their students in their context. Plus, classroom assessments provide immediate results that are easy to analyze at the individual student level. Teachers can use classroom assessment results to determine every student's learning progress and then adjust their instruction for students' benefit. To ensure quality classroom assessments, however, teachers must first identify what type of evidence best reflects students' achievement of the learning goals.

Standards-based grading confusion

An array of factors contributes to SBG confusion (Welsh, 2019). As noted earlier, some educators erroneously include changes to classroom assessment practices as mandatory criteria under the SBG label. While reliance on classroom assessments is expected to assign grades, applying assessment practices, such as the use of common assessments or increasing the number of reassessment opportunities provided students, for example, doesn't automatically improve the accuracy or meaning of the grades derived from assessment results.

Additionally, unclear policies, starting with grading changes first, and inconsistent guidance, contribute to widespread SBG uncertainty and variation. Most often, SBG policies solely focus on the grading instruments: the rubrics, performance scales, and report cards - assuming all the other teaching and learning components are reliable and align to these instruments. As Guskey and Bailey (2001) indicate, common SBG policies answer structural questions such as:

1. How many levels of performance will be reported for each standard?
2. How will the levels be labeled?
3. How will the information be arranged on the scale or report?

Even with clear answers to these structural questions, many operational questions are left to individual interpretation which further clouds SBG. Educators must grapple with "unpacking" the curriculum standards process to determine what students should learn and be able to do. Yet, with so many standards to address and a finite amount of time in a given school year to teach all of them, many educators distinguish "essential" or "power" standards to help identify which standards are most critical at each grade level or course. The thinking is that an emphasis on power standards will shift teachers' instructional aims and students' learning focus to deeper, more complex, and higher cognitive skills. Yet, the problem is that everyone defines them differently and, as a result, everyone comes up with different "essential" or "power" standards. This lack of consistency inhibits meaningful understanding and clear communication.

Educators also add to SBG confusion by starting with changes to their report cards. Although seemingly counterintuitive, reporting practices should be the last thing to change with SBG because teachers cannot report on standards until everything else aligns with them. While the fundamental goal of SBG is clear - to grade students on specific skills using achievement-level descriptors, all the curricular, instructional and assessment practices used to generate these grades must be clearly addressed alongside grading and reporting policies to affect student performance. Problems arise when educators change grading practices and move ahead with

SBG and reporting without addressing the critical components of curriculum, instruction, and assessment first (Scarlett, 2018; Simon et al., 2010; Tierney et al., 2011; Townsley, 2019).

When reporting grades, some SBG proponents (Vatterott, 2015) stress that educators must eliminate noncognitive factors from students grades altogether (i.e., don't count homework or formative assessments), while others say they need to be reported separately (Schimmer, 2016) causing uncertainty regarding what to count and include in SBG reports. All combined, this leads to confusion, frustration, inconsistent implementation, and eventual abandonment of SBG initiatives.

Clarify the purpose

Only when curriculum standards are articulated and assessment procedures to measure those standards are in place can educators begin to develop standards-based grades and report cards. However, to successfully accomplish this, educators must first carefully determine the purpose of grading and the report card (Brookhart, 2011). This involves asking important questions such as "why do we assign grades to students' work?" and "why do we summarize evidence on students' performance and record those summaries on report cards?" When over 10,000 students, teachers, parents, school and district administrators, and support educators from 9 different school districts were asked in a survey "What is the primary purpose of grading?" the majority in all groups reported that the primary purpose of grading should be: (1) to provide information to students about their learning progress, and (2) to communicate information to parents about students' performance in school (Link & Guskey, 2022). In other words, grades should describe how well students have achieved the learning goals established for a grade level or course and reflect students' performance based on specific learning criteria. Efforts that begin by clarifying the purpose make intentions clear from the start. Educators can then use the agreed-upon purpose to guide all actions, procedures, policies, and practices together (Guskey & Bailey, 2001).

Criteria to determine grading & reporting effectiveness

If the primary purpose of grading is to communicate information to students and parents, then the criteria for determining SBG's effectiveness, or any system of grading and reporting, lies in *how well it serves as a communication tool for students and parents*. Those criteria must relate to accurate and effective communication with students and parents focused not on the comprehensiveness of the information communicated, but rather whether or not students and parents understand the information. Grades cannot be interpretable until those who use them understand what they mean. Therefore, using other success criteria such as documenting or quantifying student achievement to evaluate grading effectiveness is not appropriate because such criteria are misaligned with grading's primary purpose: *to communicate*. To be effective, SBG reports must hold meaningful communicative value for students and their parents. Over 100 years of research evidence supports this notion (Brookhart et al., 2016) and provides us 3 defining criteria to clarify the meaning of grades and from which to judge SBG's effectiveness:

Criterion 1: Report student performance based on key grade level or course standards rather than a single content-area grade

In a traditional grading system, points or percentages are recorded for each assignment or assessment, and all scores are averaged together to calculate a single course grade. In SBG, however, grades are based on students' proficiency on a predetermined set of skills derived from grade- or course-level standards with the goal of more clearly communicating students' academic strengths and weaknesses to students, parents, and other educators (Knight & Cooper, 2019; Scriffiny, 2008). For grades to be accurate descriptors of student performance, we must be clear about the performance being described. This means to achieve clear learning goals, educators must articulate with specificity what students should learn (content) and be able to do (process skills). Effective learning goals must include *both* of these components and be shared with everyone involved, including students and parents, to clarify what students need know and be able to demonstrate to be successful. Instead of a single grade, SBG report cards include multiple scores for each subject that reflect students' proficiency levels against several standards (Guskey et al., 2010).

Criterion 2: Report student achievement using a limited number of performance categories

While no measurement instrument is perfect, we can increase its reliability by increasing its accuracy. During air travel, for example, pilots have relied on concurrent cockpit tasks, grouped by category, to meet performance and safety expectations (Babu et al., 2019; Funk, 1991). Within each category, there's a detailed checklist outlining discrete tasks to be performed. Yet, with upgraded aviation technologies over the years, a rise in pilot task errors have contributed significantly to increased aircraft incidents and accidents. Several studies found that the error increase was directly attributable to the increased number of categorical groups added to address the complexities of new cockpit technologies. However, by limiting the number of task management categories, pilots were able to reduce their cognitive work complexity, and by doing so, increased their decision-making accuracy, improved communications with the flight crew, and satisfactorily flew more hours (Babu et al., 2019; Funk et al., 1998).

To increase accuracy, the same can be applied to grading reports. Educators assume that because the traditional percentage grading scale has 100 classification levels, or categories, it is more precise than a scale with just a few levels such as *Beginning*, *Progressing*, *Proficient*, and *Exemplary*. But in the absence of a truly accurate measurement instrument, adding more categories to the measurement instrument offers only the illusion of precision (Guskey, 2015). Instead, the large number of categories in the grading percentage scale and the careful discernment required in determining the differences among grade categories increases decision-making complexity, which allows for the greater influence of subjectivity, more error, and reduced reliability. When well-constructed, grading scales with fewer (i.e., 3 to 5) categories that clearly describe the discrete levels of student mastery or proficiency are not only more reliable, but also offer students and parents more accurate information to guide improvements.

Criterion 3: Report academic achievement grades separately from information related to noncognitive (behavioral) factors

In assigning grades, teachers typically divide the evidence they gather from students into different categories such as tests, quizzes, homework, labs, participation, effort, attendance, etc. Using a computerized grading program, they then assign a percentage weight to each category specifying its contribution to each student's subject area or course grade. As mentioned before, this combination of evidence yields an amalgamated "hodgepodge" or multi-factor grade that mixes achievement and other noncognitive factors related to various aspects of students' behavior. Including indicators of students' behavior distorts the meaning of grades, however, and drastically diminishes their communicative value. In addition, because teachers vary in the weight they attach to these factors in determining students' grades, it also makes grades less reliable indicators of students' performance.

A more useful and meaningful description of student performance includes multiple grades. A multiple grades approach purposefully separates achievement from noncognitive (behavioral) factors to allow for more clarity about the grading process and enriches the meaning of grades. Guskey (1996) advises grouping grade criteria into 3 broad categories: *product*, *process*, and *progress* learning criteria:

> *Product criteria* reflect *what* students know and are able to do at a particular point in time. Teachers who use product criteria typically base students' grades on final examination scores, final products (reports or projects), overall assessments, and other culminating demonstrations of learning.
>
> *Process criteria* emphasize behaviors that enable or facilitate learning. Teachers who consider effort or work habits when assigning grades are using process criteria. So are teachers who count formative assessments, homework, punctuality of assignments, class participation, or attendance.
>
> *Progress criteria* describe how much students gain from their learning experiences. Other names for progress criteria include "learning gain," "improvement scoring," "value-added learning," and "educational growth." Teachers who use progress criteria typically look at how much improvement students have made over a particular period of time, rather than just where they are.

After establishing explicit indicators of product, process, and progress learning criteria, teachers assign separate grades for each. In other words, they provide a "dashboard" of information rather than a single multi-factor grade. In this way, grades for homework, effort, work habits, responsibility or learning progress, for example, are kept distinct from grades that reflect academic achievement and performance. The intent is to provide a better, more accurate, and more comprehensive picture of what students accomplish in school. Notably, multiple grades guide teachers in providing more meaningful information to students and parents, facilitate enhanced communication between school and home, and offer more specific direction in efforts to improve student learning.

SBG as an effective communication tool

When viewed as a tool for bolstering communication with students and parents, SBG can be resoundingly effective. Implemented well, SBG meets all 3 success criteria as learning becomes the focal point of communication. In a recent study by Knight and Cooper (2019), teachers using SBG revealed that they noticed enhanced clarity, making communication more "transparent" and "open-ended" (p. 76). In particular, teachers pointed out effects of SBG on their being able to better interpret students' needs, students' understanding of the purposes and expectations for their learning, and the provision of clear feedback for students and parents.

Teachers in the study believed SBG not only enhanced their ability to articulate students' needs with others, especially parents, but also supported the work of special education teachers, paraprofessionals, and tutors. One study participant noted that, "the gradebook itself communicates better" because interested stakeholders could see a breakdown of how students performed on specific skills (p. 77) [Criterion 1]. For example, instead of labeling each assignment in the gradebook (e.g., "Chapter 2 Quiz" or "Act III Test" or "U.S. Map Activity"), teachers entered scores for each specific standard (e.g., "simplify square roots" or "identify elements of a play" or "use cardinal and intermediate directions"). By additionally using scales with fewer performance categories, all study participants emphasized that assessment feedback became more precise and actionable [Criterion 2]. Participants indicated that "a benefit of SBG is that feedback is grounded in the measuring tool," pointing out there were "really no questions about, 'What do I have to change?' because students clearly saw the specific descriptors" listed under each category (p. 77). With SBG, teachers reported student grades with more confidence because it was easier to discriminate student's level of mastery within 4 performance categories rather than 100 used in the traditional percentage scale. For teachers involved in the study, the clearer the gradebook, the better they were able to clarify learning purposes to students during instruction and align parental support for struggling students. As a result, students and parents had greater insight into the expectations required to perform successfully.

In their grading surveys, Link and Guskey (2022) found that the majority of students, teachers, parents, and other educators involved want to see more nuanced information than what's commonly included in traditional report cards. Survey participants, representing all grade levels, indicate they desire grade reports that include noncognitive (behavioral) factors such as effort, responsibility, participation, and homework completion to gain the most comprehensive understanding of all aspects of students' performance in school [Criterion 3]. SBG reports meet this desired communication by providing aspects of both specific grade-level, course learning goals or standards, and information describing aspects of students' behavior together, side-by-side, and within one reporting device. Although scores on students' behaviors do not reflect learning or achievement per se, they communicate vital information about behaviors that assist learning and are important for both students' and parents' understanding. (Guskey, 2015; Link & Guskey, 2019).

Data on SBG reports can also provide better insight into students' achievement scores. For example, if a student has low scores on class participation and homework completion, these noncognitive (behavioral) factors are important indicators as to why the student is performing poor academically. Additionally, if students have low scores on homework completion, but are

performing well academically, this provides insight into the value and utility of the assigned homework. Students may instead benefit from enrichment or alternative work that extends students' learning. Having students' noncognitive (behavioral) scores included in SBG reports alongside academic scores provides clearer direction for improvement.

Meaningful communication

To successfully implement SBG reforms, start by having informed conversations about what defines SBG and what makes it effective. By understanding that SBG, and all grading and reporting systems, are simply communication tools used to clarify students' performance, educators can cut through the confusion by disentangling notions that SBG requires complex work to get it right. Effective SBG doesn't depend on the number of reassessments offered students or the removal of noncognitive (behavioral) factors from report cards because these criteria aren't what define SBG. Effective SBG depends on the communicative value of grades, determined by how well students and parents *understand* the grading information being reported. By using SBG's 3 defining criteria: (1) reporting student performance based on grade level or course standards, (2) reporting student achievement using a limited number of performance categories, and (3) reporting academic grades separately from noncognitive (behavioral) grades, we can come to consensus on what it takes to implement meaningful SBG and to determine its effectiveness in schools.

Additional Resources

1. **Link, L. J., & Kauffman, K. D. (2021). Are your grading policies legally sound? How to avoid court entanglements when student grades are challenged.** ***School Administrator, 5*****(78), 45- 48.**

   This article explores parents' increasing dissatisfaction with traditional grading practices. Using relevant court rulings, five guidelines are provided to help educators establish grading policies and practices that are not only legally sound but fair, equitable, and meaningful.

2. **Guskey, T. R. (2020).** ***Get Set Go! Creating Successful Grading and Reporting Systems.*** **Solution Tree.**

   This book provides practical, comprehensive, and research-based action steps educators need to take to make impactful and lasting changes to their grading and reporting practices. It helps readers understand why we need to make grading improvements and how to accomplish those changes successfully.

3. **Guskey, T. R., & Brookhart, S. M. (Eds.) (2019).** ***What We Know About Grading: What Works, What Doesn't, and What's Next?*** **Association for Supervision and Curriculum Development.**

   This book combines 100-plus years of grading research and represents the broadest and most comprehensive summary of research on grading and reporting available to date. Four major

themes emerge from this research, providing readers evidence-based direction and actionable strategies to improve grading and reporting in their schools.

References

Babu, M. D., JeevithaShree, D. V., Prabhakar, G., Saluja, K. P. S., Pashilkar, A., & Biswas, P. (2019). Estimating pilots' cognitive load from ocular parameters through simulation and in-flight studies. *Journal of Eye Movement Research, 12*(3), 1–16. https://doi.org/10.16910/jemr.12.3.3 [Web of Science ®], [Google Scholar]

Beatty, I. D. (2013). Standards-based grading in introductory university physics. *Journal of the Scholarship of Teaching and Learning, 13*(2), 1–22. https://eric.ed.gov/?id=EJ1011679 [Google Scholar]

Bloom, B. S. (1968). Learning for mastery. *Evaluation Comment, 1*(2), 1–12. https://eric.ed.gov/?id=ED053419 [Google Scholar]

Brookhart, S. M. (1991). Grading practices and validity. *Educational Measurement: Issues and Practice, 10*(1), 35–36. https://doi.org/10.1111/j.1745-3992.1991.tb00182.x [Crossref], [Google Scholar]

Brookhart, S. M. (2011). *Grading and learning. Practices that support student achievement*. Solution Tree Press. [Google Scholar]

Brookhart, S. M., Guskey, T. R., Bowers, A. J., McMillan, J. H., Smith, J. K., Smith, L. F., Stevens, M. T., & Welsh, M. J. (2016). A century of grading research: Meaning and value in the most common educational measure. *Review of Educational Research, 86*(4), 803–848. https://doi.org/10.3102/0034654316672069 [Crossref], [Web of Science ®], [Google Scholar]

Dueck, M. (2011). How I broke my rule and learned to give retests. *Educational Leadership, 69*(3), 72–75. [Web of Science ®], [Google Scholar]

Fisher, D., Frey, N., & Pumpian, I. (2011). No penalties for practice. *Educational Leadership, 69*(3), 46–51. [Web of Science ®], [Google Scholar]

Funk, K. H. (1991). Cockpit task management: Preliminary definitions, normative theory, error taxonomy, and design recommendations. *The International Journal of Aviation Psychology, 1*(4), 271–285. https://doi.org/10.1207/s15327108ijap0104_2 [Taylor & Francis Online], [Google Scholar]

Funk, K. H., Suroteguh, C., Wilson, J., & Lyall, B. (1998). *Flight deck automation and task management*. Proceedings of the IEEE 1998 International Conference on Systems, Management, and Cybernetics. [Crossref], [Google Scholar]

Guskey, T. R. (1996). Reporting on student learning: Lessons from the past - prescriptions for the future. In T. R. Guskey (Ed.), *Communicating student learning: 1996 yearbook of the association for supervision and curriculum development* (pp. 13–24). Association for Supervision and Curriculum Development. [Google Scholar]

Guskey, T. R. (1997). *Implementing mastery learning* (2nd ed.) Wadsworth. [Google Scholar]

Guskey, T. R. (2015). *On your mark: Challenging the conventions of grading and reporting*. Solution Tree. [Google Scholar]

Guskey, T. R., & Bailey, J. M. (2001). *Developing grading and reporting systems for student learning*. Corwin. [Google Scholar]

Guskey, T. R., & Bailey, J. M. (2010). *Developing standards-based report cards*. Corwin Press. [Google Scholar]

Guskey, T. R., & Link, L. J. (2019). Exploring the factors teachers consider in determining students' grades. *Assessment in Education: Principles, Policies & Practice, 26*(1), 23–30. [Google Scholar]

Guskey, T. R., & Link, L. J. (2022). Feedback for teachers: What evidence do teachers find most useful? *Journal of Scholarship & Practice, 4*(4), 9–20. http://dx.org.ezproxy.library.und.edu/10.1080/0969594X.2018.1555515 [Taylor & Francis Online], [Google Scholar]

Guskey, T. R., Swan, G., & Jung, L. (2010). *Developing a statewide, standards-based student report card: A review of the Kentucky initiative*. Paper presented at the 2014 Annual Meeting of the American Educational Research Association, Philadelphia. [Google Scholar]

Iamarino, D. L. (2014). The benefits of standards-based grading: A critical evaluation of modern grading practices. *Current Issues in Education, 17*(2), 1–10. http://cie.asu.edu/ojs/index.php/cieatasu/article/view/1234 [Google Scholar]

Knight, M., & Cooper, R. (2019). Taking on a new grading system: The interconnected effects of standards-based grading on teaching, learning, assessment, and student behavior. *NASSP Bulletin, 103*(1), 65–92. https://doi.org/10.1177/0192636519826709 [Crossref], [Google Scholar]

Lalley, J. P., & Gentile, J. R. (2009). Classroom assessment and grading to assure mastery. *Theory Into Practice, 48*(1), 28–35. https://doi.org/10.1080/00405840802577577 [Taylor & Francis Online], [Web of Science ®], [Google Scholar]

Link, L. J. (2013). Rescaling and rethinking grading. *Tennessee Educational Leadership, 40*(1), 25–31. [Google Scholar]

Link, L. J. (2018). Teachers' grading perceptions: How pre-service training makes a difference. *Journal of Research in Education, 27*(2), 62–91. https://eric.ed.gov/?id=EJ1168160 [Google Scholar]

Link, L. J., & Guskey, T. R. (2019). How traditional grading contributes to student inequities … and how to fix it. *Curriculum in Context, 45*(1), 12–19. http://dx.org.ezproxy.library.und.edu/10.1080/0969594X.2018.1555515 [Taylor & Francis Online], [Google Scholar]

Link, L. J., & Guskey, T. R. (2022). *Grading and assessment survey*. Grading Rx. https://gradingrx.com/ [Google Scholar]

McMillian, J. H. (2009). Synthesis of issues and implications for practice. In T. R. Guskey (Ed.), *Practical solutions for serious problems in standards-based grading* (pp. 105–120). Corwin. [Google Scholar]

Miller, A. M. (2021, December 29). Virginia teachers fire back after school district mulls implementing more ‘equitable’ grading system. Fox News. Retrieved June 7, 2022, from https://www.foxnews.com/politics/virginia-teachers-fire-back-after-school-district-mulls-implementing-more-equitable-grading-system [Google Scholar]

Murray, C. (2019, May 23). *Parents oppose standards-based grading system*. KPCW. Retrieved March 3, 2022, from https://www.kpcw.org/local-news/2019-05-23/parents-oppose-standards-based-grading-systemon [Google Scholar]

O’Connor, K. (2017). A case for standards-based grading and reporting. *School Administrator*, *74*(1), 24–28. [Google Scholar]

Rado, D. (2016, June 6). Parents push back against school report cards with no letter grades. *Chicago Tribune*. Retrieved March 1, 2022, from https://www.chicagotribune.com/news/breaking/ct-middle-school-grades-met-20160601-story.html [Google Scholar]

Scarlett, M. H. (2018). “Why did I get a C?”: Communicating student performance using standards-based grading. *Insight: A Journal of Scholarly Teaching, 13*, 59–75. https://doi.org/10.46504/14201804sc [Crossref], [Google Scholar]

Schimmer, T. (2016). *Grading from the inside out*. Solution Tree Press. [Google Scholar]

Scriffiny, P. L. (2008). Seven reasons for standards-based grading. *Educational Leadership, 66*(2), 70–74. http://www.ascd.org.ezproxy.library.und.edu/portal/site/ascd [Web of Science ®], [Google Scholar]

Selbach-Allen, M. E., Greenwald, S. J., Ksir, A. E., & Thomley, J. E. (2020). Raising the bar with standards-based grading. *PRIMUS*, *30*(8–10), 1110–1126. https://doi.org/10.1080/10511970.2019.1695237 [Taylor & Francis Online], [Google Scholar]

Simon, M., Tierney, R. D., Forgette-Giroux, R., Charland, J., Noonan, B., & Duncan, R. (2010). A secondary school teacher’s description of the process of determining report card grades. *McGill Journal of Education, 45*(3), 535–554. https://doi.org/10.7202/1003576ar [Crossref], [Google Scholar]

St. George, D. (2017, September 17). Report cards: “P” is for perplexing. Traditional grades make a comeback. *Washington Post*. Retrieved February 16, 2022, from https://www.washingtonpost.com/local/education/report-cards-p-is-for-perplexing-traditional-grades-make-a-comeback/2017/09/17/65a1a2ce-9725-11e7-82e4-f1076f6d6152_story.html [Google Scholar]

Tierney, R. D., Simon, M., & Charland, J. (2011). Being fair: Teachers’ interpretations of principles for standards-based grading. *The Educational Forum*, *75*(3), 210–227. https://doi.org/10.1080/00131725.2011.577669 [Taylor & Francis Online], [Google Scholar]

Tomlinson, C. A., & McTighe, J. (2006). *Integrating differentiated instruction & understanding by design: Connecting content and kids*. Association for Supervision and Curriculum Development. [Google Scholar]

Townsley, M. (2019). Considering standards-based grading: Challenges for secondary school leaders. *Journal of School Administration Research and Development*, 4(1), 35–38. https://doi.org/10.32674/jsard.v4i1.1941 [Google Scholar]

Townsley, M., & Buckmiller, T. (2016, January). *What does the research say about standards-based grading?* http://mctownsley.net/standards-based-grading-research/ [Google Scholar]

Vatterott, C. (2015). *Rethinking grading*. Association for Supervision and Curriculum Development. [Google Scholar]

Welsh, M. E. (2019). Standards-based grading. In T. R. Guskey & S. M. Brookhart (Eds.), *What we know about grading* (pp. 113–144). Association for Supervision and Curriculum Development. [Google Scholar]

Welsh, M. E., & D'Agostino, J. V. (2009). Fostering consistency between standards-based grades and large scale assessment results. In T. R. Guskey (Ed.), *Practical solutions for serious problems in standards-based grading* (pp. 75–104). Corwin. [Google Scholar]

Welsh, M. E., D'Agostino, J. V., & Kaniskan, R. (2013). Grading as a reform effort: Do standards-based grades converge with test scores? *Educational Measurement: Issues and Practice, 32*(2), 26–36. https://doi.org/10.1111/emip.12009 [Crossref], [Web of Science ®], [Google Scholar]

Wormeli, R. (2011). Redos and retakes done right. *Educational Leadership, 69*(3), 22–26. http://www.ascd.org.ezproxy.library.und.edu/publications/educational-leadership/nov11/vol69/num03 [Web of Science ®], [Google Scholar]