The Case Against the Zero

Even those who subscribe to the "punishment" theory of grading might want to reconsider the way they use zeros, Mr. Reeves suggests.

BY DOUGLAS B. REEVES

THIS IS not a trick question. If you are using a grading scale in which the numbers 4, 3, 2, 1, and 0 correspond to grades of A, B, C, D, and F, then what number is awarded to a student who fails to turn in an assignment? If you responded with a unanimous chorus of "zero," then you may have a great deal of company. There might be a few people who are familiar with the research that asserts that grading as punishment is an ineffective strategy,[1] but many of us curmudgeons want to give the miscreants who failed to complete our assignments the punishment that they richly deserve. No work, no credit — end of story.

Missing assignment: **F**

Groups as diverse as the New York State United Teachers and the Thomas Fordham Foundation rally around this position.[2] Let us, for the sake of argument, accept the point. With the grading system described above, the failure to turn in work would receive a zero. The four-point scale is a rational system, as the increment between each letter grade is proportionate to the increment between each numerical grade — one point.

But the common use of the zero today is based not on a four-point scale but on a 100-point scale. This defies logic and mathematical accuracy. On a 100-point scale, the interval between numerical and letter grades is typically 10 points, with the break points at 90, 80, 70, and so on. But when the grade of zero is applied to a 100-point scale, the interval between the D and F is not 10 points but 60 points. Most state standards in mathematics require that fifth-grade students un-

DOUGLAS B. REEVES is the chairman and founder of the Center for Performance Assessment, Boston, Mass. His most recent publications are Assessing Educational Leaders *(Corwin Press, 2004) and* Accountability for Learning *(Association for Supervision and Curriculum Development, 2004).*

derstand the principles of ratios — for example, A is to B as 4 is to 3; D is to F as 1 is to zero. Yet the persistence of the zero on a 100-point scale indicates that many people with advanced degrees, including those with more background in mathematics than the typical teacher, have not applied the ratio standard to their own professional practices. To insist on the use of a zero on a 100-point scale is to assert that work that is not turned in deserves a penalty that is many times more severe than that assessed for work that is done wretchedly and is worth a D. Readers were asked earlier how many points would be awarded to a student who failed to turn in work on a grading scale of 4, 3, 2, 1, 0, but I'll bet not a single person arrived at the answer "minus 6." Yet that is precisely the logic that is employed when the zero is awarded on a 100-point scale.

There are two issues at hand. The first, and most important, is to determine the appropriate consequence for students who fail to complete an assignment. The most common answer is to punish these students. Evidence to the contrary notwithstanding, there is an almost fanatical belief that punishment through grades will motivate students. In contrast, there are at least a few educators experimenting with the notion that the appropriate consequence for failing to complete an assignment is to require the student to complete the assignment. That is, students lose privileges — free time and unstructured class or study-hall time — and are required to complete the assignment. The price of freedom is proficiency, and students are motivated not by threats of failure but by the opportunity to earn greater freedom and discretion by completing work accurately and on time. I know my colleagues well enough to understand that this argument will not persuade many of them. Rewards and punishments are part of the psyche of schools, particularly at the secondary level.

But if I concede this first point, the second issue is much more straightforward. Even if we want to punish the little miscreants who fail to complete our assignments — and I admit that on more than one occasion with both my students and my own children, my emotions have run in that direction — then what is the fair, appropriate, and mathematically accurate punishment? However vengeful I may feel on my worst days, I'm fairly certain that the appropriate punishment is not the electric chair. Even if I were to engage in a typically fact-free debate in which my personal preference for punishment were elevated above efficacy, I would nevertheless be forced to admit that giving a zero on a 100-

point scale for missing work is a mathematical inaccuracy.

If I were using a four-point grading system, I could give a zero. If I am using a 100-point system, however, then the lowest possible grade is the numerical value of a D, minus the same interval that separates every other grade. In the example in which the interval between grades is 10 points and the value of D is 60, then the mathematically accurate value of an F is 50 points. This is not — contrary to popular mythology — "giving" students 50 points; rather, it is awarding a punishment that fits the crime. The students failed to turn in an assignment, so they receive a failing grade. They are not sent to a Siberian labor camp.

There is, of course, an important difference. Sentences at Siberian labor camps ultimately come to an end, while grades of zero on a 100-point scale last forever. Just two or three zeros are sufficient to cause failure for an entire semester, and just a few course failures can lead a student to drop out of high school, incurring a lifetime of personal and social consequences.

This issue is as emotional as anything I have encountered since the phonics versus whole language debate. Scholars regress to the persuasive tactics of professional wrestlers (no offense intended to wrestlers — this article will generate enough hate mail as it is), and research and logic are subordinated to vengeance masquerading as high standards. Because the emotional attachment to the zero is so strong, I have given up advocating that 50 points should represent the lowest grade. What I do think we can do to preserve some level of sanity in our grading system is to return to a four-point system. A's no longer equal 100 points, but four points. If there is a need for greater specificity, then we can choose an infinite number of digits to the right of the decimal point and thus differentiate between the 3.449 and 3.448 to our heart's content. But at the end of the day in such a system, the F is a zero — one point below the D. It is fair, accurate, and, some people may believe, motivational. But at least the zero on a four-point scale is not the mathematical travesty that it is when applied to a 100-point system.

1. Thomas R. Guskey and Jane M. Bailey, *Developing Grading and Reporting Systems for Student Learning* (Thousand Oaks, Calif.: Corwin Press, 2001).
2. Clarisse Butler, "Are Students Getting a Free Ride?," *New York Teacher*, 2 June 2004, available at www.nysut.org/newyorkteacher/2003-2004/040602grading.html; and Thomas B. Fordham Foundation, "Minimum Grades, Minimum Motivation," *The Education Gadfly*, 3 June 2004, available at www.edexcellence.net/foundation/gadfly/issue.cfm?id=151#1850.