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.

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-

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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 per-
sistence of the zero on a 100-point scale indicates that
many people with advanced degrees, including those
with more background in mathematics than the typi-
cal 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 ear-
lier 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 im-
portant, is to determine the appropriate consequence
for students who fail to complete an assignment. The
most common answer is to punish these students. Evi-
dence to the contrary notwithstanding, there is an al-
most 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 fre-
dom 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 un-
terstand 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 pun-
ish the little miscreants who fail to complete our assign-
ments — and I admit that on more than one occasion
with both my students and my own children, my emo-
tions 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 pun-
ishment were elevated above efficacy, I would never-
theless be forced to admit that giving a zero on a 100-
point scale for missing work is a mathematical inaccu-

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 be-
betw 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. Sen-
tences at Siberian labor camps ultimately come to an
end, while grades of zero on a 100-point scale last for-
ever. Just two or three zeros are sufficient to cause fail-
ure 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 encoun-
tered since the phonics versus whole language debate.
Scholars regress to the persuasive tactics of professional
wrestlers (no offense intended to wrestlers — this arti-
cle 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. As
no longer equal 100 points, but four points. If there is
a need for greater specificity, then we can choose an in-
finitie 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, moti-
vational. 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 Re-
porting Systems for Student Learning (Thousand Oaks, Calif.: Corwin

2. Clarisse Butler, "Are Students Getting a Free Ride?," New York Teach-
040602grading.html; and Thomas B. Fordham Foundation, "Mini-
mum Grades, Minimum Motivation," The Education Gadfly, 3 June
151&1850.
## Grading Scales

<table>
<thead>
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<th>50-100</th>
<th>0 -100</th>
<th>0 -12/11</th>
<th>0 – 4.00</th>
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<td>90-100</td>
<td>93-100</td>
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<td>80-89</td>
<td>87-89</td>
<td>A- 10</td>
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<td>83-86</td>
<td>B+ 9</td>
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<td>B</td>
<td>80-82</td>
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