

## Grading issues... The Use of Zero

One of the hardest things about teaching is having to decide a grade based on various types of assignments, assessments, and projects. Many teachers report that the job they dislike most about teaching is the determination of grades. There are as many "grading questions" as there are teaching styles, and we at CLI are frequently asked for advice on these issues. A question that has continued to surface recently has to do with allocating a zero for student work not submitted. CLI's response to this question is that there are too many variables contributing to grades to recommend one answer that fits all cases. This e-hint deals with some of those variables.

Ken O'Connor is a highly respected author and speaker on the topics of assessment and grading, and we at CLI basically agree with his philosophies. However, we have found that numerous educators have used some of his examples too narrowly, and have not thought through the variables referred to above. For example, in his book [How to Grade for Learning](#), O'Connor tells us zeroes pose a problem because of their extreme effect on overall grades. He demonstrates with the following example.

"In a high school that issues report cards after 4 ½ weeks, grades in one subject were based on five scores. One student, whom I shall call Janice, received scores of 90, 0, 82, 72, and 76. The mean score is 64%, and the passing grade in the state is 70%, so Janice received an F. This happened because the extreme score of 0 had a disproportionate impact on the average and because there is a 70-point differential between the D/F cut point and 0 compared with a 10-point differential between the other cut points (D/C, C/B, and B/A). In the interest of mathematical accuracy, the lowest possible score should be no more than the differential between the other cut points."

This example does indeed make the zero have a bigger impact on the overall grade than any of the completed assignments. However, it assumes that all the assignments are 100-point assignments and thus basically is the same as averaging averages, which O'Connor questions as a "fair" method. This example is a true reflection of the effect of zeroes when the grading method depends on averaging averages. To correct the problem, O'Connor recommends allocation of a 60 for those assignments not submitted.

However, it is quite rare for all assignments to be based on 100 points. Another approach to consider is the possibility that the assignments could be recorded to represent their varied numbers of points. For instance, if Janice had had five assignments and accumulated the following scores – 270/300(90%), 0/40 (0%), 50/60 (82%), 11/15 (72%), and 54/70 (76%) – her grade would be 385/485 (79%). If, instead, all scores were recorded as averages (% scores), her average using the 60% for an assignment she did not submit would be 76%. The difference between the two methods is the weight of the assignment in terms of points. In O'Connor's example above, each of the assignments was worth 100 points – thus all assignments were of equal weight in the overall grade. In the sample we've provided here, each assignment had weight based solely on the number of points contributing to the total. In this sample, each *point* has the same weight, not each *assignment*.

Also consider that in O'Connor's example only five scores were accumulated for 4 ½ weeks of classroom work. Since 4 ½ weeks would probably represent 23 days of class time, this would lead us to the conclusion that these scores were probably all assessment scores. At CLI, we recommend that assessment scores should *not* be zeroed. Assessments are administered after students have had adequate instruction and practice, and the student must now be held accountable to demonstrate learning as required.

On the other hand, if Janice's scores were *not* all assessments, then there is probably inadequate representation of assignments. We recommend that students be given ample opportunities to practice the work for which they will ultimately be held accountable, and we agree with O'Connor that not all practice work needs to be recorded as a grade. But if only a few assignments are recorded, then each one carries a great deal of weight (and thus the zero becomes a problem). If *any* assignments are going to be recorded, then there must be enough of them for balance. Each additional assignment continually "dilutes" the effect of the zero. Another alternative is to select the "best" score for each practice set. For example, if students have three assignments related to one concept, only the best score of the three is recorded. (Obviously, the zero would not be the best score.)

For all of these reasons, we recommend that practice or "daily" assignments should only be zeroed if careful consideration is given to the overall grading policy and the following conditions are true.

- Assignments are recorded as raw points and not as averages.
- Assignments are frequent and any one assignment contributes only a small proportion of the overall points. A single assignment should certainly not drop an overall grade a full range.
- Assignments do not directly contribute to the scores used to determine mastery of the outcome.

There is, obviously, no "right" answer. However, there should be careful consideration of the numerical implications of any grading practice to insure accuracy and fairness in the determination of a grade.