

## Grading vs. Assessment of Learning Outcomes: What's the difference?

There is often confusion over the difference between grades and learning assessment, with some believing that they are totally unrelated and others thinking they are one and the same. The truth is, it depends. Grades are often based on more than learning outcomes. Instructors' grading criteria often include behaviors or activities that are not measures of learning outcomes, such as attendance, participation, improvement, or effort. Although these may be correlated with learning outcomes, and can be valued aspects of the course, typically they are not measures of learning outcomes themselves.<sup>1</sup>

However, assessment of learning can and should rely on or relate to grades, and so far as they do, grades can be a major source of data for assessment. To use grades as the basis for learning outcomes, grades would first have to be decomposed into the components that are indicators of learning outcomes and those that are indicators of other behaviors. Second, grades would have to be based on clearly articulated criteria that are consistently applied. Third, separate grades or subscores would have to be computed for the major components of knowledge and skills so that evidence of students' specific areas of strength and weakness could be identified. For example, although 30% of a class may receive a grade of B, the group may all have shown a very high level of competence on one skill set but only moderate achievement in another. This kind of strength and weakness assessment provides feedback that is useful to students because it can guide and focus their practice, to the instructor, because it can reveal topics and skills that require further instructional activities, and to the department, because it can guide potential changes in curriculum to appropriately address areas of strength and weakness.

This kind of analysis is not the same as producing sub scores for different course activities, such as a score for homework, one for exams, and another for projects. These are different methods of assessment, and each of them may assess multiple skills and abilities and may overlap with each other in terms of what knowledge and skills they assess. To accurately assess learning outcomes, each type of assessment (i.e., exam, project, programming assignment, etc), would need to be analyzed in terms of the different skills it addresses and scores across the various types of assessment activity would have to be compiled and assigned for each of the skills.

For example:

Items 1, 4, 5 and 9 on an exam and homework 2 might all deal with the ability to identify the appropriate strategy to apply in a given problem context. The combined score from those items would comprise the "identify solution strategy" score.

Many instructors already have this information to some degree but discard it when computing overall grades. Questions or problems on exams or homework are individually scored already. To then turn these scores into an assessment of student learning one would only have to classifying the problem according to the skill (or learning objective) it addresses, and then compute separate totals for each different category.

Skill/ objective	Identify solution strategy (Exam 1) 15pt	Identify solution strategy (HW2) 20pt	Implement solution strategy (Exam 2) 10 pt	Implement solution strategy (HW 3) 10 pt	Total Identify strategy 35 pt	Total Implement strategy 20 pt	Total Score/ Grade 55pts
Std 1	10	15	6	9	25	15	40=C
Std 2	14	18	10	8	32	18	50=B
Std 3	14	17	5	5	31	10	41=C
<b>Class Average</b>	<b>12.67</b>	<b>16.67</b>	<b>7</b>	<b>7.33</b>	<b>29.34</b>	<b>14.33</b>	

In this example, two skills have been scored separately on four assessments: Exam 1, HW2, Exam2 and HW3. According to grade assignment, Student 1 and Student 3 obtain the same grade but in terms of their learning outcomes, it is clear that the students learning outcomes are very different, with student 1 demonstrating weakness in “identification” and “implementation” and student 3 demonstrating strength in “identification” and serious weakness in “implementation”. Thus the grade alone does not identify for the student or the instructor which component skills the student has mastered. Furthermore, overall grades would not provide an instructor with feedback on which skills the class overall found difficult. The above representation would provide class level analysis of strengths and weaknesses. This kind of feedback could be used by individual instructors to target changes in instruction or by departments for curriculum revision. By continually monitoring learning outcomes the instructor could then track the impact of instructional or curricular changes on specific learning outcomes.

This model of assessment puts the responsibility for the design, implementation, and interpretation of the assessment in the hands of the instructors or faculty members, since they alone have the content expertise as well as the knowledge of the course learning goals and assessment methods and materials. Furthermore, only the course instructors, or the department faculty as a group, can decide on the appropriate standards or criteria to classify a learning outcome as Exceptional, Very Good, Good, or Substandard. However, when such an assessment of student learning is combined with an explicit statement of the learning objectives and the standards of performance, then external groups (e.g., college deans, provost, external accreditation agencies, similar departments in other institutions, employers, etc.) would be able to evaluate the degree to which students, both individually and as group, have achieved the desired learning outcomes.

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<sup>1</sup> If participation is scored according to the quality of the class contribution, then it can be viewed as a learning outcome. For example, some instructors use a scoring system that gives minimal points for providing a recallable fact from the reading and maximum points for providing a meaningful integration and synthesis of ideas.

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