**Assessing Student Learning**

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**Overview**

Student assessment is, arguably, the centerpiece of the teaching and learning process and therefore the subject of much discussion in the scholarship of teaching and learning. Without some method of obtaining and analyzing evidence of student learning, we can never know whether our teaching is making a difference. That is, teaching requires some process through which we can come to know whether students are developing the desired knowledge and skills, and therefore whether our instruction is effective. Learning assessment is like a magnifying glass we hold up to students’ learning to discern whether the teaching and learning process is functioning well or is in need of change.

To provide an overview of learning assessment, this teaching guide has several goals, 1) to define student learning assessment and why it is important, 2) to discuss several approaches that may help to guide and refine student assessment, 3) to address various methods of student assessment, including the test and the essay, and 4) to offer several resources for further research.

**What is student assessment and why is it Important?**

In their handbook for course-based review and assessment, Martha L. A. Stassen et al. define assessment as “the systematic collection and analysis of information to improve student learning” (2001, p. 5). An intentional and thorough assessment of student learning is vital because it provides useful feedback to both instructors and students about the extent to which students are successfully meeting learning objectives. In their book *Understanding by Design*, Grant Wiggins and Jay McTighe offer a framework for classroom instruction — “Backward Design”— that emphasizes the critical role of assessment. For Wiggins and McTighe, assessment enables instructors to determine the metrics of measurement for student understanding of and proficiency in course goals. Assessment provides the evidence needed to document and validate that meaningful learning has occurred (2005, p. 18). Their approach “encourages teachers and curriculum planners to first ‘think like an assessor’ before designing specific units and lessons, and thus to consider up front how they will determine if students have attained the desired understandings” (Wiggins and McTighe, 2005, p. 18).[[1]](#footnote-1)

Not only does effective assessment provide us with valuable information to support student growth, but it also enables critically reflective teaching. Stephen Brookfield, in *Becoming a Critically Reflective Teacher,* argues that critical reflection on one’s teaching is an essential part of developing as an educator and enhancing the learning experience of students (1995). Critical reflection on one’s teaching has a multitude of benefits for instructors, including the intentional and meaningful development of one’s teaching philosophy and practices. According to Brookfield, “A critically reflective teacher is much better placed to communicate to colleagues and students (as well as to herself) the rationale behind her practice. She works from a position of informed commitment” (Brookfield, 1995, p. 17). One important lens through which we may reflect on our teaching is our student evaluations and student learning assessments. This reflection allows educators to determine where their teaching has been effective in meeting learning goals and where it has not, allowing for improvements. Student assessment, then, both develop the rationale for pedagogical choices, and enables teachers to measure the effectiveness of their teaching.

**Forms and Purposes of Student Assessment**

The scholarship of teaching and learning discusses two general forms of assessment. The first, **summative assessment**, is one that is implemented at the end of the course of study, for example via comprehensive final exams or papers. Its primary purpose is to produce an evaluation that “sums up” student learning. Summative assessment is comprehensive in nature and is fundamentally concerned with learning outcomes. While summative assessment is often useful for communicating final evaluations of student achievement, it does so without providing opportunities for students to reflect on their progress, alter their learning, and demonstrate growth or improvement; nor does it allow instructors to modify their teaching strategies before student learning in a course has concluded (Maki, 2002).

The second form, **formative assessment**, involves the evaluation of student learning at intermediate points before any summative form. Its fundamental purpose is to help students *during* the learning process by enabling them to reflect on their challenges and growth so they may improve. By analyzing students’ performance through formative assessment and sharing the results with them, instructors help students to “understand their strengths and weaknesses and to reflect on how they need to improve over the course of their remaining studies” (Maki, 2002, p. 11). Pat Hutchings refers to as “assessment behind outcomes”: “the promise of assessment—mandated or otherwise—is improved student learning, and improvement requires attention not only to final results but also to *how* results occur. Assessment *behind outcomes* means looking more carefully at the process and conditions that lead to the learning we care about…” (Hutchings, 1992, p. 6, original emphasis). Formative assessment includes all manner of coursework with feedback, discussions between instructors and students, and end-of-unit examinations that provide an opportunity for students to identify important areas for necessary growth and development for themselves (Brown and Knight, 1994).

It is important to recognize that both summative and formative assessment indicate the *purpose* of assessment, not the *method*. Different methods of assessment (discussed below) can either be summative or formative depending on when and how the instructor implements them. Sally Brown and Peter Knight in *Assessing Learners in Higher Education* caution against a conflation of the method (e.g., an essay) with the goal (formative or summative): “Often the mistake is made of assuming that it is the method which is summative or formative, and not the purpose. This, we suggest, is a serious mistake because it turns the assessor’s attention away from the crucial issue of feedback” (1994, p. 17). If an instructor believes that a particular method is formative, but he or she does not take the requisite time or effort to provide extensive feedback to students, the assessment effectively functions as a summative assessment despite the instructor’s intentions (Brown and Knight, 1994). Indeed, feedback and discussion are critical factors that distinguish between formative and summative assessment; formative assessment is only as good as the feedback that accompanies it.

**Assessment is More than Grading**

It is not uncommon to conflate assessment with grading, but this would be a mistake. Student assessment is *more* than just grading. Assessment links student performance to specific learning objectives in order to provide useful information to students and instructors about learning and teaching, respectively. Grading, on the other hand, according to Stassen et al. (2001) merely involves affixing a number or letter to an assignment, giving students only the most minimal indication of their performance relative to a set of criteria or to their peers: “Because grades don’t tell you about student performance on individual (or specific) learning goals or outcomes, they provide little information on the overall success of your course in helping students to attain the specific and distinct learning objectives of interest” (Stassen et al., 2001, p. 6). Grades are only the broadest of indicators of achievement or status, and as such do not provide very meaningful information about students’ learning of knowledge or skills, how they have developed, and what may yet improve. Unfortunately, despite the limited information grades provide students about their learning, grades *do* provide students with significant indicators of their status – their academic rank, their credits towards graduation, their post-graduation opportunities, their eligibility for grants and aid, etc. – which can distract students from the primary goal of assessment: learning. Indeed, shifting the focus of assessment away from grades and towards more meaningful understandings of intellectual growth can encourage students (as well as instructors and institutions) to attend to the primary goal of education.

**Assessment Plans**

Barbara Walvoord (2010) argues that assessment is more likely to be successful if there is a clear plan, whether one is assessing learning in a course or in an entire curriculum (see also Gelmon, Holland, and Spring, 2018). Without some intentional and careful plan, assessment can fall prey to unclear goals, vague criteria, limited communication of criteria or feedback, invalid or unreliable assessments, unfairness in student evaluations, or insufficient or even unmeasured learning. There are several steps in this planning process.

1. Defining learning goals. An assessment plan usually begins with a clearly articulated set of learning goals.
2. Defining assessment methods. Once goals are clear, an instructor must decide on what evidence – assignment(s) – will best reveal whether students are meeting the goals. We discuss several common methods below, but these need not be limited by anything but the learning goals and the teaching context.
3. Developing the assessment. The next step would be to formulate clear formats, prompts, and performance criteria that ensure students can prepare effectively and provide valid, reliable evidence of their learning.
4. Integrating assessment with other course elements. Then the remainder of the course design process can be completed. In both integrated (Fink 2013) and backward course design models (Wiggins & McTighe 2005), the primary assessment methods, once chosen, become the basis for other smaller reading and skill-building assignments as well as daily learning experiences such as lectures, discussions, and other activities that will prepare students for their best effort in the assessments.
5. Communicate about the assessment. Once the course has begun, it is possible and necessary to communicate the assignment and its performance criteria to students. This communication may take many and preferably multiple forms to ensure student clarity and preparation, including assignment overviews in the syllabus, handouts with prompts and assessment criteria, rubrics with learning goals, model assignments (e.g., papers), in-class discussions, and collaborative decision-making about prompts or criteria, among others.
6. Administer the assessment. Instructors then can implement the assessment at the appropriate time, collecting evidence of student learning – e.g., receiving papers or administering tests.
7. Analyze the results. Analysis of the results can take various forms – from reading essays to computer-assisted test scoring – but always involves comparing student work to the performance criteria and the relevant scholarly research from the field(s).
8. Communicate the results. Instructors then compose an assessment complete with areas of strength and improvement, and communicate it to students along with grades (if the assignment is graded), hopefully within a reasonable time frame. This also is the time to determine whether the assessment was valid and reliable, and if not, how to communicate this to students and adjust feedback and grades fairly. For instance, were the test or essay questions confusing, yielding invalid and unreliable assessments of student knowledge.
9. Reflect and revise. Once the assessment is complete, instructors and students can develop learning plans for the remainder of the course so as to ensure improvements, and the assignment may be changed for future courses, as necessary.

Example

Let’s see how this might work in practice through an example. An instructor in a Political Science course on American Environmental Policy may have a learning goal (among others) of students understanding the historical precursors of various environmental policies and how these both enabled and constrained the resulting legislation and its impacts on environmental conservation and health. The instructor therefore decides that the course will be organized around a series of short papers that will combine to make a thorough policy report, one that will also be the subject of student presentations and discussions in the last third of the course. Each student will write about an American environmental policy of their choice, with a first paper addressing its historical precursors, a second focused on the process of policy formation, and a third analyzing the extent of its impacts on environmental conservation or health. This will help students to meet the content knowledge goals of the course, in addition to its goals of improving students’ research, writing, and oral presentation skills. The instructor then develops the prompts, guidelines, and performance criteria that will be used to assess student skills, in addition to other course elements to best prepare them for this work – e.g., scaffolded units with quizzes, readings, lectures, debates, and other activities. Once the course has begun, the instructor communicates with the students about the learning goals, the assignments, and the criteria used to assess them, giving them the necessary context (goals, assessment plan) in the syllabus, handouts on the policy papers, rubrics with assessment criteria, model papers (if possible), and discussions with them as they need to prepare. The instructor then collects the papers at the appropriate due dates, assesses their conceptual and writing quality against the criteria and field’s scholarship, and then provides written feedback and grades in a manner that is reasonably prompt and sufficiently thorough for students to make improvements. Then the instructor can make determinations about whether the assessment method was effective and what changes might be necessary.

**Methods of Student Assessment**

Assessment can vary widely from informal checks on understanding, to quizzes, to blogs, to essays, and to elaborate performance tasks such as written or audiovisual projects (Wiggins & McTighe, 2005). Below are a few common methods of assessment identified by Brown and Knight (1994) that are important to consider.

Essays

According to Euan S. Henderson, essays make two important contributions to learning and assessment: the development of skills and the cultivation of a learning style (1980). The American Association of Colleges & Universities (AAC&U) also has found that intensive writing is a “high impact” teaching practice likely to help students in their engagement, learning, and academic attainment (Kuh 2008).

 *Things to Keep in Mind about Essays*

1. Essays are a common form of writing assignment in courses and can be either a summative or formative form of assessment depending on how the instructor utilizes them.
2. Essays encompass a wide array of narrative forms and lengths, from short descriptive essays to long analytical or creative ones. Shorter essays are often best suited to assess student’s understanding of threshold concepts and discrete analytical or writing skills, while longer essays afford assessments of higher order concepts and more complex learning goals, such as rigorous analysis, synthetic writing, problem solving, or creative tasks.
3. A common challenge of the essay is that students can use them simply to regurgitate rather than analyze and synthesize information to make arguments. Students need performance criteria and prompts that urge them to go beyond mere memorization and comprehension, but encourage the highest levels of learning on [Bloom’s Taxonomy](https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/). This may open the possibility for essay assignments that go beyond the common summary or descriptive essay on a given topic, but demand, for example, narrative or persuasive essays or more creative projects.
4. Instructors commonly assume that students know how to write essays and can encounter disappointment or frustration when they discover that this is sometimes not the case. For this reason, it is important for instructors to make their expectations clear and be prepared to assist, or provide students to resources that will enhance their writing skills. Faculty may also encourage students to attend writing workshops at university writing centers, such as Vanderbilt University’s [Writing Studio](https://www.vanderbilt.edu/writing/).

Exams and time-constrained, individual assessment

Examinations have traditionally been a gold standard of assessment, particularly in post-secondary education. Many educators prefer them because they can be highly effective, they can be standardized, they are easily integrated into disciplines with certification standards, and they are efficient to implement since they can allow for less labor-intensive feedback and grading. They can involve multiple forms of questions, be of varying lengths, and can be used to assess multiple levels of student learning. Like essays they can be summative or formative forms of assessment.

 *Things to Keep in Mind about Exams*

1. Exams typically focus on the assessment of students’ knowledge of facts, figures, and other discrete information crucial to a course. While they can involve questioning that demands students to engage in higher order demonstrations of comprehension, problem solving, analysis, synthesis, critique, and even creativity, such exams often require more time to prepare and validate.
2. Exam questions can be multiple choice, true/false, or other discrete answer formats, or they can be essay or problem-solving. For more on how to write good multiple choice questions, see [this guide](https://cft.vanderbilt.edu/cft/guides-sub-pages/writing-good-multiple-choice-test-questions/).
3. Exams can make significant demands on students’ factual knowledge and therefore can have the side-effect of encouraging cramming and surface learning. Further, when exams are offered infrequently, or when they have high stakes by virtue of their heavy weighting in course grade schemes or in student goals, they may accompany violations of academic integrity.
4. In the process of designing an exam, instructors should consider the following questions. What are the learning objectives that the exam seeks to evaluate? Have students been adequately prepared to meet exam expectations? What are the skills and abilities that students need to do well on the exam? How will this exam be utilized to enhance the student learning process?

Self-Assessment

The goal of implementing self-assessment in a course is to enable students to develop their own judgment and the capacities for critical meta-cognition – to learn how to learn. In self-assessment students are expected to assess both the processes and products of their learning. While the assessment of the product is often the task of the instructor, implementing student self-assessment in the classroom ensures students evaluate their performance and the process of learning that led to it. Self-assessment thus provides a sense of student ownership of their learning and can lead to greater investment and engagement. It also enables students to develop transferable skills in other areas of learning that involve group projects and teamwork, critical thinking and problem-solving, as well as leadership roles in the teaching and learning process with their peers.

 *Things to Keep in Mind about Self-Assessment*

1. Self-assessment is not self-grading. According to Brown and Knight, “Self-assessment involves the use of evaluative processes in which judgement is involved, where self-grading is the marking of one’s own work against a set of criteria and potential outcomes provided by a third person, usually the [instructor]” (1994, p. 52). Self-assessment can involve self-grading, but instructors of record retain the final authority to determine and assign grades.
2. To accurately and thoroughly self-assess, students require clear learning goals for the assignment in question, as well as rubrics that clarify different performance criteria and levels of achievement for each. These rubrics may be instructor-designed, or they may be fashioned through a collaborative dialogue with students. Rubrics need not include any grade assignation, but merely descriptive academic standards for different criteria.
3. Students may not have the expertise to assess themselves thoroughly, so it is helpful to build students’ capacities for self-evaluation, and it is important that they always be supplemented with faculty assessments.
4. Students may initially resist instructor attempts to involve themselves in the assessment process. This is usually due to insecurities or lack of confidence in their ability to objectively evaluate their own work, or possibly because of habituation to more passive roles in the learning process. Brown and Knight note, however, that when students are asked to evaluate their work, frequently student-determined outcomes are very similar to those of instructors, particularly when the criteria and expectations have been made explicit in advance (1994).
5. Methods of self-assessment vary widely and can be as unique as the instructor or the course. Common forms of self-assessment involve written or oral reflection on a student’s own work, including portfolio, logs, instructor-student interviews, learner diaries and dialog journals, post-test reflections, and the like.

Peer Assessment

Peer assessment is a type of [collaborative learning technique](https://cft.vanderbilt.edu/guides-sub-pages/setting-up-and-facilitating-group-work-using-cooperative-learning-groups-effectively/) where students evaluate the work of their peers and, in return, have their own work evaluated as well. This dimension of assessment is significantly grounded in theoretical approaches to [active learning](https://cft.vanderbilt.edu/active-learning/) and [adult learning](https://cft.vanderbilt.edu/teaching-adult-undergraduate-students/). Like self-assessment, peer assessment gives learners ownership of learning and focuses on the process of learning as students are able to “share with one another the experiences that they have undertaken” (Brown and Knight, 1994, p. 52). However, it also provides students with other models of performance (e.g., different styles or narrative forms of writing), as well as the opportunity to teach, which can enable greater preparation, reflection, and meta-cognitive organization.

 *Things to Keep in Mind about Peer Assessment*

1. Similar to self-assessment, students benefit from clear and specific learning goals and rubrics. Again, these may be instructor-defined or determined through collaborative dialogue.
2. Also similar to self-assessment, it is important to not conflate peer assessment and peer grading, since grading authority is retained by the instructor of record.
3. While student peer assessments are most often fair and accurate, they sometimes can be subject to bias. In competitive educational contexts, for example when students are graded normatively (“on a curve”), students can be biased or potentially game their peer assessments, giving their fellow students unmerited low evaluations. Conversely, in more cooperative teaching environments or in cases when they are friends with their peers, students may provide overly favorable evaluations. Also, other biases associated with identity (e.g., race, gender, or class) and personality differences can shape student assessments in unfair ways. Therefore, it is important for instructors to encourage fairness, to establish processes based on clear evidence and identifiable criteria, and to provide instructor assessments as accompaniments or correctives to peer evaluations.
4. Students may not have the disciplinary expertise or assessment experience of the instructor, and therefore can issue unsophisticated judgments of their peers. Therefore, to avoid unfairness, inaccuracy, and limited comments, formative peer assessments may need to be supplemented with instructor feedback.

As Brown and Knight assert, utilizing multiple methods of assessment, including more than one assessor when possible, improves the reliability of the assessment data. It also ensures that students with diverse aptitudes and abilities can be assessed accurately and have equal opportunities to excel. However, a primary challenge to the multiple methods approach is how to weigh the scores produced by multiple methods of assessment. When particular methods produce higher range of marks than others, instructors can potentially misinterpret and mis-evaluate student learning. Ultimately, they caution that, when multiple methods produce different messages about the same student, instructors should be mindful that the methods are likely assessing different forms of achievement (Brown and Knight, 1994).

These are only a few of the many forms of assessment that one might use to evaluate and enhance student learning (see also ideas present in Brown and Knight, 1994). To this list of assessment forms and methods we may add many more that encourage students to produce anything from research papers to films, theatrical productions to travel logs, op-eds to photo essays, manifestos to short stories. The limits of what may be assigned as a form of assessment is as varied as the subjects and skills we seek to empower in our students. Vanderbilt’s Center for Teaching has an ever-expanding array of guides on creative models of assessment that are present below, so please visit them to learn more about other assessment innovations and subjects.

**Generative and Reflective Assessment**

Whatever plan and method you use, assessment often begins with an intentional clarification of the values that drive it. While many in higher education may argue that values do not have a role in assessment, we contend that values (for example, rigor) always motivate and shape even the most objective of learning assessments. Therefore, as in other aspects of assessment planning, it is helpful to be intentional and critically reflective about what values animate your teaching and the learning assessments it requires. There are many values that may direct learning assessment, but common ones include rigor, generativity, practicability, co-creativity, and full participation (Bandy et al., 2018). What do these characteristics mean in practice?[[2]](#footnote-2)

Rigor. In the context of learning assessment, rigor means aligning our methods with the goals we have for students, principles of validity and reliability, ethics of fairness and doing no harm, critical examinations of the meaning we make from the results, and good faith efforts to improve teaching and learning. In short, rigor suggests understanding learning assessment as we would any other form of intentional, thoroughgoing, critical, and ethical inquiry.

Generativity. Learning assessments may be most effective when they create conditions for the emergence of new knowledge and practice, including student learning and skill development, as well as instructor pedagogy and teaching methods. Generativity opens up rather than closes down possibilities for discovery, reflection, growth, and transformation.

Practicability. Practicability recommends that learning assessment be grounded in the realities of the world as it is, fitting within the boundaries of both instructor’s and students’ time and labor. While this may, at times, advise a method of learning assessment that seems to conflict with the other values, we believe that assessment fails to be rigorous, generative, participatory, or co-creative if it is not feasible and manageable for instructors and students.

Full Participation**.** Assessments should be equally accessible to, and encouraging of, learning for all students, empowering all to thrive regardless of identity or background. This requires multiple and varied methods of assessment that are inclusive of diverse identities – racial, ethnic, national, linguistic, gendered, sexual, class, etcetera – and their varied perspectives, skills, and cultures of learning.

Co-creation. As alluded to above regarding self- and peer-assessment, co-creative approaches empower students to become subjects of, not just objects of, learning assessment. That is, learning assessments may be more effective and generative when assessment is done with, not just for or to, students. This is consistent with feminist, social, and community engagement pedagogies, in which values of co-creation encourage us to critically interrogate and break down hierarchies between knowledge producers (traditionally, instructors) and consumers (traditionally, students) (e.g., Saltmarsh, Hartley, & Clayton, 2009, p. 10; Weimer, 2013). In co-creative approaches, students’ involvement enhances the meaningfulness, engagement, motivation, and meta-cognitive reflection of assessments, yielding greater learning (Bass & Elmendorf, 2019). The principle of students being co-creators of their own education is what motivates the course design and professional development work Vanderbilt University’s Center for Teaching has organized around the [Students as Producers](https://cft.vanderbilt.edu/2013/09/students-as-producers-an-introduction/) theme.

**Teaching Guides Related to Student Assessment**

Below is a list of other CFT teaching guides that supplement this one and may be of assistance as you consider all of the factors that shape your assessment plan.

* [Active Learning](https://cft.vanderbilt.edu/active-learning/)
* [An Introduction to Lecturing](https://cft.vanderbilt.edu//cft/guides-sub-pages/lecturing/)
* [Beyond the Essay: Making Student Thinking Visible in the Humanities](https://cft.vanderbilt.edu/cft/guides-sub-pages/beyond-the-essay/)
* [Bloom’s Taxonomy](https://cft.vanderbilt.edu//cft/guides-sub-pages/blooms-taxonomy/)
* [Classroom Assessment Techniques](https://cft.vanderbilt.edu/cft/guides-sub-pages/cats/) (CATs)
* [Classroom Response Systems](https://cft.vanderbilt.edu/cft/guides-sub-pages/clickers/)
* [How People Learn](https://cft.vanderbilt.edu//cft/guides-sub-pages/how-people-learn/)
* [Podcasting](https://cft.vanderbilt.edu/cft/guides-sub-pages/podcasting/)
* [Service-Learning and Community Engagement](https://cft.vanderbilt.edu/cft/guides-sub-pages/teaching-through-community-engagement/)
* [Syllabus Construction](https://cft.vanderbilt.edu/guides-sub-pages/syllabus-design/)
* [Teaching with Blogs](https://cft.vanderbilt.edu/cft/guides-sub-pages/teaching-with-blogs/)
* [Test-Enhanced Learning](https://cft.vanderbilt.edu/guides-sub-pages/test-enhanced-learning-using-retrieval-practice-to-help-students-learn/)

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1. For more on Wiggins and McTighe’s “Backward Design” model, see our teaching guide [here](https://cft.vanderbilt.edu//cft/guides-sub-pages/understanding-by-design/). [↑](#footnote-ref-1)
2. The following draws from “Democratically Engaged Assessment” approaches discussed by Bandy et al. (2018). [↑](#footnote-ref-2)