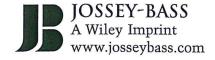
# Assessing Student Learning

A Common Sense Guide

SECOND EDITION

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use multiple, diverse approaches. Depending on your interests and needs, these approaches may include:

- Assessments yielding direct and indirect evidence of student learning
- Assessments of learning outcomes, processes, inputs, and context
- Performance assessments and traditional assessments
- Embedded and add-on assessments
- Local and published assessments
- Qualitative and quantitative assessments
- Objective and subjective assessments

This chapter is thus a glossary of some of the key terms used to describe assessment tools and strategies.

#### Direct and Indirect Evidence of Student Learning \_

Direct evidence of student learning is tangible, visible, self-explanatory, and compelling evidence of exactly what students have and have not learned. It might also be defined as the kind of evidence that a skeptic would accept. A skeptic might be dubious of grades or students' self-ratings as evidence that students can write well, for example. Grades might be inflated, after all, and students could have misconceptions about their skills. But a skeptic would be hard-pressed to argue with actual student writing samples, accompanied by grading criteria showing rigorous standards. Table 2.1 gives examples of direct evidence of student learning.

*Indirect* evidence consists of proxy signs that students are probably learning. Indirect evidence is less clear and less convincing than direct evidence. Table 2.2 gives examples of indirect evidence.

Donald Kirkpatrick and James Kirkpatrick's (2006) four levels of learning experience outcomes, summarized in Table 2.3, provide a framework for understanding indirect evidence.

Reaction, or student satisfaction, is important because dissatisfaction is a clue that students may not have learned some important things. But student satisfaction levels alone don't reveal whether they have learned what we value. Similarly, transfer—using what has been learned in later pursuits—is theoretically important, but some students may pursue paths that simply do not give them opportunities to use what they have learned.

#### Table 2.1. Examples of Direct Evidence of Student Learning

Ratings of student skills by their field experience supervisors or employers (Chapter Nine)

Scores and pass rates on appropriate licensure or certification exams such as Praxis or National Council Licensure Examination (NCLEX) or other published tests such as Major Field Tests that assess key learning outcomes (Chapter Fourteen)

Capstone experiences such as research projects, presentations, theses, dissertations, oral defenses, exhibitions, and performances, scored using a rubric (Chapter Nine)

Other written work, performances, and presentations, scored using a rubric<sup>a</sup> (Chapter Nine) Portfolios of student work<sup>a</sup> (Chapter Thirteen)

Scores on locally designed multiple-choice or essay tests such as final examinations in key courses, qualifying examinations, and comprehensive examinations, accompanied by test blueprints (Chapter Eleven) describing what the tests assess<sup>a</sup>

*Score gains* (referred to as "value added") between entry and exit on published or local tests or writing samples<sup>a</sup> (Chapter Fifteen)

*Observations of student behavior* (such as presentations and group discussions), undertaken systematically and with notes recorded systematically<sup>a</sup>

Summaries and assessments of electronic class discussion threads<sup>a</sup> (Bauer, 2002)

Think-alouds, which ask students to think aloud as they work on a problem or assignment<sup>a</sup>

Classroom response systems (clickers) that allow students in their classroom seats to answer questions posed by the teacher instantly and provide an immediate picture of student understanding (Bruff, 2009)

Feedback from computer-simulated tasks such as information on patterns of action, decisions, and branches<sup>a</sup>

Student reflections on their values, attitudes, and beliefs (Chapter Twelve), if developing those are intended outcomes of the program<sup>a</sup>

#### Table 2.2. Examples of Indirect Evidence of Student Learning

Course grades (Chapter One) and grade distributions<sup>a</sup>

Assignment grades, if not accompanied by a rubric or scoring criteria (Chapter One)<sup>a</sup> Retention and graduation rates

For four-year programs, admission rates into graduate programs and graduation rates from those programs

For two-year programs, *admission rates into four-year colleges* and graduation rates from those programs

Scores on tests required for further study (such as Graduate Record Examinations) that evaluate skills learned over a lifetime

Quality and reputation of graduate and four-year programs into which alumni are accepted

Placement rates of graduates into appropriate career positions and starting salaries

*Alumni perceptions* of their career responsibilities and satisfaction

Student ratings of their knowledge and skills and reflections on what they have learned over the course of the program (Chapter Twelve)<sup>a</sup>

*Questions on end-of-course student evaluation forms* that ask about the course rather than the instructor<sup>a</sup>

Student, alumni, and employer satisfaction with learning, collected through surveys, exit interviews, or focus groups (Chapter Twelve)<sup>a</sup>

Voluntary gifts from alumni and employers

Student participation rates in faculty research, publications, and conference presentations *Honors, awards, and scholarships* earned by students and alumni

<sup>&</sup>lt;sup>a</sup>Especially suitable for assessing general education core curricula (Chapter One).

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Table 2.3. The Kirkpatricks' Four Levels of Learning Experience Outcomes

| 1. | Reaction | Student satisfaction with the learning experience.                               |
|----|----------|--|
| 2. | Learning | What students have learned as a result of the learning experience.               |
| 3. | Transfer | Students' use of what they have learned in later pursuits: further study, on the |
|    |          | job, community service, and so on.   |
| 4. | Results  | How what students have learned is helping them achieve their goals and our       |
|    |          | goals for them. These goals may include persistence through graduation,          |
|    |          | obtaining and advancing through positions for which they've prepared,            |
|    |          | admission to appropriate programs of advanced study, and achievement of          |
|    |          | other life goals that they've identified for themselves                          |

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Results—retention, graduation, and placement rates and the like—are also important outcomes, but they don't tell us exactly what students have and haven't learned. If we know, for example, that 95 percent of the graduates of a teacher education program find jobs as teachers, we can conclude that they have probably learned important things, because they're attractive to employers, but we can't tell from this statistic alone exactly what they have and haven't learned.

An even greater concern with results like graduation and placements rates is that it is hard to tie the effect of a particular course, program, or other learning experience to these kinds of outcomes. There are too many possible mitigating factors. A 95 percent teacher placement rate, for example, may be due as much to a regional shortage of teachers as to the quality of a teacher preparation program. Recent downturns in the banking and finance industries have meant that many well-prepared graduates of finance programs have been unable to find jobs. The reason has been a shift in the economy that had nothing to do with the quality of the students' finance programs or what they learned.

Reaction, transfer, and results are thus all indirect evidence of student learning. While goals for persistence, transfer, and job placement can be important and should be monitored, assessment efforts should include direct evidence of student learning (the Kirkpatricks' second level): the knowledge, skills, attitudes, and habits of mind that students need to persist, graduate, transfer, obtain jobs, and otherwise succeed in their life pursuits. No assessment of knowledge, conceptual understanding, or thinking or performance skills should consist of indirect evidence alone.

Indirect evidence can nonetheless be an important part of an assessment program. Information on learning processes, discussed in the next section, can be especially useful indirect evidence. Many

attitudes and values can be assessed only with indirect evidence (Chapter Twelve). Because indirect evidence is less convincing, it is especially important to use multiple measures to corroborate it (Chapter Three).

### Assessments of Learning Outcomes, Processes, Inputs, and Context \_\_\_\_\_

Information on learning outcomes can be the most compelling evidence of student learning, but it alone may not help explain why students are or are not learning. Look at learning processes, inputs, and context as well as outcomes in order to understand what is happening and how we might improve student learning.

#### Assessments of Learning Outcomes

Most direct evidence of student learning focuses on learning *out-comes*: the knowledge, skills, attitudes, and habits of mind that students have and take with them when they successfully complete a course or program. Assessments of learning outcomes are often what some people call *summative* assessments: the kind obtained at the end of a course or program.

Assessments of learning outcomes are of interest to many external audiences (Chapter Four) including accreditors, employers, and policymakers. But even if these interests are put aside, assessments of learning outcomes can be a good starting point for an assessment effort. If students are graduating with the competencies you want them to have, there may be no need to spend additional time and effort drilling down further into their learning experiences. But if you're disappointed with the results, move to assessments of processes, inputs, and contexts as needed to help you understand why and how students are learning and not learning.

The key drawback of outcomes assessments is that because these assessments occur at the end of the course or program, students may not receive any feedback on their performance other than possibly an overall grade, and faculty and staff may not be able to use the results to improve those students' learning. As Lee Shulman (2007) has observed, "the later the assessment, the later the knowledge of results, and the less likely it is that the assessments will yield information that can guide instruction and learning" (p. 24). But while outcomes assessments may be too late to help current students, they can certainly be used to make changes affecting subsequent students, and in this way they can be formative, as discussed below.