Topic: Appropriate Measures for Student Learning Outcomes and Other Outcomes

Appropriate Measures for Student Learning Outcomes

There are two different types of assessment measures: direct and indirect. **Direct measures** enable faculty members or other reviewers to directly evaluate student work that demonstrates the specific knowledge, skill, ability, or competency described in a student learning outcome. Some examples of direct measures are specific pieces of student work such as papers, presentations, capstone projects, portfolios, case studies, lab reports, externally reviewed performances or projects, exams developed by course instructors, and commercially-developed tests, all of which are examined at the level of a specific student learning outcome (not an overall project/test score).

When measuring student learning outcomes, faculty members or other reviewers should assess ***the extent to which*** a particular outcome has been achieved. For example, if the primary measure being used by a MS program to assess a student's written communication skills is a master's thesis, then the thesis needs to be assessed for ***the extent to which*** the student has demonstrated effective written communication skills. The thesis would be assessed with a rubric or other criterion that evaluates student performance in regard to written communication. Simply tracking whether or not a student completed a thesis (or any other piece of student work or program-related task) is not a direct measure of a student learning outcome.

In contrast, **indirect measures** of student learning outcomes are not directly observable. These measures typically ask students to reflect on their learning or abilities but do not provide direct evidence of the learning. Instead, students' knowledge, skills, abilities, or competencies are inferred from students' responses. Examples of indirect measures of student learning outcomes are student surveys, exit interviews, course evaluations, employer satisfaction surveys, and focus groups. Programs may use a mix of direct and indirect measures for student learning outcomes, but all student learning outcomes should be assessed with at least one direct measure.

About using grades as measures of student learning outcomes

In general, course grades and student GPAs are not appropriate measures of specific student learning outcomes since they often measure multiple student learning outcomes and can include additional components such as attendance, class participation, and effort. Final exam grades also frequently measure multiple student learning outcomes.

Appropriate Measures for Student Outcomes and Administrative Outcomes

Where student learning outcome direct measures focus on the quality of student performance in a specific area of learning and indirect measures ask students about their abilities, student outcome and administrative outcome measures typically focus on the quantity or quality of activities within a program or unit, the number of students completing an activity, or the effectiveness of procedures. These types of outcomes reflect the services a program or unit provides or expected student achievement in areas such as engagement activities, retention, graduation, licensure, certification, or job placement rates. Examples of direct measures for these outcomes are tracking the number/percentage of students/individuals who complete a specific task or reach a specific achievement level, tracking the number/percentage of projects or activities implemented or experiences provided, or measuring satisfaction with services provided.

Examples of Student Learning Outcome/Measure Pairs with Direct and Indirect Measures

From an undergraduate program:

- Students in the BS Biology program will explain the use of cells and biological materials in biotechnology.
    - o Direct Measure: Case study project in BIOL 4050. Students are required to complete a case study project in which they explain the use of cells and biological materials in biotechnology. This case study is rated with a rubric designed to evaluate students' knowledge on each concept independently. The scale for the rubric is as follows: 1 = significantly below expectations; 2 = somewhat below expectations; 3 = meets expectations; 4 = slightly exceeds expectations; and 5 = significantly exceeds expectations.

- o Indirect Measure: Graduating student exit survey. Students are asked to rate their level of knowledge regarding the use of cells in biotechnology and the use of biological materials in biotechnology (each concept is rated independently). Each survey question utilizes the following 5-point Likert scale: 1 = needs improvement; 2 = below expectations; 3 = meets expectations; 4 = exceeds expectations; and 5 = exceptional.

From a PhD program:
- Students in X program will be able to synthesize relevant literature in the field of X.
  - o Direct Measure: Prelim exam. Students are required to synthesize relevant literature in the field of X in their response to one of the four exam questions. This question is rated with a rubric that has items designed to assess students' ability to synthesize relevant literature. The scale for the rubric is as follows: 1 = significantly below expectations; 2 = somewhat below expectations; 3 = meets expectations; 4 = slightly exceeds expectations; and 5 = significantly exceeds expectations.

From an academic and student support service unit:
- After a workshop, students will be able to identify ways to reduce high-risk substance abuse behaviors.
  - o Direct Measure: At the end of the workshop, students are asked to identify three behaviors to help reduce their risk of substance abuse.

Examples of Student Outcome/Measure Pairs

From an undergraduate program (Note: To demonstrate compliance for standards, 8.2a or 8.2b institutions only need student learning outcomes. This example and the one for the graduate program is presented merely to illustrate what a student outcome would look like for an academic program.):
- Students in X program will engage in experiential learning activities (e.g., internships, service learning, undergraduate research, or study abroad experiences).
  - o Direct Measure: Track the number of students enrolled in X program who participated in internships, service learning, undergraduate research, or study abroad experiences during the academic year.

From a MS program:
- Within 12 months after graduation, MS students in X program will have continued to an advanced degree program or secured employment within the field.
  - o Direct Measure: Alumni tracking/survey of students who completed the program the previous academic year.

From an academic and student support service unit:
- University students will participate in first-year experience courses.
  - o Direct Measure: Track the number of students at university who completed the first-year experience course.

From university student achievement:
- Increase representation of underrepresented minority students in entering class to 25% by 2025.
  - o Direct Measure: Track underrepresented minority representation in entering classes.

Examples of Administrative Outcome/Measure Pairs

From an academic and student support service unit:
- Engage in ongoing professional development to maintain area expertise (Academic Advising unit).
  - o Direct Measure: Track the number of professional development opportunities completed by each professional within university academic advising.

From an administrative unit:
- Increase student giving by growing senior class donors (Advancement unit).
  - o Direct Measure: Track the percentage increase in senior class donors each year.