

DIRECT MEASURES OF ASSESSMENT

Definition: These are assessment measures in which the products of student work are evaluated in light of the learning outcomes for the program. Evidence from coursework, such as projects, or specialized tests of knowledge or skill are examples of direct measures. In all cases, direct measures involve the evaluation of demonstrations of student learning.

Types of Student Learning Outcomes	Application to Direct Measures of Assessment
Content: Knowledge of a subject matter (Cognitive learning).	<p>Examples of direct measures in this category</p> <ul style="list-style-type: none"> • Subject tests (ETS field tests, Academic Profile, etc.); • Portfolios • Coursework in Capstone Courses/Senior Projects.
Skill Acquisition: Comprehension of a topic, demonstration of a competency, etc. (Behavioral learning).	<p>Examples of direct measures in this category</p> <ul style="list-style-type: none"> • Juried performance (music, speech, art exhibits, poster sessions, etc.); • Portfolios • Assignments and coursework in capstone courses; • Major projects (research projects, major papers, case studies, group projects); • Mathematical reasoning tests foreign language competency tests, critical thinking tests, etc.
Attitudes: Awareness, interest, concern, etc. (Affective Learning).	<p>Examples of direct measures in this category</p> <ul style="list-style-type: none"> • Survey of students' responses to value-laden issues; • Tests of students' recognition and understanding of ethical issues • Pre- and post-test measures of changes in attitudes, values, or beliefs.

*Outcomes may be a combination of content knowledge, skills, and attitudes.

EMBEDDED ASSESSMENTS

Definition: Assessments that make use of the actual work students produce in their courses; also referred to as “classroom-based” or “continuous” assessments. The assessments may simply select from work that students do in various courses or may be designed overtly for assessment purposes and then incorporated into courses. The faculty teaching the courses gives grades to the students, but the work selected for assessment is evaluated with program goals in mind and is not used for grading. Results of the assessments should not be used to evaluate the faculty teaching the courses.

Advantages	Disadvantages
<ul style="list-style-type: none">• Students are simply fulfilling normal requirements of the course(s) and so do not know their work is being used for assessment purposes; eliminates issues related to motivation;• Can be used to evaluate the developmental stages of student learning, rather than simply being summative or assessments at the end of the students’ programs;• The assessment process is integrated into the work of both faculty and students;• Designing an assessment process enables faculty to consider which skills or knowledge might best be introduced at which levels or in which sequence;• There is a clear link between what is taught and what is assessed;• Embedded assessment assignments that do not provide reliable information can be redesigned;• Results can be compiled quickly by instructors reporting the results to the faculty;• Results can be shared with students as a group, allowing them to understand better the criteria that faculty expect them to meet and helping them to evaluate their own strengths and weaknesses.	<ul style="list-style-type: none">• More complex assignments, such as research papers and projects, which have to be evaluated by a group of faculty using rubrics, thereby requiring more time;• Test scores in and of themselves will not provide satisfactory data;• Faculty teaching courses must include the embedded assessments that the program faculty decide upon;• Assigning appropriate weight to the individual assignments may be difficult.

STUDENT PERFORMANCES

Definition: Student performances, as defined here, include such student work as internships, field experiences, acting, dancing, musical performances, art shows, oral presentations, PowerPoint and other media presentations, as well as other creative work performed or demonstrated in public. The assessment of these is typically and perhaps best conducted by the use of a rubric, although external critics often write reviews that can be analyzed for assessment purposes.

Advantages	Disadvantages
<ul style="list-style-type: none">• Many majors are designed to lead toward students being able to perform in some fashion, so using those for assessment purposes is extremely valuable;• Student performance may occur at many different stages of a student's career, so the possibility of demonstrating value-added is strong;• The assessment rubric can be used to teach students the standards that they are expected to achieve;• A rubric designed around the goals of the performance and the academic program makes assessment by a variety of evaluators- whether faculty, professionals in the field, other students, or other external constituents- relatively easy;• A critical review can provide an external perspective.	<ul style="list-style-type: none">• Unless the evaluators agree upon the rubric and/or how it is to be used, the results may not provide consistent data;• A performance may not measure all that a student is expected to learn within a program, and therefore other assessment measures may need to supplement the results of the performance assessment;• A critical review by an external reviewer may not emphasize the same standards and criteria that the faculty value.

PORTFOLIOS

Definition: A collection of student work, usually representing student work over time, such as from the first course in the major until the last semester of the senior year. Portfolios may combine multiple types of evidence and are not necessarily limited to classroom work. For example, portfolios may contain research papers, presentations, videos, audio recordings, work done through employment, or journal entries discussing co-curricular activities or programs. Once the material is collected, an individual or group needs to establish a system to evaluate the contents of the portfolio in terms of the program’s learning outcomes (i.e., rubric or similar device).

Advantages	Disadvantages
<p>Portfolios enable faculty:</p> <ul style="list-style-type: none"> • To assess complex sets of tasks and objectives, with examples of many different types of student work, including interdisciplinary learning and capabilities; • To assess more rigorous and higher order thinking, such as application, synthesis, and evaluation; • To track student work over time; • To examine not only final student projects, but also, if the faculty think it worthwhile, to look at drafts and earlier phases of student projects; • To place the responsibility for demonstrating competence or mastery upon the student; • To help students reflect upon their learning and, in the process of compiling the portfolio, to understand more about what they have and have not yet learned; • To provide students with documentation for job applications or applications to graduate school. 	<ul style="list-style-type: none"> • It includes a labor-intensive process in the evaluation of evidence in student portfolios. • There is an expense in storing and organizing the evidence.

Varieties of Portfolio Type: Showcase or all-inclusive portfolios; open-ended portfolios; selection portfolios

Varieties of Format: Electronic portfolios; print/paper copies;

RUBRICS

Definition: A method of classifying and categorizing student behaviors or products along a continuum. Rubrics can be used to assess writing, research reports, performances, portfolios, and problem-solving activities, among others. Components of rubrics include: levels of mastery (e.g., exemplary, proficient, acceptable, unacceptable; sophisticated, competent, not yet competent; etc.); dimensions of quality (i.e., criteria that comprise the elements of a specific project or program); commentaries (i.e., description of performance at each level); other components are possible.

Advantages	Disadvantages
<ul style="list-style-type: none">• Allow faculty to evaluate or assess student work fairly efficiently;• Can be used to stimulate faculty discussions about teaching, curriculum development, and assessment;• Serve an educative process (i.e., if students are taught to score their own work, they can profit from understanding the standards and criteria that faculty expect);• Can be used to inform off-campus audiences about the intended learning outcomes in our programs and standards for meeting them	<ul style="list-style-type: none">• May be challenging to articulate aspects of a project or program that define quality.• Time to create and refine rubrics.• Possible to get overwhelmed with all the potential rubrics that can be developed.

CAPSTONE COURSES

Definition: A course designed to be offered in the final semester of a student’s major; a course that ties together the key learning objectives that faculty expect the student to have achieved during the major, interdisciplinary program, or interdepartmental major. Evidence of student learning may include comprehensive papers, portfolios, group projects, demonstrations, journals, or examinations.

Advantages	Disadvantages
<p>Capstone courses enable:</p> <ul style="list-style-type: none"> • Faculty to assess the cumulative abilities of students within the context of one course; • Faculty to develop the assessment materials to be evaluated within the context of a course; • Faculty to provide more rapid feedback’ • Students to produce work to be assessed as they would produce work for any course; • Students to demonstrate how they can integrate the knowledge, abilities, and values that faculty have been teaching or demonstrating. 	<p>The capstone course:</p> <ul style="list-style-type: none"> • May not allow enough time for students to devote enough time and effort to truly comprehensive projects; • May not produce the data faculty need if the exercises or projects are not directly linked to the program learning outcomes and if the faculty teaching the course can do not require what the program faculty have agreed upon; • May only provide time for students to address the major program outcomes and therefore not allow faculty to assess more detailed learning outcomes or sub-outcomes. • May not lend itself easily to comparisons of student work early and late in their academic career; • May have variations in the course content when instructors are changed.

Potential Process: The faculty member who teaches the course grades students; the program faculty or a sub-group of the faculty review and evaluate the work for assessment purposes. The final grade for the course, being a single measure, does not dissociate into an assessment of student achievement in the various learning outcomes for the program (although achievement in each of the learning outcomes may combine into the final grade). One method of assessment in capstone courses is to evaluate student work with an eye toward the multiple dimensions of the program’s outcomes. More than one faculty member can be invited to assist in the assessment of student work (e.g. in a project presentation). The assessment of a major paper or project, or set of papers or projects, may be broken down into sub-assessments of each learning outcome.

STANDARDIZED TESTS

Definition: Standardized tests may be norm-referenced or criterion-referenced.

Advantages	Disadvantages
<ul style="list-style-type: none">• The tests have been developed and tested by others, so the faculty do not have to spend time developing tests or other measures;• The validity and reliability of the tests have been previously established;• The tests may be scored by the commercial company or testing agency, thus saving faculty time;• Most tests, especially norm-referenced tests, can provide comparisons with groups of other students, thus enabling the faculty to determine whether they are satisfied with their program or not;• Professional programs that are expected to meet national or state standards may find the standardized tests useful, even if they are not required by accrediting associations.	<ul style="list-style-type: none">• A standardized test may not be constructed or weighted in ways that correlate with your particular academic program, thus decreasing the value of the comparisons or components of the test;• Student motivation to do well on the test may be very low unless it is a high stakes test- that is, unless it affects whether students proceed in the program or not or unless it counts toward an actual grade;• Some students experience high anxiety in taking high stakes tests and may not be able to demonstrated their real abilities and knowledge;• The results of standardized tests may not easily be disaggregated in ways that faculty can use in determining how effective components of their programs are;• Tests designed to make admissions decisions (e.g., the GRE, LSAT, MCAT, and GMAT) do not necessarily measure student knowledge, ability, and values, but, rather, are designed to predict the potential for success in the professional program; even then, the degree of predictive power tends to be limited only to the first semester in such programs;• Standardized tests cost money: either the student or the institution must pay for them, and , given the disadvantages summarized above, the expense may not warrant the return.

PRE- AND POST-ASSESSMENT, OR VALUE-ADDED ASSESSMENT

Definition: Value-added assessment attempts to measure student growth over time, from the time that a student enters a program until the student graduates. The most common method is pre- and post-testing, although other types of evidence could conceivably be developed.

Advantages	Disadvantages
<ul style="list-style-type: none">• Assessing the students when they first enter a program can establish a firm benchmark against which to measure growth or value-added;• Pre-testing is especially helpful for measuring student knowledge, or cognitive learning, and skills, though somewhat less so for measuring values;• Pre- and post-testing may work best with traditional four-year undergraduates rather than the more common situation now where students enter, stop-out, transfer, return, and take six years or more to graduate;• Pre- and post-testing can be easily scored;• Pre- and post-testing can be relatively easily analyzed using statistical procedures.	<ul style="list-style-type: none">• Pre-/post-testing offers little useful information if the students know little or nothing about the subject of the program when they enter it;• Deciding how to develop meaningful comparable pre- and post-assessments is difficult, since the pre-test may have to be so basic that any additional learning could be seen as “growth” or value-added;• If the assessment is not based upon a highly structured curriculum where the objectives are taught toward and adhered to across all courses in a systematic way, it may be difficult to demonstrate the causes of the value-added or to correlate the results of the post-test with the specific courses within the curriculum.

Sources:

- * Concordia College (Moorhead, MN) Assessment Website
- * Huba, M. E. & Freed, J. E. (2000) *Learner-centered assessment on college campuses*. Boston: Allyn & Bacon
- * Maki, P. (2004). *Assessing for learning*. Sterling, VA, Stylus
- * Skidmore College Assessment Website, Bridgewater State College Assessment Website

Extra Info on Rubrics

How to Create and Use a Scoring Rubric

- Determine the characteristics of the task you are assessing;
- Describe what the best example of this characteristic looks like;
- Describe the worst acceptable example of this characteristic;
- Determine what would be unacceptable;
 - You now have three levels of assessment: you can develop other levels in between those three if you think that will give you meaningful information;
- Test the rubric on some student work to determine if it works;
- If they are not involved in developing the rubric, teach a team of faculty evaluating the student work how to use the rubric;
- Ideally, each example of student work should be evaluated by more than one faculty member;
- When the team is using the rubric, one person ought to serve as the moderator, reviewing the scores of different evaluators on the same student work to determine whether there are great discrepancies;
- If two faculty differ substantially on the scoring of one student's work, give the work to a third faculty member to evaluate as a third judgment;
- Compile all the scores for each characteristic that you are evaluating to summarize the results (Note: if each evaluator keeps notes on the greatest weaknesses, you can use those to help understand the overall scores).
- Analyze those areas that appear to reflect weaknesses in student abilities.

Extra Info on Capstone Courses:

Varieties of Capstone Courses

The major project course

The major project course requires students to work on one project primarily, such as a research paper or an experiment or a creative project. The course can be designed so that students work on the project in stages, allowing faculty to determine students' abilities to revise and/or re-conceptualize their work. Student presentations of the project may be both written and oral, allowing faculty to assess both of those student abilities in addition to knowledge and/or skills.

The multiple experiences or exercises course:

Faculty design the course so that students must provide evidence through a variety of means, such as examinations, research papers, oral presentations, group work, and multimedia presentations. For assessment purposes, the faculty need to determine who and how they will assess each of the types of assignments. If the faculty member teaching the course is the only faculty member to evaluate all of the work, then the faculty must rely upon that person's judgments regarding the implications for the entire academic program.

The portfolio in the capstone course:

The major project for the capstone course may be a requirement that students produce a portfolio of work that then provides one item that the program faculty can assess. This portfolio can be designed so that students include a variety of evidence regarding their abilities. The major limitation is that students may not have access to work that they produced in earlier courses, and so the portfolios may be limited as a document for assessing the entire program.

The field experience or internship as a capstone course:

A number of academic programs require students to fulfill a field experience or internship experience as the culminating activity in the program. In this case, students can demonstrate their knowledge, skills, and values in a wide variety of ways. Field experiences and internships may be evaluated by both a faculty member and a field supervisor under whom the student is working. Evaluations may consist of check sheets and evaluation forms that the supervisor and faculty complete both during and at the end of the experience, notes from advisory meetings with the student during the experience, and materials that the student produces during the experience,

perhaps gathered into a portfolio. Faculty overseeing the field experiences will need to share their observations of student strengths and weaknesses with the other faculty for them to discuss and assess.

Creating and Designing a Capstone Course

- Determine the specific broad learning objectives for the academic program;
- If you have not already done so, determine how those translated into the individual courses;
- Determine the kinds of student work that should be expected during the capstone course (the content and performance standards);
- Design the capstone course to enable students to produce that work;
- Determine how and when the faculty will assess the work that students produce;
- Inform students in the syllabus or related handouts how the objectives of the course are designed to reflect a culmination of their abilities, knowledge, and/or values.
- Provide information in department assessment plans and other documents to be reviewed by various constituents regarding how the course relates to the standards for the program and how they evaluated.

Evaluating the Work from a Capstone Course

How you evaluate or assess the work students produce in a capstone course depends upon the nature of the work and the learning outcomes being assessed. For example, you may want to use a rubric to evaluate major projects or portfolios. If more than one faculty member observes the student work, you may want to develop checklists or key questions which can be used to describe what the faculty observe. If examinations are part of the course, there may be a few key questions embedded in the exams that will be used for the assessment purposes. Some departments have professionals in the field observe and evaluate student work, such as business persons evaluating case study presentations, directors and actors evaluating student stage productions, artists and musicians evaluating student art work and musical performances, or teachers evaluating student teachers.

The key step is that the faculty as a whole must have a chance to take part in assessing student work or review the assessment results if a designated sub-group of the faculty or professionals in the field assess the work. This review, discussion, and determination if anything needs to be revised in the curriculum needs to be scheduled as part of the regular schedule for faculty work, including time for any recommendations for change to be submitted to appropriate curriculum committees or administrators.

Often, some real surprises result from a faculty's assessment effort: these may, in turn, lead to modifications of a future assessment, such as focusing upon a specific question that the faculty are concerned about.

Extra Info on Standardized Tests:

Varieties of Standardized Tests

Norm-referenced: Norm-referenced tests rank-order students to demonstrate achievement differences and are useful for placing students in appropriate courses or for pointing students toward special instructional programs, such as tutoring.

Criterion referenced: Criterion-referenced tests are designed to compare groups of students to groups of other students. They can establish performance levels on specific goals.

Commercial tests available: Educational Testing Service's Major Field Achievement Tests can be used for specific disciplines. General education outcomes can be measured through such tests as the ACT CAAP or Educational Testing Services's Academic Profile. Whether the comparison groups used in reporting the results are appropriate is an important criterion. Analyses of the content of various general education tests are available in the literature.

Selecting and Using Standardized Tests

- Determine the specific broad learning objectives for the academic program;
- List the specific knowledge, skills, and/or values that you might want to measure through a value-added process;
- Review available standardized tests to determine which correlates the most with your particular program;
- Determine whether the results can be disaggregated in ways that correlate with your program goals;
- Determine how the tests will be paid for;
- Arrange for the purchase and administration of the test;
- Determine when and how the Department faculty will analyze the results of the test in relation to your curriculum.

Extra Info on Portfolios:

Electronic Portfolios: The use of computers now allows institutions and faculty to require students to establish electronic portfolios. Some institutions have created electronic portfolio systems that not only could be used for assessment, but for other purposes such as registration, advising, and resume-building. In lieu of an electronic portfolio program, faculty can require students to submit all their work (outside of in-class tests) on disks or to upload copies of their work to a central file system. Then, when it is time to assess the

student portfolios, faculty can access those files and assess them in whatever way they think best. (Electronic portfolios also facilitate the submission of video clips, audio clips, or other media.)

Showcase Portfolios: A showcase portfolio can include virtually everything that the student has ever produced, if the faculty design it that way. The guidelines for the portfolio can be directly related to the learning outcomes that the student is expected to achieve and can serve as a checklist for the student to follow. Faculty might ask the student to submit examples of a specific number of tests, experiments, problems solved, applications of knowledge outside the class, of case study analyses, or of any other types of work typically expected by the discipline.

Open-ended Portfolios: An open-ended portfolio leaves it up to the student to decide what to submit in order to demonstrate mastery of the specific learning outcomes that the student has been expected to achieve. Students might submit evidence that is not drawn from the classes themselves, such as work on student clubs, travel, museum visits, summer work, internships, and other experiences. Because faculty cannot predict what students may submit, scoring the portfolio may be a more complex task than scoring the other types of portfolios, but may actually lead to very pleasant surprises about how students have benefited from what they have been taught.

Creating and Designing a Portfolio Assessment System

- Determine the specific broad learning objectives for the academic program;
- List the kinds of student work that students might include to demonstrate mastery of the learning outcomes;
- Determine what type of portfolio you want students to create;
- Develop a rubric to score the portfolio;
- Include the rubric with your instructions to students so that they understand how the portfolio will be evaluated;
- Write instructions for the students on how to create the portfolio and how it will be used;
- Inform students that they are responsible for creating the portfolio;
- Instruct students to label each part of the portfolio according to the learning objective being demonstrated;
- Instruct students what they are to write as an introduction to the portfolio or as a reflective essay;
- Instruct students that they are to discuss each sample of student work included in the portfolio, either as an introduction to the sample or within the introductory or reflective essay;
- Determine how and when students will first be introduced to the portfolio requirement, such as an introductory course in the major or when the student meets with his or her advisor;
- Score the portfolio using the rubric you devised.

Extra Info on Value-Added Assessments:

Varieties of Value-added Assessments:

Note: Virtually all other assessment methods can be used for value-added assessment. Pre- and post-testing happens to be the most common form.

Pre- and post-tests: These provide concrete data that could be easily scored and analyzed using statistical procedures.

Portfolios: Portfolios are almost impossible to construct for the pre-assessment.

Essays or research papers: If the assignments and criteria are carefully constructed, these can be scored using a common rubric.

Embedded assessments: The type of student work used as an embedded pre- and post- assessment will probably be one of the above. But you could also embed a common assessment, such as a test item or a research task, in a set of courses across all years of the student's program.

Standardized tests: Commercial testing agencies and companies have produced a variety of standardized tests that could be used for this purpose.

Creating and Designing A Value-Added Assessment System

- Determine the specific broad learning objectives for the academic program;
- List the kinds of student work that students might include to demonstrate mastery of the learning outcomes;
- List the specific knowledge, skills, and/or values that you might want to measure through a value-added process;
- Decide upon the type of pre- and post-assessment that you will use;
- Determine which faculty will create the pre- and post-assessment or review examples of commercially available tests for this purpose;
- Decide when and where the pre- and post-assessments will occur;
- Decide how the assessments will be evaluated and analyzed;
- If the pre-assessment is given when students first enter the program, inform those in-coming students that they will be given a pre-assessment, especially if it is to be given outside of a particular class.