



Quick Guide to Program Assessment Methods

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What are Assessment Methods?

Assessment methods are information, evidence, and/or data we collect to determine the extent to which students are meeting learning outcomes. The data (or measures, exams, artifacts – you may see in the literature different ways of describing methods) you collect can be assignments, tests, projects, etc. These are course-embedded methods, things you are already doing in your class. You can also collect information occurring outside of a course, such as focus group interviews with students or professional/disciplinary exams that students complete.

There are two types of assessment methods – direct and indirect. You should strive to have a direct method for every learning outcome. However, direct assessments of student learning, while providing evidence of *what* the student has learned, provide no evidence as to why the student has learned or *why* he or she has not learned. The “why” of student learning is especially important when students have not learned, because one of the primary goals of assessment is to make future learning experiences more effective.

	Direct	Indirect
Definition	<p>Students represent or demonstrate learning through performance or product</p> <p>Answers the questions: What did students learn as a result of an educational experience? To what degree did students learn? To what degree did students not learn?</p>	<p>Opinions and perceptions of student learning</p> <p>Answers the questions: Where did students struggle with demonstrating the skill? What were the student misperceptions? What about the direct method should be modified?</p>
Examples	<p>Course-embedded assignment/test</p> <p>Capstone project</p> <p>Senior thesis</p> <p>Portfolio</p> <p>Standardized test</p>	<p>Reflective journal</p> <p>Exit surveys</p> <p>Alumni surveys</p> <p>Focus group interviews</p> <p>Employer surveys</p>

Example of PLO and Direct & Indirect Assessment Methods

Program Learning Outcome: *By the time they graduate, students will be able to conduct a mixed methods research study focused on a public health issue.*

- **Direct method** – Students conduct a research study and submit a written document
- **Indirect method** – Students write a reflection on what was difficult about conducting a research study
 - “I had trouble conducting interviews that resulted in meaningful conversation. I am not good at following up on participant comments”

Assessment Methods Strengths and Limitations

Assessment methods have strengths and limitations. Part of selecting an assessment method for a PLO is to determine multiple possible methods and engage in a conversation with all program faculty about the best option.

Below is an example of a PLO and four possible assessment methods determined by program faculty. The strengths and limitations discussion follow.

PLO

Upon graduation, students will be able to evaluate a program using CAS Standards.

Possible Assessment Methods

- Multiple-choice exam created by instructor in which students answer questions about CAS Standards.
- Internship supervisor reflection in which supervisor describes what seemed easy and hard for students when working on a program evaluation.
- Capstone project where students evaluate a program using the CAS Standards.
- Final class grade in capstone course.

Strengths and Limitations

1. Multiple-choice exam created by instructor in which students answer questions about CAS Standards.
 - This methods provides data on if students can recognize, understand, and interpret the standards. While essential to using the standards, the method does not assess application.
2. Internship supervisor reflection in which supervisor describes what seemed easy and hard for students when working on a program evaluation.
 - This indirect method can provide data that can be used to improve course instruction. The internship supervisor will have a different perspective than program faculty. However, this method does not provide direct data
3. Capstone project where students evaluate a program using the CAS Standards.
 - This is the most direct method to assess students' ability to use the Standards.
4. Final class grade in capstone course.
 - Grades include other factors, such as attendance and extra credit, that do not reflect learning.

Based on the analysis of each method, the program faculty determined that they would use methods 2 and 3 to get a holistic understanding of student learning of the PLO. If the program faculty only wanted to use a direct method, method 3 would directly assess the PLO.

Guidelines for Identifying and Evaluating Methods for Assessing PLOs

There are seven guidelines that will help you to make the best choices when identifying and selecting methods. Review the guidelines before starting the 5-step process to identify and select methods.

1. Method is related to outcome

The methods to assess student learning should provide information related to the learning outcome. For example, an environmental geology program develops an outcome that students will be able to conduct research by the end of a program. To assess that outcome, the program uses the results from a multiple-choice test that tests students' environmental geology content knowledge. The assessment method doesn't provide information on students' ability to conduct research and therefore doesn't provide useful information to assess that outcome. Make sure that your method to assess student learning is related to the outcome. You will need to collaborate with colleagues in your program to identify methods that best align with the program outcomes.

In this example, two different methods are shown, and one method is more related to the outcome than the other. The multiple-choice test had weak alignment with the PLO. Multiple-choice tests are suitable for assessment, they just need to be aligned with the PLO as in Example 2 below.

PLO	Method
Students will be able to conduct a research project related to a contemporary environmental geology problem.	Weak Method: Multiple-choice test of environmental geology content in GEO 400 capstone course.
	Better Method: Written research paper in GEO 400 capstone course.

In this example, we see that a multiple-choice test developed externally has weak alignment with the PLO. However, a locally developed multiple-choice test does align with the PLO and can be used.

PLO	Method
Students will be able to evaluate current environmental geology problems.	Weak Method: Externally developed multiple-choice test of environmental geology content in which there is poor alignment between the content examined in the test and the content taught in the curriculum.
	Better Method: Locally developed multiple-choice test of environmental geology content in which the program faculty members aligned the content examined in the test with the content taught in the curriculum and the expected learning outcome.

2. No unnecessary methods for assessment purposes

Avoid creating additional tests or other assessment methods simply to satisfy your assessment data collection needs. It is preferable to identify methods that already occur as part of your existing instruction and testing activities. If you have difficulty identifying appropriate methods for an outcome, you may want to consider whether students are being adequately tested on the outcome – or whether the outcome is an appropriate one for your program. If the outcome is an important one but is not measured in the context of the curriculum already, then program faculty will need to develop new methods.

3. Avoid course grades or course completions as a method

Course Grades

Final course-level grades are not appropriate methods of assessing program-level student learning. Course grades are based on overall satisfaction of course requirements, not performance on a specific PLOs. Course requirements typically include several course-level outcomes that are likely related to more than one program outcome. Course grades also can include extra credit, class attendance, grade reductions due to late work, etc. Final course grades do not provide specific information about the program-level concepts mastered by students or those concepts that proved challenging – important information for faculty to consider if they want to improve student learning over time. However, it can be appropriate to use student grades on exams, projects, assignments, and the like that specifically measure student learning for a program-level learning outcome.

Here is an example demonstrating why final course grades aren't appropriate assessment methods for program-level assessment. An Environmental Geology Program has determined that final course grades from a capstone environmental geology course will be used to measure student achievement of the following program learning outcomes:

1. Students will conduct a mixed methods study on a topic related to public health
2. Students will communicate about public health topics in various oral formats (e.g., class discussion, debate, etc.).

Below are the course-level SLOs, course-level assessments used to measure student achievement of the course-level SLOs, and the assignment grades for two students. The students received different scores on the research paper and participation in discussions.

Course SLO	Course Assignments	Student A Assignment Grades	Student B Assignment Grades
Explain public health policies	4 exams	Exam 1: 90 Exam 2: 92 Exam 3: 89 Exam 4: 93	Exam 1: 80 Exam 2: 82 Exam 3: 80 Exam 4: 80
Conduct research study	Research project written paper	79	95
Discuss public health issues	Graded class discussion participation	80	95
Create annotated bibliography	Annotated bibliography	85	95

Final course grades are calculated below for Student A and B. Both students received an 87% in the course, which equates to a letter grade of B.

	Student A	Student B
Total percentage points for class	$90 + 92 + 89 + 93 + 79 + 80 + 85 = 608$	$80 + 82 + 80 + 80 + 95 + 95 + 95 = 607$
Percentage	$608 \div 7 = 87\%$	$607 \div 7 = 87\%$
Letter grade	B	B

If final course grades are used to determine student performance related to the two program learning outcomes, then it would appear that both students performed similarly on research and oral communication. In reality, Student A received a 79% on the research paper, while student B received a 95%. Student A received an 80% on the class discussions, while student B received a 95%. The course grade does not differentiate student learning by the different program-level outcomes.

Also, course grades often include student learning of skills, knowledge, and dispositions not related to the program learning outcomes. In the example above, student grades from the four exams aren't related to the two program-level learning outcomes. In the table below, the students are offered opportunities for extra credit. Student A completes extra credit and gets 3% points added to the final grade.

	Student A	Student B
Total percentage points for class	$(90 + 92 + 89 + 93 + 79 + 80 + 85) = 608$	$80 + 82 + 80 + 80 + 95 + 95 + 95 = 607$
Percentage	$608 \div 7 = 87\%$ $87\% + 3\% = 90\%$ (grade after extra credit provided)	$607 \div 7 = 87\%$
Letter grade	A	B

If final course grades from the table above are used to determine student performance related to the two program learning outcomes, then Student A will appear to have a higher-level of performance than that of Student B. However, based on the students' scores on the research paper and discussions, Student B actually performed at a higher-level than did Student A.

Rather than using course-level grades to evaluate student achievement of program-level learning outcomes, programs should identify specific assignments or components of assignments that directly measure student performance related to the program-level learning outcome.

Course completions

Course completion is the number of students who completed a course or program. It is not an appropriate measure of student learning. Whether or not a student completes a course or program is not evidence for student learning for a specific learning outcome. Avoid using completion of a single course or program as a method to assess student learning.

4. Use at least one direct method

The goal is to determine the extent to which students achieve learning outcomes. The best way to do this is with a direct method. An indirect method can provide inferential information about learning, but not direct information. Therefore at least one method to assess an outcome should be a direct method. Additional methods can be direct or indirect.

5. Be specific about the method identified

There is often a gap in time between when an assessment plan is created and when it is implemented. For example, a program may create an assessment plan over the course of an academic year, but not implement the plan until the next academic year. Or the program may implement only part of the plan in the next academic year and the other part the year after. There can also be a change in faculty over time. For example, a program may have a program assessment committee that creates the assessment plan, but by the time the assessment plan is implemented a new group of faculty members are serving on the committee.

It is critical to be as specific and clear as possible about which methods should be collected for each PLO for assessment continuity. In an assessment plan, rather than saying “tests,” say, “Final exam in GEO 400, Senior Capstone.” Rather than “research paper,” say, “Final research paper in GEO 400, Current Issues in Environmental Geology.” By identifying a specific exam or assignment in a specific course or specific questions on an assignment, you are creating a clear, transparent data collection plan for your program assessment. For all methods, indicate if the entire method will be used or if specific item(s) that will be used to measure the outcome. For example, there may be a few questions or sections on an assignment that are relevant to assessing student learning for a particular PLO.

6. Balance "perfect" data, timeliness, and practicality

Programs should do their best to ensure that the methods they use yield meaningful data. However, it is important to acknowledge that assessment efforts must be balanced with other considerations. Programs should seek a balance between the "perfect" method, timeliness, and practicality. Assessment is a form of systematic and ongoing inquiry, based on the collection and analysis of data about student learning that is undertaken with the best knowledge and resources permissible and within the time available. The resulting information guides decision makers in choices related to the curriculum and other areas that may influence learning. Programs should identify methods that provide meaningful data in a timely manner to provide practical and actionable feedback to the program.

For example, let's assume that a program has the following PLO: *Students will be able to conduct a mixed methods study on a public health topic.* They select the following assessment methods:

- an authentic assignment in which students conduct a mixed methods study
- multiple-choice test items given in a capstone; the items ask students to analyze data to make a conclusion
- research supervisor survey in which the mentor reflects on students' abilities to conduct mixed methods research

The program evaluates the strengths and limitations of each method and evaluates the program's available resources. The program faculty members conclude that the authentic assignment would provide the most meaningful data related to the PLO. However, the program doesn't have an

authentic assignment already created. But it already gives the multiple-choice test and collects a survey from research supervisors. The program decides to use the multiple-choice test and supervisor survey for the short term. This allows them to get data about students' ability related to the PLO. Since, the program doesn't think that the multiple-choice test and supervisor survey provide the most meaningful insight into students' abilities related to the PLO, they also develop a plan to develop an authentic assignment and rubric for the next academic year. The program found a balance between the "perfect" method and their current available resources.

7. Method is meaningful and credible to stakeholders (i.e., faculty, students, etc.)

Assessment data is only useful to programs if faculty, students, and other stakeholders value the data collection method and find the data credible. All program faculty members should be engaged and involved in the process to identify assessment methods. Other stakeholders like students, intern supervisors, etc. may also be valuable contributors to helping programs identify methods that will produce meaningful and credible data.

For example, a program's assessment plan was previously developed and implemented by the department chair. The department chair managed all aspects of program assessment. They selected the following assessment methods:

- final class grades in senior capstone course,
- open-ended survey questions asking students what they learned in the program and what they liked and disliked
- externally developed multiple-choice survey required of all majors.

The rest of the faculty members didn't find the methods meaningful for determining program learning, but the department continued to use those methods to collect data for several years. Data collection was sporadic, and no one was interested in analyzing the data. After several years of data collection using the methods identified by the department chair, the department faculty decided that new methods were needed so that they would have a more meaningful and accurate picture of student learning. The faculty worked as a team to identify methods that were better linked to the learning outcome and that provided more meaningful data.

Process for Selecting Assessment Methods

The process of selecting methods for program assessment will require collaboration and input from all program faculty. Engage the faculty teaching courses to work together to identify existing methods that could be collected to assess student learning and/or identify opportunities for creating new methods. What follows is a 5-step process for selecting methods.

Step 1: Use curriculum map to determine in which venues (e.g., in a specific course or in non-course context like a recital or thesis) data should be collected.

Use your curriculum map to identify venues in which to collect data/information about student learning. Program-level learning outcomes are written to represent students' summative learning in a program; therefore, start by identifying a venue that exists after students have had extensive exposure to the learning outcome. You can engage faculty at this stage by having them review a curriculum map and identify appropriate venues. Venues can include courses, but they can also include non-course opportunities. For example, some programs require students to engage in internships or give performances. These experiences can serve as appropriate venues from which to collect information about student learning.

In the curriculum map below a group of faculty from Department X used a curriculum map to identify possible venues to assess the PLO *Students will be able to conduct research*. They have identified a capstone course and their exit survey as possible venues.

		Students will be able to conduct research
Required Courses	201	I
	250	R
	300	
	400	R
	450	RA
	Exit Survey	A

- Introduced (I) – The skills associated with the program outcome are presented in the course. You may find this will happen in the lower level courses in your program. There may be formative assessment.
- Reinforced (R) – The skills associated with the program outcome are being worked on at a level above the introductory stage and/or the skills are being developed at a deeper level. There may be formative assessment.
- Assessed (A) – Students should have developed a sufficient level of competency in the skills associated with the program outcome to have mastered them. This is where the assessment of the program learning outcome is done (or the artifact for analysis is collected).

Step 2: Identify methods to evaluate each PLO

After selecting a venue in which to collect information about student learning, identify existing methods occurring in that venue that might be appropriate to evaluate student learning. This may

include an existing test or assignment that allows students to demonstrate their learning related to the learning outcome. For this step, engaging faculty by reviewing course syllabi and having discussions will be helpful. When identifying methods, remember that it is okay to select only part of a particular assignment as evidence of student learning. For example, let's say that a learning outcome is that students conduct a critical literature review. In a capstone class, students develop a research study and one part of that research study is to review and critique the literature. Student learning only related to the literature review part of the assignment would be gathered for that learning outcome. It is helpful at this stage to identify a few possible methods. Use the methods guideline checklist as a reference during this step (see p. 6).

In the table below, the Department X faculty identified two possible methods in Course 450 and they identified an aspect of the exit survey that could demonstrate student learning.

PLO	Venue	Possible Methods
Students will be able to conduct research.	Course 450	1. Final research paper. 2. Class presentation about research project
	Exit survey	3. Senior exit survey, question 4, asking students about research experiences in program

Step 3: Evaluate strengths and limitations of methods and select a method

All methods have strengths and limitations. In this step, work with your faculty to identify the strengths and limitations of the methods selected in the previous step. Based on finding a balance between the range of strengths and limitations, select a method for each PLO.

In the example below Department X faculty noted strengths and limitations of each possible method (Note that the venue was not included in the table to focus on the aspects related to this particular step). Based on the strengths and limitations of the methods, the faculty selected the final research paper and senior exit survey. They decided that the class presentation focused more on communication rather than on students' research skills and decided that it was not the best method for the PLO.

PLO	Possible Methods	Strengths	Limitations
Students will be able to conduct research.	Final research paper	<ul style="list-style-type: none"> Assignment direct representation of skill Embedded within class 	<ul style="list-style-type: none"> Different faculty use slightly different assignments and different rubrics to score
	Class presentation	<ul style="list-style-type: none"> Provides students who have stronger oral communication than written skills the opportunity to show research abilities Embedded within class 	<ul style="list-style-type: none"> Presentation focuses more on communication skills than research skills

	Senior exit survey	<ul style="list-style-type: none"> • Provide good info from students' perspective 	<ul style="list-style-type: none"> • Survey not always administered; nobody has responsibility for ensuring that the survey is administered • Nobody has responsibility for analyzing survey data
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Step 4: Apply guideline checklist to evaluate methods

It can be helpful to use the methods guideline (see p. 4) throughout the entire process of identifying methods. However, after a method is selected for each PLO, apply the checklist to the methods for each PLO.

In the table below, the faculty were able to check the first 5 items in the checklist. They thought that the limitations they identified for the methods (see the step above) prevented them from checking the last two items in the checklist.

PLO	Methods	Checklist
Students will be able to conduct research.	<ol style="list-style-type: none"> 1. Final research paper in Course 450 2. Senior exit survey 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> 1. Method is related to outcome <input checked="" type="checkbox"/> 2. No unnecessary methods for assessment purposes <input checked="" type="checkbox"/> 3. No course grades or course completions used <input checked="" type="checkbox"/> 4. At least one direct method used <input checked="" type="checkbox"/> 5. Specific method identified <input type="checkbox"/> 6. Balance "perfect" data, timeliness, and practicality <input type="checkbox"/> 7. Method is meaningful and credible to stakeholders

Step 5: Make an action plan to revise and/or create new methods, as needed

In step 3, the strengths and limitations of methods were identified and in step 4 the methods guideline checklist was applied to each PLO. As a team, faculty should reflect on if the information from Steps 3 and 4 suggest that an existing method needs to be modified or if a new method needs to be created.

In the table below, the faculty identified aspects of the existing methods that need to be modified. Once these modifications are made then the faculty will feel confident that all of the items in the methods guidelines checklist can be selected.

PLO	Method	Needed Revisions
Students will be able to conduct research.	Final research paper	Work with faculty to create common assignment and rubric to score research papers
	Senior exit survey	Create subcommittee to administer and analyze survey

What are Performance Criteria?

Performance criteria (or benchmarks) answer the questions: At what level of performance on data collected from method will you know if students have achieved the learning outcome? A performance criterion or threshold should be developed for each method used to assess a learning outcome.

Types of Performance Criteria

Not all of the types below are meaningful for program level assessment.

Standard/Benchmark/Criterion Type	Question each benchmark can answer
Local standard	Are our students meeting our own standards?
External standards	Are our students meeting standards set by someone else?
Internal peer benchmark	How do our students compare to peers within our program or college?
External peer benchmark	How do our students compare to peers at other colleges?
Best practices benchmarks	How do our students compare to the best of their peers?
Value added benchmark	Are our students improving?
Historical trends benchmark	Is the program improving?
Strengths and weaknesses perspective	What are our students' areas of relative strength and weakness?
Capability benchmark	Are our students doing as best as they can?
Productivity benchmark	Are we getting the most of our investment?

Guidelines for Selecting Performance Criteria

The following guidelines will help you determine the best benchmarks for each assessment method.

1. The performance criterion should be realistic and attainable.

Performance criteria help you make decisions about student learning and about program curricula. It can be tempting to set unrealistically high criteria (i.e., nothing but the best) or unreasonably low criteria (i.e., guaranteed to show success). If a program sets an unrealistically high standard (e.g., 100% of student will meet some criteria) then if a few students don't meet that standard then you would conclude that the students don't possess the knowledge or skills of the outcome. Programs often set an unreasonably low standard to assure that students always appear to meet their outcomes. However, this doesn't allow the program to identify strengths and weaknesses in student performance and to determine if curriculum adjustments are needed. Also, unreasonably low criteria may not push students to perform at higher levels.

Programs should seek to set realistic criteria that are attainable. This ensures that meaningful conclusions are made about student performance. It may take a few revisions to identify realistic and attainable criteria. Therefore, programs should be prepared to revisit and revise their criteria.

2. The performance criterion must be directly related to the method.

If the measure is an exam, the performance criterion will be a threshold of performance on the specific exam. If the method is one question from a survey, then performance criterion will be a threshold of respondents' rating on that particular survey question.

3. Write performance criteria using one of the formats below.

Format	Example
Format 1: " ___% of students will earn a grade/rating of ___ or higher on the ___ [add name of exam, project, survey]"	<ul style="list-style-type: none"> • 80% or more of students will earn a grade of B or higher on research critique assignment • 75% or more of students will earn rating of "meets expectations" on research paper assignment
Format 2: " ___% of students will ___ [pass, successfully defend, etc.] the ___ [licensure exam, dissertation, etc.] on the ___ [first] attempt"	<ul style="list-style-type: none"> • 85% of students will pass the state licensure exam on the first attempt
Format 3: " ___% of respondents will report that ___ [use of scale points from survey item]"	<ul style="list-style-type: none"> • 85% of alumni survey respondents will report that program contributed "very much" to development of research skills (alumni survey) • 75% of intern supervisor respondents will report that interns had "good" research skills (supervisor survey)

Resources Used to Develop Quick Guide

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Quick Guide Developed by Lyda McCartin and Audrey Tocco, November 2020.