Quick Guide to Program Data Collection and Analysis

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What are data collection and analysis?

Data collection and analysis are two distinct processes that can be used to analyze and interpret products of student assessment. A data collection plan establishes some guidelines for rubrics, rubric norming, responsibility, and makes assessment a team effort. Once you have data collected, analysis helps to accurately capture student learning.

These two processes will be unique to your program and are determined by number of students, type of assessment, number of faculty, etc. This feeds into the assessment plan that you’re working on and you can use these two processes, one for collection and one for analysis, to complete that assessment plan template.

When defining the implementation components of your assessment plan, you want to be sure to get extensive faculty input in order to increase faculty buy-in.

Why do you we need to plan for data collection and analysis?

The Personal Finance Program at Southern University has developed a curriculum map and determined where they will assess each PLO. They have determined four existing assessments that they can use to assess the PLOs. However, each course has at least two sections that are taught by different instructors with no standard rubric for the assessments. The data is collected, scored, and analyzed by the course instructor. For example, PFP 400 is taught by four instructors including a tenured professor, a full-time contract renewable professor, and two assistant professors.

Lack of standardization and planning brings up some data collection and analysis challenges. In this scenario, not having a standard rubric will make it difficult to assess learning across sections of the course. With no consensus on achievement benchmarks, there is no real way to assess the program outcomes.

Developing a plan for both data collection and analysis is an important step to ensuring that your assessment work is sustainable and shared by the entire department. These plans are also important for business continuity as the plan details the who, what, when, and where of your data collection and analysis. This means that new instructors and administrative staff are able to support the assessment plan from day one.
Data Collection Plan

A data collection plan establishes some guidelines for rubrics, rubric norming, responsibility, and makes assessment work a team effort. The key word to keep in mind through this process is “sustainable.” You want to create an assessment plan that is manageable for your program size to ensure that program assessment will continue.

The Data Collection Plan Answers Four Questions:

1. Who collects the data (and where do they put it)?
2. Where is the data collected?
3. When is the data collected?
4. How much data is collected?

Who collects the data (and where do they put it)?
Unless you are using an outside test, such as a licensure exam or a professional assessment, keep data collection within the department as this just makes things easier.

You want a “point person” for the data collection, but this person should not be completely responsible for all assessment work. For example, each faculty member teaching the course where the data is collected may provide that data to an administrative assistant to organize it for analysis. This decision will depend on the type of data you’re collecting.

Where data is stored depends on the type of data. For example, a written artifact that cannot be submitted online may need to be stored in a locked cabinet. Electronic student artifacts may be stored in Canvas or downloaded into a shared drive for analysis.

Where is the data collected?
Data is collected in the course or learning experience in which program learning outcome are assessed. This could be a capstone course, an exit exam, a required course, an internship etc. If you refer back to your curriculum map, you’ll see where you made this decision. The data is collected where the assessment is given.

When is the data collected?
Because program assessment is integrated into courses programs, you should collect data all the time. You can collect data without analyzing it so you should collect it each semester, every time the course or venue for assessment is offered. You want collection to be a regular occurrence. Collect the data each year even if you don’t analyze the data each year.

How much data is collected?
This will be unique to your program and there is not a right or wrong way to collect data. A good practice is to collect and store each student artifact. Then you’ll determine if you are going to analyze the entire set of artifacts or a sample.
This will also depend on some answers you want – if you want to know about the achievement gaps between your students of color and your white students, or between groups such as your Black students and your Latinx students, you’ll want to make sure the sample includes these populations, or you want to look at all your data. Keep in mind that you can answer different questions every year using this data. You can certainly change the analysis plan to answer certain detailed questions about student learning.

**Data Collection Case Study**

After developing standard assessments in each of the courses where they assess a Program Learning Outcome, the Personal Finance program at Southern University were able to develop a data collection plan:

1. Who collects the data (and where do they put it)?
   a. Each instructor for the four courses where they assess will collect all student artifacts.
   b. Artifacts are submitted to Canvas, which serves as the repository for course assignments.
2. Where is the data collected?
   a. The data is collected in PFP 303, PFP 400, and PFP 360.
3. When is the data collected?
   a. The data is collected each semester 303, 400, and 360 are taught.
4. How much data is collected?
   a. All student artifacts designed to assess the PLOs are collected each semester the courses are taught.
Data Analysis

Once you’ve collected data you need to analyze that data. Before getting started it’s important to establish a data analysis plan.

The Data Collection Plan Answers Three Questions:
1. What analysis methods are used?
2. When does analysis occur?
3. Who does the analysis?

What analysis methods are used?

The type of analysis that you’ll use depends on the type of data and criteria you have. Numerical data uses descriptive statistics while non-numerical data such as observations, essays, performances will most likely be qualitative in nature and use rubrics or qualitative analysis.

For example, if your criterion is that 85% of students will pass a state licensure exam on the first attempt, you’ll use descriptive statistics with a mean, frequency, and percentages. If your criterion is that at least 80% of students will score a “meets expectations” on the internship rubric for ethical behavior, this will be a rubric-based analysis.

A note on rubrics: You don’t have to develop your own from scratch. You may find rubrics in the literature or from national organizations that you can adapt to your needs.

When does analysis occur?

You do not need to analyze each PLO each semester or even each academic year. You can collect the data without analyzing it and analyze the data on a schedule. For example, you may stagger analysis and analyze data for PLO 1 and 3 in Year A and PLO 2 and 4 in Year B.

Whatever decisions you make about when to analyze data, you want to be consistent. You also want to make analysis manageable, which likely means that you aren’t analyzing data for each PLO every year. Be sure to analyze data often enough to get information to improve your program and answer important questions you have about student learning and achievement.

Who does the analysis?

When you think about how you collect the data, you want to think about if you are assessing each student or a sample of students and how you sample. This can also determine who does the data analysis given how much data there is to analyze. As with everything, the answers to these questions will be unique to your program.
Consider these questions when thinking about who does the data analysis:

- Will the course instructor conduct analysis and provide it to the program?
- Will an individual faculty member or team conduct the analysis?
- Who has expertise to conduct the analysis?

### Data Analysis Case Study

The Counselor Education Program at Southern University has three Program Learning Outcomes. In the yellow column you’ll see who analyzes the assessment data. Two PLOs are analyzed by one person while one is analyzed by a group of people. This is due to the nature of the assessment method. In PLO 1, one person can obtain and report the scores on the licensure exam; this is the faculty member who oversees this testing for the department. In SLO 3 one person can collect all of the intern supervisor reports and report those scores; this is the person in charge of the internship program. But for PLO 2, the research study, there is a lot of data and will take a team of faculty to review and score a rubric.

<table>
<thead>
<tr>
<th>PLO</th>
<th>Data Methods</th>
<th>Performance Criteria</th>
<th>WHAT type of data?</th>
<th>WHAT types of analyses?</th>
<th>WHEN does analysis occur?</th>
<th>WHO will analyze the data?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students in Counselor Education will pass the state licensure exam on the first attempt</td>
<td>State licensure exam</td>
<td>At least 85% of students will pass the state licensure exam on the first attempt</td>
<td>Numerical (students’ test scores)</td>
<td>Descriptive analysis (frequency and percentage)</td>
<td>Every fall semester</td>
<td>Dr. Ellis</td>
</tr>
<tr>
<td>Students in Counselor Education will conduct original research</td>
<td>Research Study</td>
<td>At least 75% of students will score as having Good research skills</td>
<td>Non-numerical (essay)</td>
<td>1. Rubric-based analysis (Numerical rubric) 2. Descriptive analysis</td>
<td>Every summer semester</td>
<td>Faculty Committee</td>
</tr>
<tr>
<td>Students in Counseling Education will demonstrate ethical behavior in the field</td>
<td>Observation</td>
<td>At least 80% of student will score a meets expectations in the internship rubric for ethical behavior.</td>
<td>Numerical (rubric score)</td>
<td>Rubric Analysis</td>
<td>Every spring semester</td>
<td>Dr. Smith</td>
</tr>
</tbody>
</table>

You do not need to use a committee as you can use course assignment grades to determine PLO achievement. Another option for PLO 2 in the above example is for each course instructor to collect the data in Canvas and use the assignment grade to determine program level achievement. This works by going through the following steps:

1. Determine the assessment method (i.e. research paper).
2. Determine the analysis process (i.e. rubric) and standardize that for each section/instructor.
3. Spend time “norming” the analysis process so that you are confident the assessment is scored the same across sections.
4. Collect the data in Canvas/LMS.

Can we change our data collection and analysis plan?

Yes!

The best way to ensure that assessment work is meaningful is to seek answers to questions about student learning that your faculty want to answer. You can make changes to your plan based on these questions. Keep in mind that you can answer different questions every year using the assessment data for your PLOs. For example, you may want to know about the achievement gaps between your students of color and your white students, or between groups such as your Black students and your Latinx students. You might also change your data collection plan if you implement a new intervention and want to assess learning earlier than the plan indicates to see if there is immediate change. In this case you may want to assess learning the next semester or collect fall and spring data and analyze the next year even if that’s off cycle. The key is having an initial plan so that you are collecting data systematically and adjusting as the data indicates a need to delve deeper into meaningful questions about learning.