

Sampling Guidelines for Higher Education

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Definition

Sampling for the purposes of collecting assessment data is defined as the collection of data from a **subset** of a larger population. A population is the entire group of people you are trying to assess (e.g., all seniors in a program, all graduating students in the university, all people entering the library); including the entire population is called a census. For the term population, the key word is “all” and for the term sample, the key word is “subset.”

Census vs. Sampling

Explanation: For programs that are small, assessing the entire population may yield a more accurate measure of student learning. Assessing the entire population is called a **census** whereas assessing only part of the population is called a **sample**.

Example of Using a Census: Whole populations should be considered for the assessment and evaluation of an SLO when the population is rather small. For example, some degree programs only have 5 or 10 students. Those programs could and should include all the students in the assessment and evaluation of an SLO.

Example of Using a Sample: It is difficult and time-consuming to evaluate all students' assignments for an SLO if there are over 100 students in a program, especially when the artifacts are long and complicated such as a 20-page research paper.

When to Sample

Sampling is appropriate for any method whereby assessing the whole population would require extensive/unavailable resources, requires more time than feasible, or is otherwise difficult to accomplish. The types of instruments used are a huge part of the equation since it can determine whether sampling will make the assessment process more effective. In the case of multiple-choice tests, for example, sampling may not make a significant impact on time to assess and analyzed data, whereas sampling for assessing multiple competencies on a research paper will significantly reduce the investment of time. Feasibility is also a consideration. In some instances, assessing entire populations is not possible (e.g., surveying all students at a large event).

Sampling Methods

In order to determine the best sampling strategy, take into consideration the number of people in the entire population and the type of data needed. Listed below are examples of the most common examples and related scenarios to illustrate applications in higher education settings:

Sampling Strategy	Definition	Application of Sampling Strategy
<i>Simple Random</i>	Randomly drawing people (e.g., randomly pulling names from a hat)	At an event, all 100 students participating were given raffle tickets. 10 raffle tickets are selected at random from a fishbowl to take a survey and receive a door prize.
<i>Strategic Random</i>	Systematically selecting people through random selection. This works best when the population is expected to be homogenous.	All senior students are placed on a list in alphabetical order and every 10 th student is selected to take a short quiz.
<i>Random Stratified</i>	Dividing people into groups depending on characteristics and then randomly selecting among them to increase changes of representation.	When surveying all students in a program, students are grouped into freshman, sophomore, juniors, and seniors. A percent of students grouped by this category is taken into the sample proportional to the numbers of students at each level.
<i>Cluster</i>	Sampling an entire subgroup of people when there are several groups. This assumes all subgroups are representative of the entire population and may be subject to error.	There are 10 sections of a class, two sections are randomly selected and all students within those two sections are assessed.
<i>Convenience</i>	A non-probability sampling strategy whereby no randomization is taking place and people are selected based on availability.	Students who attend an advising session are given a survey.
<i>Purposive</i>	A non-probability sampling strategy focusing on selecting a particular number of a designated population.	Selecting 10 students from a class you are teaching to participate in a focus group.

Small Sample Size Considerations

When the entire population or availability of artifacts is small, sampling may not be the best option. In the case of assessment, we define small as a number deemed by faculty, staff, and other decision-makers to make reliable or justifiable decisions about improvement strategies for an outcome. The exact number will vary according to the type of instrument, the amount of information provided by the instrument, and other factors. Examples include:

- A capstone course with 40 students where the artifact collected is a team project. The class was divided into 4 groups of 10 and thus only 4 artifacts were collected.
- A survey distributed to 100 people, but only 10 replied.
- A focus group where only 6 students participated, but the data gathered were rich and full of insights that reflect weaknesses that can be addressed.
- A graduating class with only 5 people. The measure was a dissertation which all 5 students completed.

The following considerations are applicable to small number of students or artifacts available:

- **Maximize Number of Information Gathered:** include all assessments available when the number available is small. In these cases, sampling is not appropriate since analyzing all possible data would yield better information..
- **Obtain Supplementary Data:** if other instruments can measure the same outcomes, then consider using multiple types of data to triangulate results and make the analysis more valid.
- **Gather Data at Multiple Points:** if one instance of data collection yields insufficient data, then attempt to gather the same data at another point in time (e.g., another semester within the same academic year, expand outreach to access more people).
- **Use Robust and Thorough Instruments:** using quality instruments that allow for richness of data analysis can provide a lot more information even with small sample sizes. Examples include
 - Survey with validated questions and asking the same question a bit differently and then analyzing to understand if the answers to similar questions correlate
 - Multiple-choice test that tests for certain knowledge using multiple questions, angles, question formats, etc.
 - Essays or projects that ask students to show depth of knowledge and is assessed using a rubric to thoroughly measure multiple sub-competencies that make up the competency addressed in the outcome