**Understanding Sampling and Validity**

**Sampling** is the cornerstone of research. Sampling is a way of studying a subset of a population because studying an entire population would be nearly impossible. A sample must represent the larger population with similar characteristics that are important to the researcher in completing their study. Sampling is a process of selecting components and elements from a population of interest to the researcher studying the sample; the researcher is able to generalize results to the larger population from which the sample was selected.

Sampling is divided into two approaches: probability and nonprobability. Probabilistic sampling utilizes random sampling. In probabilistic sampling, all individuals in a population have some level of the opportunity of being included in a sample, and the numerical probability that any one individual will be selected can be calculated.

In nonprobabilistic sampling, population features are chosen on the basis of their accessibility or because the researcher believes the sample’s features are representative of the larger population.

Sampling is an important part of survey research. Using the principles of sampling, a researcher gathers information from a sample of participants typically in a manner that makes it likely to generalize results to the population.

Survey research can include questionnaires or measures that can be administered online or through the mail. Another method of survey research is personal interviews.

### Review of Sampling Methods

Several sampling methods can be used in quantitative and qualitative research. For example, simple random sampling is a method in which a researcher could have access to an entire population. However, few researchers have the time or resources to utilize this method. Instead, other methods of sampling can be used to reach the researcher’s population of interest.

For example, selective methods can be used such as purposive and snowball sampling to target specific groups. Convenience methods can be used such as convenience sampling when the target group is readily available. Another type of sampling in which convenience is important is quota sampling where accessibility and suitability are a priority and the focus is on ensuring that the sample is comparable to the population on certain qualities and attributes. Other methods include probability methods such as simple random sampling, cluster sampling, stratified sampling, and systematic sampling.

**Randomization**, or the random selection and assignment of participants based solely on chance, is the foundational element of experimental designs, reducing alternative explanations for the effects the researcher is measuring.  Random selection involves the procedure used to identify participants to be members of a sample, while random assignment involves the procedure used to assign identified participants to the various groups within a study.

**Simple Random Sampling:** Participants in the population are randomly selected; each participant has an equal chance of being selected.

**Systemic Random Sampling:** Participants in the population are randomly selected by using a consistent interval size (e.g., every “5th” participant is chosen from the population)

**Stratified Random Sampling:** The population is divided into subgroups called strata according to variables of importance to the study (e.g., age, gender, SES).  The designated proportions of each stratified subgroup are then randomly selected to participate in the study

**Purposive sampling:** Non-probability sampling procedure where the researcher purposefully chooses participants for inclusion in the study as they have particular features or characteristics needed for the study.

**Convenience sampling:** Choosing participants who are easily available for the study.

**Snowball/Chain sampling:** Non-probability sampling procedure where existing participants recruit additional similar participants for inclusion in the study.

**Sample Size:** Quantitative and qualitative studies have vastly different sample sizes that are acceptable.  For qualitative studies, smaller sample sizes are considered acceptable because of the depth and time of data collection:

* Ethnography: 30-50 interviews (Morse, 1994)
* Grounded theory methodology: 20-30 (Creswell, 2013);  30-50 interviews (Morse, 1994)
* Phenomenology: 1 to 10 (Creswell, 2013); at least 6 (Morse, 1994)
* Case Study: 4-5 (Creswell, 2013)

Determining the sample size in quantitative studies depends on multiple factors. In order to determine the optimum number of participants, researchers must calculate “[power](http://methods.sagepub.com.proxy1.ncu.edu/reference/the-sage-encyclopedia-of-communication-research-methods/i13981.xml?fromsearch=true)”.  Power is the probability a test for statistical significance will identify a difference, effect, or relationship when one actually exists.  If statistical power is high, the probability of making a Type II error, or concluding there is no difference, effect, or relationship when, in fact, there is one, decreases. Increasing the sample size is often the easiest way to increase the power of a statistical test

* A Type I error occurs when a significant difference, effect, or relationship was concluded when one actually did not exist
* A Type II error occurs when a significant difference, effect, or relationship was not concluded when one actually did exist

### Validity

While methodologists have advanced qualitative research over the past several decades, some scholars and methodologists continue to perceive it as less rigorous than the quantitative approach. In quantitative methods, consider two constructs in assessing quality and rigor, namely, validity and reliability. These two concepts were developed in the natural sciences. While they are properly suited for natural and hard sciences, the epistemological origins of quantitative research contradict those associated with qualitative epistemology. However, a broader conceptualization of the two terms provided qualitative methodologists with a vehicle to reconstruct a protocol with which to evaluate qualitative research. This means that if you believe reliable to mean sustainable and valid to mean well grounded, then you find the essence of what you now use as the critical metrics for judging rigor in qualitative research.

Validity is a feature of claims about phenomena and not of designs, methods, studies, instruments, statistical analyses, or any other element of research. Good validity means that researchers using the design to address a particular problem have a good chance of being able to construct a convincing argument for the meaning and value of their findings.

Researchers must consider several areas of quality in qualitative research including (types of) generalizability (representational, inferential, and theoretical), validity and reliability, validation, and transparency (careful documentation of research execution). These areas are complex and much has been written about each. While some convergence of thought has occurred over time, you still require some flexibility because of a divergence of purpose to conduct qualitative research.

Validity is a term that is often used when discussing and understanding quantitative designs. However, it is an important component of your qualitative design too. As you prepare your research design, it is important to be aware of how the issues are considered in your chosen method. Like the quantitative design, general rules guide research design for validity in all qualitative projects. For example, in qualitative research, you must address how you will ensure that you are studying what you intend to study (construct validity) and how you will ensure the credibility, dependability, and integrity of your analysis.

Threats to validity are plausible alternative explanations for claims you make about a wide range of aspects of your study. Another way of looking at the issue is to simply think of a threat to validity as a reason your claims might be wrong.  For example, pretend you wanted to find out if people preferred cats to dogs as pets and you went to a dog show to survey people there. You survey 100 people and 66 of them say they prefer dogs and 34 say cats.  You run a statistical analysis (just if you are interested, in this case, the test would be a chi-square test) and this shows that 66 is significantly higher than 34.  So you conclude that people prefer dogs. But the threat to validity here is your sampling. By conducting the survey at a dog show, you are likely to have a sample of people who are more likely to like dogs; therefore, the sample is biased.  For the teaching example, you might find that all the best teachers (or students) are assigned to teaching method A and all the poor teachers (or students) to teaching method B. So, when you find teaching method A is better, well this might just be because all the best teachers/students are in that group anyway, so it’s not the method that is better, it is the people/sample that is probably the reason the teaching method looks better.

If your research is to yield knowledge of value, you must look closely at possible threats to validity so that you can design your study in a way that will allow you to make convincing claims about your findings. You must try to argue for all validity claims you make in your study (e.g., the reliability and validity of survey you intend to use) addressing plausible threats through your design.

### Validity of Qualitative Research

Validity in qualitative research can be defined through the quantitative equivalents. In quantitative studies examination is made to perhaps the relationships that might or might not exist or the cause of one thing happening based on the control of variables.  In qualitative research, there is not ‘control’ of variables or comparisons of a large amount of data to develop generalizable conclusions.  In qualitative research there are far fewer ‘data’ but many times more ‘data’ points.  In qualitative research involving multiple data points is critical to ensuring a ‘valid’ or ‘triangulated’ approach is employed.  The more ‘data’ points (e.g., perspectives) the qualitative researcher can employ, and then develop conclusions based on these multiple perspectives from the same context allows a much more credible study to be undertaken.

In qualitative research, the use of multiple perspectives (triangulated approach) in the same context allows more ‘confirmability’ that the data collected is more dependable if viewed and analyzed from different perspectives the conclusions developed are greater the ‘internal validity

**Triangulation** is a critical component of qualitative research validity.  As the name implies, it’s about three points of data.  Think about a triangle having three points and three sides.  You want to have a triangulation of data and perspectives when designing your qualitative research study.

* In a case study, you could conduct interviews, record observations and collect artifacts from three data sources.
* In a simple qualitative study, you could interview higher education administrators, faculty, and students.
* In a Delphi study, you would get expert opinions from individuals in three different roles.

**Week 7 - Assignment: Analyze Sampling and Validity**

* **Using the resources and readings provided for this week, your assignment is to analyze sampling and validity based on the Week 5 and 6. Please find attached week 5 and 6 assignment in order to complete the require task for sampling and validity.**
* **Sampling: Select one topic and the aligned quantitative and qualitative research questions to examine and determine two possible quantitative and two possible qualitative sampling strategies. Justify your selections with appropriate citations. Minimum 1 page for each methodology, 2 pages total.**
* **Validity: Select one topic and its aligned *quantitative* research questions to examine any possible issues or threats to the four main types of validity (conclusion, internal, external and construct). Minimum 1 page.**

### Submission Instructions

**File Type: Document**

**Length: Minimum 3 pages**

**References: Include a minimum of two scholarly resources that demonstrate a connection between research, practice and scholarly work.**