Sampling

Definitiion

Sampling is the process of systematically selecting that which will be examined during the course of a study.

Types of Sampling Approaches

There are a wide range of sampling approaches. We use Miles and Huberman (1994), Patton (2001), Kuzel (1999) and Glaser and Strauss (1967) to provide brief descriptions of different sampling strategies.

Please keep in mind that a strong research design and analytical approach will:

- Incorporate more than one of the sampling strategies described below
- Include an iterative sampling approach whereby the research team moves back and forth (iterating) between sampling and analyzing data such that preliminary analytical findings shape subsequent sampling choices.

With the exception of random and convenience sampling, all of the sampling strategies defined below are considered purposeful sampling strategies - where researchers select cases with a particular purpose or goal in mind.

For an interesting discussion of the distinction between purposeful and theoretical sampling and the use of these terms see Coyne (1997).

For other sampling typologies please see Morse (1991) and Sandelowski (1992; 1995).

Random Sampling

Definition

A systematic process of selecting subjects or units for examination and analysis that does not take contextual or local features into account.

When is it used?

Random sampling is typically used in experimental and quasi-experimental designs.

Random sampling typically involves the generation of large samples.

Random sampling is used when researchers want their findings to be representative of some larger population to which findings can be generalized.

Convenience Sampling

Definition

A process of selecting subjects or units for examination and analysis that is based on accessibility, ease, speed, and low cost. Units are not purposefully or strategically selected.

When is it used?

This is the least desirable sampling method, and researchers should typically avoid using it.

More rigorous alternatives include purposeful and other strategic sampling methods.

Maximum Variation Sampling

Definition

This is a purposeful sampling strategy. The aim is to sample for heterogeneity.

Why use this strategy?

Often, researchers want to understand how a phenomenon is seen and understood among different people, in different settings and at different times.

When using a maximum variation sampling method the researcher selects a small number of units or cases that maximize the diversity relevant to the research question.

Homogenous Sampling

Definition

The process of selecting a small homogeneous group of subjects or units for examination and analysis.

Why use this method?

Homogeneous sampling is used when the goal of the research is to understand and describe a particular group in depth.

Critical Case Sampling

Definition

The process of selecting a small number of important cases - cases that are likely to "yield the most information and have the greatest impact on the development of knowledge" (Patton, 2001, p. 236).

Why use this method?
This is a good method to use when funds are limited. Although sampling for one or more critical cases may not yield findings that are broadly generalizably they may allow researchers to develop logical generalizations from the rich evidence produced when studying a few cases in depth.

To identify critical cases, the research team needs to able to identify the dimensions that make a case critical.

Theory-based or Theoretical Sampling

Definition
The process of selecting "incidents, slices of life, time periods, or people on the basis of their potential manifestation or representation of important theoretical constructs" (Patton, 2001, p. 238).

Theoretical sampling is an important component in the development of grounded theories.

Glaser and Strauss (1967) describe an iterative sampling process that is based on emerging theoretical concepts. This sampling approach has the goal of developing a rich understanding of the dimensions of a concept across a range of settings and conditions.

Why use this method?
This method is best used when the research focuses on theory and concept development and the research team's goal is to develop theory and concepts that are connect to, grounded in or emergent from real life events and circumstances.

Confirming and disconfirming cases

Definition
Identification of confirming and disconfirming case occurs after some portion of data collection and analysis has already been completed.

This is the process of selecting cases that either:

- serve as additional examples that lend further support, richness and depth to patterns emerging from data analysis (confirming cases)

- serve as examples that do not fit emergent patterns and allow the research team to evaluate rival explanations (disconfirming cases). This can help the research team understand and define the limitations of research findings.

Why use this method?
Identifying confirming and disconfirming cases is a sampling strategy that occurs within the context of and in conjunction with other sampling strategies.

Researchers seek out confirming and disconfirming cases in order to develop a richer, more in depth understanding of a phenonmenon and to lend credibility to one's research account.

Extreme or deviant cases

Definition
The process of selecting or searching for highly unusual cases of the phenomenon of interest or cases that are considered outliers, or those cases that, on the surface, appear to be the 'exception to the rule' that is emerging from the analysis.

Why use this method?
Identifying extreme or deviant cases is a sampling strategy that occurs within the context of and in conjunction with other sampling strategies.

The process of identifying extreme or deviant cases occurs after some portion of data collection and analysis has been completed.

Researchers seek out extreme or deviant cases in order to develop a richer, more in-depth understanding of a phenonmenon and to lend credibility to one's research account.

Typical cases

Definition
The process of selecting or searching for cases that are not in anyway atypical, extreme, deviant or unusual.

Why use this method?
Identifying typical cases can help a researcher identify and understand the key aspects of a phenomenon as they are manifest under ordinary circumstances.

Providing a case summary of a typical case can be helpful to those not famililar with a culture or social setting.

Intensity sampling

Definition

The process of selecting or searching for rich or excellent examples of the phenomenon of interest. These are not, however, extreme or deviant cases.

Why use this method?

Intensity sampling can allow the researcher to select a small number of rich cases that provide in depth information and knowledge of a phenomenon of interest.

As Patton (2001) points out, intensity sampling requires prior information and exploratory work to be able to identify intense examples.

One might use intensity sampling in conjunction with other sampling methods. For example, one may collect 50 cases and then select a subset of intense cases for more in depth analysis.

Politically important cases

Definition

The process of selecting or searching for a politically sensitive site or unit of for analysis.

Why use this method?

Studying politically salient sites may draw attention to the research and its findings, potentially enhancing the likelihood the research is noticed, used and has an impact.

Purposeful Random Sampling

Definition

The process of identifying a population of interest and developing a systematic way of selecting cases that is not based on advanced knowledge of how the outcomes would appear.

The purpose is to increase credibility not to foster representativeness.

Why use this method?
The use of a randomized sampling strategy, even when identifying a small sample, can increase credibility.

Stratified Purposeful Sampling

Definition
Patton (2001) describes these at samples within samples and suggests that purposeful samples can be stratified or nested by selecting particular units or cases that vary according to a key dimension.

For example, one may purposefully sample primary care practices and stratify this purposeful sample by practice size (small, medium and large) and practice setting (urban, suburban and rural).

Stratified purposeful sampling is different from stratified random sampling in that the sample sizes are likely to be too small for generalization.

Why use this method?
A stratified purposeful sampling approach can lend credibility to a research study.

When enough information is known to identify characteristics that may influence how the phenonmenon is manifest, then it may make sense to use a stratified purposeful sampling approach.

Criterion Sampling

Definition
Criterion sampling involves selecting cases that meet some predetermined criterion of importance (Patton, 2001, p. 238).

For example:
Every patient at a practice receives a satisfaction survey at the end of his or her visit.

Satisfaction with how the patient felt his or her primary reason for visit was handled is assess via a 5 point likert scale with 1 = 'not at all satisfied' and 5= 'extremely satisfied.'

To better understand patients who are not satistied with the care provided, the practice calls and conducts a telephone interview with all patients completing the survey who report a score of 2 or lower for this measure.

Why use this method?
Criterion sampling can be useful for identifying and understanding cases that are information rich.

Criterion sampling can provide an important qualiative component to quantitative data.

Criterion sampling can be useful for identifying cases from a standardized questionnaire that might be useful for follow-up.

Opportunistic or emergent sampling

Definition
Opportunisitic or emergent sampling occurs when the researcher makes sampling decisions during the process of collecting data. This commonly occurs in field research. As the observer gains more knowledge of a setting, he or she can make sampling decisions that take advantage of events, as they unfold.

Why use this method?
A flexible research and sampling design is an important feature of qualitative research, particularly when the research being conducted is exploratory in nature.

When little is known about a phenomenon or setting, a priori sampling decisions can be difficult.

In such circumstances, creating a research design that is flexible enough to foster reflection, preliminary analysis, and opportunisitic or emergent sampling may be a good idea.

Snowball or chain sampling

Definition
Snowball or chain sampling involves utilizing well informed people to identify critical cases or informants who have a great deal of information about a phenomenon. The researcher follows this chain of contacts in order to identify and accumulate critical cases. Often a few key informants or cases will be mentioned multiple times and take on additional importance.

Why use this method?

This method can be useful for identifying a small number of key cases that are identified by a number of key or expert informants as important cases or exemplars.

How big should a sample be?
Sample size is an important consideration in qualitative research. Typically, researchers want to continue sampling until having achieved informational redundancy or saturation -- the point at which no new information or themes are emerging from the data.

To know if informational redundancy or saturation is reached implies and is founded on the assumption that data collection and analysis are going hand-in-hand. In other words, data is collected and analyzed, at least in a preliminary fashion, and this analysis informs subsequent data collection decisions.

It is important to keep in mind that saturation or informational redudancy can be reached prematurely if:

- one's sampling frame is too narrow
- one's analytical perspective is skewed or limited
- the method employed is not resulting in rich, in depth information
- the researcher is unable to get beyond the surface or 'status quo' with respondents

As Sandelowski (1995) points out, "determining adequate sample size in qualitative research is ultimately a matter of judgement and experience" and researchers need to evaluate the quality of the information collected in light of the uses to which it will be put, and the research method, sampling and analytical strategy employed.

Flexibile research designs that build in iterative sampling and analysis strategies, encourage reflexivity and collaboration may yield better results.