**Sampling Procedures**

Kenya project Organization

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Sampling is a process or technique of choosing a sub-group from a population to participate in the study; it is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected (Ogula, 2005). There are two major sampling procedures in research. These include probability and non probability sampling.

 **Probability Sampling Procedures**

In probability sampling, everyone has an equal chance of being selected. This scheme is one in which every unit in the population has a chance (greater than zero) of being selected in the sample.  There are four basic types of sampling procedures associated with probability samples. These include simple random, systematic sampling, stratified and cluster.

Simple Random Sampling Procedure

Simple random sampling provides the base from which the other more complex sampling methodologies are derived. To conduct a simple random sample, the researcher must first prepare an exhaustive list (sampling frame) of all members of the population of interest. From this list, the sample is drawn so that each person or item has an equal chance of being drawn during each selection round (Kanupriya, 2012).

To draw a simple random sample without introducing researcher bias, computerized sampling programs and random number tables are used to impartially select the members of the population to be sampled.  Subjects in the population are sampled by a random process, using either a random number generator or a random number table, so that each person remaining in the population has the same probability of being selected for the sample (Friedrichs, 2008).

Systematic Sampling Procedure

Systematic sampling procedure often used in place of simple random sampling. In systematic sampling, the researcher selects every nth member after randomly selecting the first through nth element as the starting point. For example, if the researcher decides to sample 20 repondents from a sample of 100, every 5th member of the population will systematically be selected.

A researcher may choose to conduct a systematic sample instead of a simple random sample for several reasons. Firstly, systematic samples tend to be easier to draw and execute, secondly, the researcher does not have to go back and forth through the sampling frame to draw the members to be sampled, thirdly, a systematic sample may spread the members selected for measurement more evenly across the entire population than simple random sampling. Therefore, in some cases, systematic sampling may be more representative of the population and more precise (Groves et al., 2006).

Stratified Sampling Procedure

Stratified sampling procedure is the most effective method of sampling when a researcher wants to get a representative sample of a population. It  involves categorizing the members of the population into mutually exclusive and collectively exhaustive groups. An independent simple random sample is then drawn from each group. Stratified sampling techniques can provide more precise estimates if the population being surveyed is more heterogeneous than the categorized groups. This technique can enable the researcher to determine desired levels of sampling precision for each group, and can provide administrative efficiency. The main advantage of the approach is that it’s able to give the most  representative sample of a population (Hunt & Tyrrell, 2001).

Cluster Sampling Procedure

In cluster sampling, a cluster (a group of population elements), constitutes the sampling unit, instead of a single element of the population. The sampling in this technique is mainly geographically driven.  The main reason for cluster sampling is cost efficiency  (economy and feasibility). The sampling frame is also often readily available at cluster level and takes short time for listing and implementation. The technique is also suitable for survey of institutions (Ahmed, 2009) or households within a given geographical area.

But the design is not without disadvantages, some of the challenges that stand out are: it may not reflect the diversity of the community; other elements in the same cluster may share similar characteristics;  provides less information per observation than an SRS of the same size (redundant information: similar information from the others in the cluster); standard errors of the estimates are high, compared to other sampling designs with the same sample size.

**Non Probability Sampling Procedures**

Non probability sampling is used in some situations, where the population may not be well defined. In other situations, there may not be great interest in drawing inferences from the sample to the population. The most common reason for using non probability sampling procedure is that it is less expensive than probability sampling procedure and can often be implemented more quickly (Michael, 2011).  It includes purposive, convenience and quota sampling procedures.

Purposive/Judgmental Sampling Procedure

In purposive sampling procedure, the researcher chooses the sample based on who he/she thinks would be appropriate for the study. The main objective of purposive sampling is to arrive as at a  sample that can adequately answer the research objectives. The selection of a purposive sample is often accomplished by applying expert knowledge of the target population to select in a non random manner a sample that represent a cross-section of the population (Henry, 1990).

A major disadvantage of this method is subjectivity since another researcher is likely to come up with a different sample when identifying important characteristics and picking typical elements to be in the sample. Given the subjectivity of the selection mechanism, purposive sampling is generally considered most appropriate for the selection of small samples often from a limited geographic area or from a restricted population definition. The knowledge and experience of the researcher making the selections is a key aspect of the ‘‘success’’ of the resulting sample (Michael, 2011). A case study research design for instance, employs purposive sampling procedure to arrive at a particular ‘case’ of study and a given group of respondents. Key informants are also selected using this procedure.

Convenience  Sampling Procedure

Convenience sampling is sometimes known as opportunity, accidental or haphazard sampling sampling. It is a type of nonprobability sampling which involves the sample being drawn from that part of the population which is close to hand, that is, a population which is readily available and convenient. The researcher using such a sample cannot scientifically make generalizations about the total population from this sample because it would not be representative enough (Michael, 2011). This type of sampling is most useful for pilot testing.

Convenience sampling differs from purposive sampling in that expert judgment is not used to select a representative sample. The primary selection criterion relates to the ease of obtaining a sample. Ease of obtaining the sample relates to the cost of locating elements of the population, the geographic distribution of the sample, and obtaining the interview data from the selected elements (de Leeuw, Hox & Huisman, 2003).

Anthony M. Wanjohi

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