

Statistic: sampling and research design

Profession



Carlene Reyes 809000173 Question 2: Describe the relationship between research design and sample design Before examining both sample design and research design it is important to be clear about the role and purposes of each design. Research design is a plan for collecting and utilizing data so that desired information can be obtained with sufficient precision or so that a hypothesis can be tested properly. Every type of empirical research has a form of implicit research design.

A design is a logical sequence that connects to empirical data to a study's initial research question and ultimately it, to its conclusion. According to Adam G Bluman in his book Elementary Statistic define research design as a logical plan from getting from here to there, where here may be defined as initial questions to be answered , and there is some conclusion (answers) to these questions . Another text book has described research design as a plan that guides the investigator in the process of collecting analyzing and interpreting observations.

It is a logical method of proof that allows the researcher to draw inferences concerning causal relations among the variables under investigations (Nachmias and Nachmaias 1992 pp. 77-78). Research design can be seen as the “ blue print” for your research, dealing with at least four problems what question to study, what data are relevant, what data to collect and how to analyze the results. As a result research design is more than just a work plan it is what makes socialsciencescientific.

In addition there are various forms of research design that can be broken up into both quantitative and qualitative research design. Qualitative research follows a naturalistic paradigm which is based on the idea that reality is not

<https://assignbuster.com/statistic-sampling-and-research-design/>

predetermined, but is constructed by the participants in the research (Vishnevsky and Beanlands 2004, p. 235). It aims at exploring the phenomenon in question by focusing on the individuals who experience it, assuming that it is possible to maximize the understanding of the phenomenon by minimizing the interpersonal distance between the researcher and the participant.

Qualitative research is non-experimental, with no dependent or independent variables. The idea is to understand phenomena as a whole. Qualitative research is done "in the field" and requires ongoing data collection and analysis. The data collection and methodology are flexible, and allow for modifications throughout the research process, gathering subjective data that includes thoughts and perceptions of the participants and the researchers alike.

Qualitative research does not choose a representative sample of the population, but only chooses as participants those who have rich experiences in the phenomena of concern, and the sample size is rarely predetermined, because researchers include as many participants as necessary to give an understanding of the phenomena (Vishnevsky and Beanlands, 2004, p. 235). Whereas, in quantitative research the researcher aim is to determine the relationships between one thing (an independent variable) and another (a dependent or outcome variable) in a population.

Quantitative research designs are either descriptive (subjects usually measured once) or experimental (subjects measured before and after a treatment). Descriptive studies are also called observational, because you observe the subjects without otherwise intervening. Descriptive research

provides answers to the questions of who, what, when, where, and how for example a study measuring various attributes of salespeople, a training program, or a retailing situation.

Experimental studies are also known as longitudinal or repeated measures studies, for obvious reasons. They are also referred to as interventions, because you do more than just observe the subjects. However the sample design provides information on the target and final sample sizes, strata definitions and the sample selection methodology. It's a relatively small subset selected from a population. Sampling design is a process of selecting a member of a unit for a study in such a way that the unit represents the larger group from which they are selected.

Sampling makes possible the study of a large heterogeneous population. There are different forms of sampling design it can be classified as probability sampling and non-probability sampling. Probability sampling is a proportion and such sample is selected from the population by means of some systematic way in which every elements of the population has a chance of being included in the sample. With this research it is more complex its time consuming and more costly.

Non probability sample is not a proportion of the population which there is no system in selecting the sample. The selection depends upon the situations no assurance is given that each has a chance of being included as a sample. The first form of probability sampling is Random sampling this type of sampling is one in which everyone in the population of the inquiry has an equal chance of being selected to be included in the sample. Its main

advantage of this technique of sampling is that it is easy to understand and it is easy to apply too.

Its disadvantage is that it is hard to use with too large a population because of the difficulty encountered in writing the names of the person involved. Another form of sample design is systematic sampling a technique of sampling in which every k th member of a list may be selected to be included. This form of sampling is called interval sampling there is a gap or interval between each selected unit in the sample. Its main advantage is that it is more convenient faster and more economical. Its disadvantage is that if the sample might become biased.

Stratified sampling is another form of sampling the process of selecting randomly, samples from different strata of the population used in the study a sample obtained by dividing the population into groups, called strata according to the various homogeneous characteristic and then selecting members from each stratum for the sample. Its advantage is that it contributes much to the representative of the sample. Cluster sampling also called multi-stage sampling are used when the population is so big or the geographical area of the research is so large, it is therefore efficient to use.

Its disadvantage is that it reduced accuracy or representativeness on the account of the fact that every stage there is a sampling error. Non probability sampling methods into two broad types are accidental and purposive. Most sampling methods are purposive in nature because we usually approach the sampling problem with a specific plan in mind. The most important distinctions among these types of sampling methods are the

ones between the different types of purposive sampling approaches. In purposive sampling, researchers sample with a purpose in mind.

We usually would have one or more specific predefined groups we are seeking. Accidental sampling is where the first set of available appropriate sample are used. To conclude research design function is to ensure evidence obtained enables us to answer the initial question as unambiguously as possible. Thus, we need to ask what kind of evidence is needed to answer these questions. Research design is thus equated with both qualitative designs whereas sample design is equated with both probability and non probability sampling. Sampling design involves taking a proportion of the population to do your research project.