11. Sampling - Meaning and Definition

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11.1 Introduction:

For studying a social problem, it is difficult to study whole universe of the problem under study. In such a case, sampling has become commonplace idea. A sampling is a small proportion of a population selected for observation and analysis. It is a collection of items or elements from a population. By observing the characteristics of sample, one can make certain inference about the characteristics of the population from it is drawn; the act so involved is called sampling. Sampling can be defined as the selection of some part of an aggregate or totality, the bases of which a judgment or inference about the aggregate or totality is made.

It is the process of obtaining information about an entire population by examining a part of it. Sampling means selecting a given number of subjects from a defined population as representative of that population.

One type of population distinguished by educational researchers is called the target population. By target population distinguished by educational researchers is called the target population. By target population, also called universe, we mean all the members of a real or hypothetical set of people, events or objects to which we wish to generalize the results of our research.

According to F.N. Kerlinger: "Sampling is taking any portion of a population or universe as representative of the population."

According to Y.D. Keskar: "Sampling is the generalization in terms of the whole group through the facts assembled relate to only part of it."

According to P. Y. Young "A statistical sample is a miniature picture or cross -section of the entire group or aggregate from which the sample is taken."

Good and Hatt, "A sample as the name implies, is a smaller representation of a larger whole."

W. G. Cocharn, "In every branch of science we lack the resources, to study more than a fragment of the phenomenon that might advance our knowledge." i.e., fragment is sample, and phenomenon is population. The sample observations are applied to the phenomenon i.e., generalization.

David S. Fox, "In the social sciences, it is not possible to collect data from every respondent relevant to our study but only from some fractional part of the respondents. The process of selecting the fractional part is called sampling."

Virtually every research study uses sampling method of some kind to generalize about population. It is deliberate rather than haphazard.

11.2 Sampling Terms / Concepts:

A survey may be conducted by either of two methods.

A. **Census Method:** It deals with the investigation of the entire population. Here the data are collected for each and every unit of the universe. This method provides more accurate and exact information as no unit is left out.
B. **Sampling Method:** Here a small group is selected as representative of the whole universe. It works with the objective to obtain accurate and reliable information about the universe with minimum of cost, time and energy and to set out the limits of accuracy of such estimates. It makes exhaustive and intensive study possible with much less time, money and material. It's more popular in research work.

Population:

Population or universe means, the entire mass of observations, which is the parent group from which a sample is to be formed. The term population or universe conveys a different meaning than a traditional one. In census survey, the count of individuals (men, women and children) is known as population. But in Research Methodology population means characteristics of a specific group. For example secondary school teachers of, who have some specific features like teaching experience, teaching attitudes etc.

a. **Element**: It is unit about which information is sought. E.g. individuals, products, stores, companies etc.
b. **Population:** It is also called universe. It is the aggregate of all elements defined prior to the selection of sample. Population can be finite or infinite.
c. **Sampling unit:** It is the element available for selection at some stage of the sampling process. E.g. female 18-50 yrs.
d. **Sampling frame:** It is the list of all sampling units available for selection from the population. A frame must a class list, list of registered voters, list of students and so on.

e. **Sample size:** It states how many to be surveyed. E.g. should 50 or 60 students be interviewed?

Need of Sampling:

a. Economy of time.
b. Economy of money.
c. True detailed knowledge.
d. Utility in experimental study.
e. It has reliability because it is based on probability theory.

Essentials of an Ideal Sample:

a. Homogeneity: The units included in sample must be as likeness with other units.
b. Adequacy: A sample having 10% of the whole data is adequate.
c. Independence: Every unit should be free to be included in the sample.
d. Representativeness; an ideal sample must be such that it represents the whole data adequately.
e. In the number of units included in a sample should be sufficient to enable derivation of conclusions applicable to the whole data.
f. Economical in terms of time and money.

Characteristics of Good Sampling:

a. A sample should be representative of the whole population.
b. A sample should be independent i.e. interchangeability of units. Each unit should be free to include in the sample.
c. The size of the sample should be adequate to generalize conclusions to the whole population.
d. A sample should be free from prejudice and bias.
e. A sample should be in coeternity with the objective of the study.
f. The units included in the sample should be homogenous.
g. Sampling should result in small sampling error.
h. Sampling should be economy in terms of time, cost and effort.
i. Sampling should have scientific base.
j. The population is known as aggregate of certain properties and sample is called sub-aggregate of the universe.
k. A good sample is free from bias; the sample does not permit prejudices, the learning and pre-conception, imaginations of the investigator to influence its choice.
l. A good sample is an objective one; it refers objectivity in selecting procedure or absence of subjective elements from the situation.
m. A good sample maintains accuracy. It yields an accurate estimates or statistics and does not involve errors.
n. A good sample is comprehensive in nature. This feature of a closely linked with true-representativeness. Comprehensiveness is a quality of a sample which is controlled by specific purpose of the investigation. A sample may be comprehensive in traits but may not be a good representative of the population.
o. A good sample has the practicability for research.

Benefits of Sampling:

a. Sample saves money. It is less expensive.
b. Sampling saves time because observing the characteristics of the sample takes lesser time than that of observing the whole population.
c. Sampling may be more accurate. It enables more accurate measurements for a sample study because it is generally conducted by a trained and experienced investigator.
d. Sampling remains only choice when the population contains infinitely many members.
e. A sample is better in the event that the study result in the destruction or contamination of the element sampled.
f. More coverage is possible with efficient management.
g. It becomes easy to establish report with the information. It facilitates collection of information from them.
h. The process of sampling makes it possible to draw valid.
i. inferences or generalization on the basis of large observation of
j. Variables within a relatively small proportion of the population.
k. More intense study is possible, and it increases administrative convenience.
l. It has a greater speed in conducting a research work.
m. According to W.G. Cocharan, "It has greater precision and accuracy in the observation". Has a greater adaptability and it is an economical technique.
n. It has high speed for generalization.
o. It has a greater scope in the field of research it reduces the cost of observation or data collection.

Limitations of Sampling:

a. Due to human involvement, there could be human bias and subjectivity in the sample itself. It could lead to wrong and misleading result.
b. Its phenomena are complex in nature, the selection or sample becomes more difficult. It is difficult to pick two similar situations, institutions or individuals for sample picking.
c. If the sample units are not homogenous, the sample technique will become more hazardous and unscientific.
d. The sampling technique becomes scientific only when it is done by specialized investigator.
e. There is difficult in selecting representative.
f. There is difficult in sticking to samples.
g. When the characteristics to be measured occur in rare conditions, sampling will not give statistically reliable information about it.
h. Scope of biasness. (Less accuracy)
i. Problem of representative Sample-Difficulty in selecting a truly representative sample.
j. Need of eligible researchers.
k. Instability of sample subjects or changeability of units i.e. in heterogeneous population.
l. There are certain situations where sampling is possible.

Sampling Design:

Sampling designs means the joint procedure of selection and estimation. Sampling is a part of the strategy of research. Sampling should be such that the error of estimation is minimum.

A sample design is a definite plan for obtaining a sample from a given population. It refers to the procedure the researcher will adopt in selecting items from the sample. It is designed before data collection. In designing a sample, the researcher must consider three things: sampling frame, selection of sampling items and sample size. The basic components of a sample design are:

A. Choosing the sample units (who are to be surveyed)
B. Choosing the sample size (how many to be surveyed)
C. Choosing the sample procedure (how to ensure that those who are to be interviewed are included in the sample)
D. Choosing the media (how to reach respondents in the sample-through mail survey, personal interview, telephone interview.)

E. Types of Sampling Designs/Methods of Sampling

A Probability Sampling	B Non-Probability Sampling
A 1 Random Sampling	B-1 Incidental or Accidental Sampling
A-2 Systematic Sampling	B-2 Judgment Sampling
A-3 Stratified Sampling	B- 3 Purposive Sampling
A-4 Multistage Sampling	B- 3 Purposive Sampling
A-5 Purposive Sampling A-6 Cluster Sampling A-7 Multiple Sampling or Double Sampling	

11.3 Types of Sampling:

- Probability sampling
- Non-probability sampling

11.3.1. Probability Sampling:

In it, each item or element in universe has equal chance of being selected. It is called random/chance sampling. Each element of the population has known chance of being selected for the sample.

The sampling is done by mathematical decision rules that leave no discretion to the researcher or field interviewer. G.C. Halmstadter, "A probability sample is one that has been used selected in such a way that every element chosen has a known probability of being included." Four main types of probability sampling are:

A. Simple Random Sampling:

In it, the individual observation or individuals are chosen in such a way that each has chance of being selected, and each choice is independent of any other choice. This is used only in those studies where entire population can be listed that are finite population. Example: - If we wished to draw a sample of 50 individuals from a population of 600 students in a college, we can use simple random sampling.

It is one in which each element of the population has an equal and independent chance of being included in the sample i.e. a sample selected by randomization method is known as simple random sample and this technique is simple randomizing.

Randomization Is Done by Using the Following Techniques:

a. Tossing a coin
b. Throwing a dice
c. Lottery method
d. blind folded method
e. Tippett's table method

Merits of Randomization:

a. It requires the minimum knowledge of population.
b. It is free from subjectivity and free from personal error.
c. It provides appropriate data for one's purpose.
d. The observations of the sample can be used for inferential purpose.

Demerits of Randomization:

a. It cannot ensure the representativeness of a sample.
b. It does not use the knowledge about the population.
c. Its inferential accuracy depends upon the size of the sample.

B. Systematic Random Sampling or Systematic Sampling:

It consists of the selection of each nth term from a list. First, the item is randomly selected and then a sample item at every nth interval is selected. It is simplest and widely used method of drawing sample. It is used when population size is large and when it became very tiresome to use table of random number to select a sample. Systematic sampling is an improvement over the simple random sampling. This method requires the complete information about the population. There should be a list of information of all the individuals of the population in any systematic way. Now we decide the size of the sample:

Let the size of sample is = n and population size is = N

Now we select each N/n individual from the list and thus we have the desired size of sample which is known as systematic sample. Thus, for this technique of sampling population should be arranged in any systematic way.

Merits:

a. This is a simple method of selecting a sample.
b. It reduces the field cost.
c. Inferential statistics may be used.
d. Sample may be comprehensive and representative of population.
e. Observations of the sample may be used for drawing conclusions and generalizations.

Demerits:

a. This is not free from error, since there is subjectivity due to different ways of systematic list by different individuals.
b. Knowledge of population is essential.
c. Information of each individual is essential.
d. This method can't ensure the representativeness.
e. There is a risk in drawing conclusions from the observations of the sample.

C. Stratified Random Sampling or Stratified Sampling:

It involves dividing the population in strata (subgroup). It is used when we have to select sample from a heterogeneous population.

Example: If a researcher has to select 300 students from a college for study, he has to first stratify the student population into two strata; their sex-male and female or in a similar way. It is an improvement over the earlier methods.

When we employ this technique, the researcher divides his population into strata on the basis of some characteristics and from each of these smaller homogenous groups (strata) draws at random a predetermined number of units.

Researcher should choose that characteristic as criterion which seems to be more relevant in his research work.

Stratified Sampling May Be of Three Types:

a. Disproportionate: Means that the size of the sample in each unit is not proportionate to the size of the unit but depends upon considerations involving personal judgement and convenience. This method of sampling is more effective for comparing strata which have different error possibilities. It is less efficient for determining population characteristics.
b. Proportionate: It refers to the selection from each sampling unit of a sample that is proportionate to the size of the unit. Advantages of this procedure includes representativeness with respect to variables used as the basis of classifying categories and increased chances of being able to make comparisons between strata. Lack of information on proportion of the population in each category and faulty classification may be listed as disadvantages of this method.
c. Optimum allocation: Stratified sampling is representative as well as comprehensive than other stratified samples. It refers to selecting units from each stratum. Each stratum should be in proportion to the corresponding stratum the population. Thus, sample obtained is known as optimum allocation sample.

Merits:

a. It is a good representative of the population.
b. It is an improvement over the earlier technique of sampling.
c. It is an objective method of sampling.
d. Observations can be used for inferential purpose.

Demerits:

a. Serious disadvantage of this method is that it is difficult for the researcher to decide the relevant criterion for stratification.
b. Only one criterion can be used for stratification, but generally it seems more than one criterion relevant for stratification.
c. It is costly and time consuming method.
d. Selected samples may be representative with reference to the used criterion but not for the other.
e. There is a risk of generalization.

D. Multistage Sampling:

It is a success random of sampling of units or sets and subsets. Cluster is naturally occurring group of participants. They are randomly selected. Once the cluster has been selected, then all participants within the cluster are surveyed. It is also called multistage sampling because sample selection passes through a sequence of stage.

Example: - District of the country can be randomly selected, then schools, then classes and finally pupils. This sample is more comprehensive and representative of the population.

In this type of sampling primary sample units are inclusive groups and secondary units are sub-groups within these ultimate units to be selected which belong to one and only one group. Stages of a population are usually available within a group or population, whenever stratification is done by the researcher. The individuals are selected from different stages for constituting the multi stage sampling.

Merits:

a. It is a good representative of the population.
b. Multistage sampling is an improvement over the earlier methods.
c. It is an objective procedure of sampling.
d. The observations from multi stage sample may be used for inferential purpose.

Demerits:

a. It is a difficult and complex method of sampling.
b. It involves errors when we consider the primary stages.
c. It is again a subjective technique of sampling.

Multiple or Double Repetitive Sampling:

Generally, this is not a new method but only a new application of the samplings. This is most frequently used for establishing the reliability of a sample. When employing a mailed questionnaire, double sampling is sometimes used to obtain a more representative sample.

This is done because some randomly selected subjects who are sent questionnaires may not return them.

Obviously, the missing data will bias the result of the study, if the people who fail to reply the query differ in some fundamental way from the others in respect to the phenomenon being studied.

To eliminate this bias, a selected sample may be drawn at random from the non-respondents and the people interviewed to obtain the desired information. Thus, this technique is also known as repeated or multiple sampling.

This double sampling technique enables one to check on the reliability of the information obtained from first sample. Thus, double sampling, where in one sample is analyzed and information obtained is used to draw the next sample to examine the problem further.

Merits:

a. Thus, sampling procedure leads to the inferences of free determine precision based on a number of observations.
b. This technique of sampling reduces the error.
c. This method maintains the procedure of the finding evaluate the reliability of the sample.

Demerits:

a. This technique of sampling cannot be used for a large sample. It is applicable only for small sample.
b. This technique is time consuming and costly.
c. Its planning and administration is more complicated.

Cluster Sampling:

To select the intact group as a whole is known as a cluster sampling. In cluster sampling the sample units contain groups of element (cluster) instead of individual members or items in the population. Rather than listing all elementary school children in a given city and randomly selecting 15 % of these students for the sample, a researcher lists all of the elementary schools in the city, selects at random 15 % of these clusters of units, and uses all of the children in the selected schools as the sample.

Merits:

a. It may be a good representative of the population.
b. It is an easy method.
c. It is an economical method.
d. It is practicable and highly applicable in education.
e. Observations can be used for inferential purpose.

Demerits:

a. Cluster sampling is not free from errors.
b. It is not comprehensive.

11.3.2 Non Probability Sampling:

In it, all items in the population don't have equal chance of being selected, it uses that ever subjects are available rather than following a specific subject selection process. Samples are determined by personnel convenience or judgment of the researcher but not by chance. Samples which are selected through non-random methods are called non probability samples the various type of non-probability sampling is as follows.

Convenience/Purposive Sampling:

It refers to samples selection on the basis of convenience of the researcher. A sample is chosen purely for expedience because it is cheap to find. The sample then would not necessarily be a representative one. Commonly used convenient samples are friends, relatives, family members, associations etc. The purposive sampling is selected by some arbitrary method because it is known to be representative of the total population, or it is known that it will produce well matched groups. The idea is to pick out the sample in relation to criterion which are considered important for the particular study. This method is appropriate when the study places special emphasis upon the control of certain specific variables.

Merits:

a. Use the best available knowledge concerning the sample subjects.
b. Better control of significant variables.
c. Sample groups data can be easily matched.
d. Homogeneity of subjects used in the sample.

Demerits:

a. Reliability of the criterion is questionable.
b. Knowledge of population is essential.
c. Errors in classifying sampling subjects.
d. Inability to utilize the inferential parametric statistics.
e. Inability to make generalization concerning total population.

Purposive/Judgment Sampling:

It refers to the sample selected on the basis of what some experts think particular sampling units or elements will contribute to answering particular questions at hand. It is an expert judgment based sampling. Using this method, specialists in the subject matter of the survey choose what they believe to be the best sample for that particular study. It is moderately used in practice.

Example: - A group of sales manager might select sample of grocery stores in city that they regard as representative in some sense. This involves the selection of a group from the population on the basis of available information assuming as if they are representative of the entire population. Here group may also be selected on the basis of intuition or on the basis of the criterion deemed to be self-evident. Generally, investigator should take the judgment sample, so this sampling is highly risky.

a. Knowledge of investigator can be best used in this technique of sampling.
b. This method of sampling is economical.

Demerits:

a. This technique is objective.
b. It is not free from errors.
c. It includes uncontrolled variation.
d. Inferential statistics cannot be used for the observation of this sampling, so generalization is not possible.

A. Quota Sampling:

Quota sampling derives its name from the practice assigning quotes or proportions of kind of people to interviewers. It involves three steps: Selection of control characteristics (sex, age, education, etc.) and determination of the proportion of the universe having equal set of characteristics. Allocation of the sample among cells (how large a sample should be taken from each cell) Selection of the sample item.

Example: An interviewer may be instructed to conduct the interviews with people 30 years old and half with people under 30 years. Here, the control characteristic is the age of respondents. This combines both judgment sampling and probability sampling: on the basis of judgment or assumption or the previous knowledge, the proportion of population falling into each category is decided. Thereafter a quota of cases to be drawn is fixed and the observer is allowed to sample as he likes. Quota sampling is very arbitrary and likely to figure in municipal surveys.

Merits:

a. It is an improvement over the judgment sampling.
b. It is an easy sampling technique.
c. It is not frequently used in social surveys.

Demerits:

a. It is not a representative sample.
b. It is not free from errors.
c. It has the influence of regional, geographical and social factors.

B. Sequential Sampling:

In fixed-size sampling the number of items is decided upon in advance whereas in sequential sampling, the number of items is not presented. In sequential sampling one usually .... measurements. On only a single unit or the population or a group of population units at a time. The measurement or each group is cumulated with those of previously measured groups. The data are analyzed as they are assembled, and sample size is not predetermined. The mathematics underlying sequential samplings are more complex and time consuming.

C. Snowball Sampling:

It refers to a procedure in which initial respondents are selected randomly but where additional respondents are then obtained from referral or by other information provided by the initial respondents. One uses this method where respondents are difficult to identify and are best located through referral network. The "snowball" gather subjects as it rolls along. It is widely used to study drug culture, teenage gang activities, community relations etc. Its purpose is to estimate various characteristics that are rare in the total population.

The term; snow ball sampling' has been used to describe a sampling procedure in which the sample goes on becoming bigger and bigger as the observation or study proceeds. The term snowball stems from the analogy of a snowball sample which would allow computation of estimates of sampling error and use of statistical test of significance.

For example, an opinion survey is to be conducted on smokers of a particular brand of cigarette. At the first stage, we may pick up a few people who are known to us or can be identified to be the smokers of that brand. At the time of interviewing them, we may obtain the names of other persons known to the first stage subjects. Thus, the subjects go on serving an informant for the identification of more subjects and the sample goes on increasing. Snowball sampling which is generally considered to be no probabilistic can be converted into probabilistic by selecting subjects randomly within each stage.

D. Incidental or Accidental Sampling:

The term incidental or accidental applied to those samples that are taken because they are most frequently available i.e., this refers to the groups which are used as samples of a population because they are readily available or because the researcher is unable to employ more acceptable sampling methods.

Merits:

a. It is very easy method of sampling.
b. It is frequently used method in behavioral sciences.
c. It reduces the time, money and energy i.e. it is an economical method.

Demerits:

a. It is not representative of the population.
b. It is not free from errors.
c. Parametric statistics cannot be used.

Expert Choice Sampling:

Samples are sometimes expressly chosen because, in the light of available information, these mirror some larger group with reference to one or more given characteristics. The controls in such samples are usually identified as representative areas (city, country, state, and district), representative characteristics of individuals (age, sex, marital status, socio-economic status, and race) or types of groups (administrator, counselors, teachers etc.).

These controls may be further sub-divided by specified categories within classes such as amount of training, years of experience or attitudes towards a specific phenomenon. Up-to this stage, these controls are somewhat similar to those used in satisfaction. Purposive sampling differs from stratified random sampling in that the actual selection of the units to be included in the sample in each group is done purposively rather than by random method.

Difference between Probability and Non-Probability Sampling

	Probability Sampling	**Non-probability Sampling**
a.	It is a method of sampling which gives the probability that a sample is representative of population.	In the absence of any idea of probability the method of sampling is known as non-probability sampling.
b.	Probability sampling is generally used in fundamental research in which the purpose is to generalize the results.	It is generally used in action researches in which one studies a class without any generalization purpose.
c.	It refers from the sample as well as the population.	There is no idea of population.
d.	Every individual of the population has equal probability to be taken into the sample.	There is no probability of selecting any individual.
e.	It may be representative of the population.	It has free distribution.
f.	Its observations (data) are used for the inferential purpose.	The observations are not used for generalization purpose.
g.	Inferential or parametric statistics are used.	Inferential or parametric statistics are used.
h.	There is a risk of drawing conclusion.	There is no risk for drawing conclusions.
i.	It is based on Law of probability sampling i.e., Law of Statistical Regularity and Law of Inertia of the Large Sample.	It is not based on law of probability sampling.

The First Step in Sampling is to Define the Target Population.

a. Research work is guided by inductive thinking. The researcher proceeds from specificity to generality. The sample observation is the specific situation, which is applied to the population, it is the general situation.
b. The measures of a sample are known as statistics and measures of a population are termed as parameter. Mean, S.D., coefficient of Correlation of sample observation known as Statistics and Mean, S.D., coefficient of correlation of population are known as parameters. Generally, parameters are estimated on the basis of sample statistics.

c. Sampling is indispensable technique in behavioral research and not so common in physical sciences. It is fundamental to all statistical methodology of behavioral and social research. It makes research findings economical and accurate. Sampling means selection of individuals from the population in such a way that every individual has equal chance to be taken into the sample.

d. Term sample should be reserved for a set of units or portion of an aggregate of material which has been selected in the belief that it will be representative of the whole aggregate. By Frank Yates "Sample is set of units of an aggregate."

Assumptions of Sampling:

a. Homogeneity amidst complexity: Social phenomenon is very complex in nature and every unit appears to be different from another. But at the same time they also possess similarities in many respects. It is, therefore, assumed that there is the possibility of such representative types in the whole population that makes sampling possible.

b. Possibility of Representative Selection: According to Sampling has its origin in the mathematical theory of probability and law of statistical regularity. The law of statistical regularity lays down that a group of objects chosen at random from a large group tend to possess the characteristics of that large group (universe) by L. R. Conner.

c. Absolute accuracy not essential but relative or significant accuracy is needed in case of large scale observations. Because it is practically impossible to achieve because of errors in measurement, collection of data, its analysis, interpretation. A sample is a small proportion of a population selected for observation and analysis. It is a collection consisting of a part or sub-set of the objects or individuals of population which is selected for the express purpose of representing the population.

By observing the characteristics of the sample, one can make certain inferences about characteristics of the population from which it is drawn. Sampling," It is the process of selecting a sample from the population. For this purpose, the population is divided into a number of parts called sampling units."

Field work - Meaning and Definition:

Exposure to practical reality is must for a student from business and professional school. Such schools everywhere require their students to acquire conceptual knowledge as well as practical skills while at school. Conceptual knowledge can be acquired through class lectures and text books. For providing practical exposure to students, business/professional schools use a variety of methods.

One of them is field work also called project work. The field work assignment is an off -the - class room study project undertaken by a student under the guidance of faculty members. The students are required to visit origination for field work. Students have to write and submit a field work report using the format as approved by school after they work in origination for a specific period of time. Field work can be described as a systematic and organized effort to study and observe a specific organizational situation in hand. Thus, the field work process involves series of well thought out and carefully executed activities. It encompasses the process of enquiry, investigation, observation and examination. The expected objective is to discover new.

Facts and relation about the organization phenomena under investigation. We can now define field work as an organized, systematic, data-based scientific investigation in specific situation under taken with the objective of gathering information that enables the students to gain familiarity with the situation and generate more knowledge about phenomena under investigation.

Preparation for Field Work.

A. Pre-Field Activities: The students make some preparations before they actually visit the organization for study. At this stage, students should prepare following activities:

a. Selection of study area that depends upon the student interest, capability and feasibility of the study.
b. Selection of study scheme such as survey case study or feasibility study.
c. Selection of organization for location for field study.
d. Preparation for plan/data needs such as data collection method and instruments. i-Consulting library for more information 4- Consulting the professor to finalize entire scheme of the field work.

B. Field Work Activities:

At this stage, students should prepare the following three phases:

a. At the initial phase, students should introduce himself to the organization and try to learn more about the organization. They should include: meeting the chief executive, meeting officer- in - charge, the unit and collection the relevant materials.
b. At the observation phase student should study and observe the organization action. This is practical phase of field work. The students do this activity. Overview of the organization, observation of the unit selected field study, collection of relevant data, observation of the work system, questionnaire to administration; etc. 4- At the concluding final phase, the collected materials or observed systems in operation should be wrapped up. The following points should be noted:
• One should make sure that enough materials for report writing and oral presentation have been collected.
• The student should test and verify his/her impressions and findings of observation.
• The student should make a courtesy call on the chief executive and gratitude to them for their cooperation.

C. Post Field Work Activities: This is the final phase of the field work assignment, at this stage, student should prepare for report writing. The following activities should be performed:

• Organizing data in meaningful way
• Recording observations in a logical manner and present them in the report where appropriate.
• Writing the field work report in prescribed style and reporting the field report
• And finally submitting the field work report to the concerned authority and preparing for the oral presentation.

Validity: It is concerned with measurement of quality of data. It ensures measuring what is expected to measure. It is the characteristics used to describe a test which measures what it claims to measure.

According to F.N. Kerlinger: "The commonest definition of validity is epitomized by the question: Are we measuring what we think we are measuring."

According to J.W. Best and J.V. Kahn: "Validity is that of gathering instrument or procedure that enables to measure what it is supposed to measure"

Basis of Validation:

Logical validation: This refers simply to a type of theoretical, intuitive, or common sense analysis. This type of validation is derived from the careful definition of the continuum of a scale and the selection items to be measured. It is a component of content of validation.

Jury opinion: It refers to the personal judgment of experts to the field. The behavior scientist's ordinary element to measure content validity by such jury opinions. That is, several content experts may be as judge whether the items being used instrument and representative of the field be investigated. The result of this procedure reflects the 'conformed' judgments of experts in the content field.

Known groups: Closely related to jury opinion approach for assessing content validation is a method involving known groups. With this approach, validation comes from the known attitudes and other characteristics of ant ethical groups and not from specific expertise.

Independent criteria: One of the validity measurement include considering independent criterion. The research attempts to develop or obtain an independent criterion against which the measurement results be matched. Criterion validity can be assessed by correlating the set of scaling result under study with other set, developed from another instrument is administered at the same time. When one predicts success or failure of student from academic aptitude measures, the researcher is concerned with criteria - related validity.

Reliability:

It refers to the degree of consistency that the instrument/ procedure demonstrate whatever it is measured does so consistently and accurately. It is the consistency and accuracy of scores obtained by the same variable when retested with the identical or equivalent test. Synchronous for reliability are: dependability, stability, predictability, accuracy.

A reliable man, e.g., man whose behavior is consistent, dependable and predictable -what he will do tomorrow and next week will be consistent with what he / she does today he has done last week. According to Best and Kahn: "A test is reliable to the extent that it measures whatever is measuring consistently.

According to Boyd and Others: "Reliability is the characteristics of research methodology which allow it to be repeated again and again by the same and by different researchers".

Methods of Measurement of Reliability:

a. **Test-Retest Method**: It involves repeated measurement using the same instrument under as nearly equivalent conditions as possible. The results of the two administrations are then compared and the degree of correspondence is determined. The greater the difference, the lower the reliability and vice versa. This method examines the stability of response.

b. **Alternative Form Method:** It involves using two equivalent forms of measuring instruments to the single subject. The result of the two instruments is compared on item-by -item basis and the degree of similarity is determined. The scores on a test are highly correlated with scores on an alternative from of test. The greater the difference lowers the reliability and vice versa.

c. **Split-Half Method:** It involves dividing the total number of items into two groups: odd number and even number item. Scores on the odd number items are then correlated with the scores on the even numbered items. or the scores on the half of the test can be correlated with scores on the second half of the test. The greater the difference the lower the reliability and vice versa.