Sampling

This technique of sampling is very common and is used in everyday life e.g. housewife determines the taste of food by talking a small quantity of it in a spoon. Thus sheis following the principle of sampling. The underlying principle in this case is that we expect the whole material is similar or at least it(the sample) is closely representative of the whole.

Meaning of the sampling

As the name implies a sample is smaller representative of larger whole. In the words of Warwick and Linger a sample is some part of large body especially selected to represent the whole. The researcher quite often selects only a few items from the universe for his study purpose.

Types of the Sampling

Samples can be of two types:
1) Probability Samples
2) Non-Probability Samples

In probability samples, every element in the population has known a nonzero probability of being selected, while in non-probability a sample there is no way of knowing the probability of an individual element being selected.

3) Probability Samples.

Probability sampling is a process of sample selection in which elements are chosen by chance method s such as flipping coins, drawing numbered balls from a bowl or through tables of random numbers. There are several variations in probability sampling, but all share a common trait, i-e the selection of the units for the samples is carried out by chance procedures and with known probabilities of selection. Regarding this there are the following sampling techniques.

1) **Simple random sampling**
2) **Systematic/Regular Interval Sampling**
3) **Stratified random sampling**
4) **Cluster sampling**
5) **Multi-stage sampling**

1) **Simple Random sampling**

Simple random sampling is most common and familiar type of probability sample. It is usually briefly denoted by SRS. In this sample method, each member of the population has an equal probability of being included in the sample. The selection of the random sample may be based on any of the following methods.

2) **Lottery Method**

In this method, a slip, a ticket, chit or token may be associated with each unit of the population. Thus each sampling unit has its own identification mark from one to N. then all tickets or tokens are placed in a container, in which a through mixing or reshuffling is possible, before each draw. The slips must all be of the same size and name or number of each individual must appear on one and only one slip.

3) **Systematic Sampling**

Undoubtly the simplest and most widely known modification of SRS is systematic sampling. In this method only the first unit is selected with the help of random numbers and the rest get selected automatically according to some predetermined pattern. In this procedure the population size 'N" is divided by the sample size 'n' in order to yield the sampling interval. Then one selects a random number 'r' from 1to Z(the number in the interval) the Rth element on the list then becomes the first element selected for the sample, and thereafter, going down the list, every Zth element from 'r' is included in the sample. To illustrate, suppose that N=5000, and n=250, then Z=5000/250=20.

Here Z is the interval. It should be maintained in subsequent selections. We select a random number between 1 to 20, which let us say, turns out to be 14, and so the sample includes elements number 14 and every 20th element thereafter: 14,34,54,74,94…. And so on. Once Z (the interval) and r (the random number) have been determined, it is very simple procedure to determine which elements are in the sample.

There are however two problems in this type of sampling. The first occurs when the elements are listed in a steadily increasing (or decreasing) interest. For example, if the elements consist of individuals, and are listed in order of increasing income, then if 'r' happens to be from early in the interval z, the second type of problem occurs if there are some periodic fluctuations within the list, which take place in some multiple of Z. suppose that we are in sampling daily 7 or some multiple of 7. Then it would turn out that the news paper selected in sample would all be drawn from the same day of the week. Whereas our daily experience shows that the content of the newspapers varies according to the day of the week therefore considerable bias is introduced due to dependence of subsequent selections on the selection of the first element.

Systematic sampling, in combination with other designs, is often used in social surveys because of its simplicity. An untrained interviewer can much more easily br told to go to very third house in a block than to use random numbers. It is important to realize that in all types of probability sampling there must be both some of element of randomization and some sort of a complete listing.

4) Stratified Sampling

Both stratified and cluster sampling can be used, under certain circumstances, to improve the efficiency of the sampling design. In case of stratified sampling the population is first divided into separate subpopulations, or strata. After strata have been formed, a separate sample is drawn from each stratum or subgroup by stratified random sampling technique, systematic, cluster or some other type and the resulting statistics for various strata are computed, properly weighed and combined. One reason for stratifying is to decrease the variance of the sample estimates. This can be achieved by making each of the strata as homogenous as possible with respect to one or more of the variables of the interest to the researcher.

i)   Proportional stratified Sampling

Proportionate stratified sampling is often used to assure a more representative sample than might be expected under simple random or systematic sampling. Suppose for example, there are 600 Pushtoons,300 Urdu speaking, 100 Punjabi speaking groups in a given population. If a random sample of size 100 were drawn, we would certainly get 60 persons of Pushto speaking groups 30 Urdu speaking and 10 punjabi.

If the strata were completely homogeneous, as would be expected by chance, we would gain nothing by stratifying. To obtain a proportional stratified sample, the sizes of the population strata must be known and it will only be possible to stratify according to variables for which information is given from the listing at the time the sample is drawn. This often means that one is confined to such simple variables as sex, age, occupation or area of residence.

ii) Optimum Allocated Method

We consider variation within strata and cost per unit area in this method. If there is less variation we can take less sample size which represents the whole universe and when the variation is sample greater, then our sample size is larger. Suppose cost for one unit of sample is C1, for the second C2, then C3 and so on, n is the sample size N1, is the total population of the first stratum N2 is the total population of the second stratum, N3 total population of the third stratum and so on. And similarly S1 and S2, S3….. Are the variation of the all the strata.

5) Cluster Sampling

In cluster sampling the population is first divided into the clusters i-e units containing several sample elements. These clusters may be geographic areas, work-groups, busloads of the colleges, factories, political subdivisions etc. All the units within the sample are chosen. They do not need to be of the same size; the only requirement is that each element in the population be included in one and only one cluster. After the cluster has been formed, a sample is drawn from among the total group of cluster. Again this may be an SRS, a systematic, a stratified or another cluster sample. The sample will consist of all the elements contained in the selected clusters. However a more common procedure is to draw a second sample from among the total number of elements in the selected clusters. Possibly a third, fourth or even fifth sample will be drawn, each time from the previously selected elements. These are known as multistage samples.

For illustration of cluster sampling technique, consider pollution in an industrial area. 'A' is more than permitted levels causing health hazards to the people in the area. There were reports that even the water beneath the ground is not possible. There were claims and counter claims by the government, factory owners and experts. In this connection, if the researcher is interested to study public opinion, he can select people on the basis of ward or division. Similarly in a study on school children, children may be selected on the basis of classes they are studying. Students studying in a particular class become a cluster or group for study.

There is another important point involved in the cluster sampling. It relates to the size of the cluster, I-e how large or small the group should be. This has an implication to sampling

variance increases with cluster size, and decreases with increasing number of clusters. On the other hand, the cost decreases with the cluster size and increases with number of cluster. Therefore a balancing point should be determined by finding out the optimum cluster size.

6) Area Sampling

Area sampling is special form of cluster sampling in which the sample items are basis. In this kind pf sampling maps rather than lists or registers serve as basis. Within this area, the researcher may select all the members of the area or a part of the area may be selected. In area sampling, the boundaries of the area must be well defined. Normally, the area is divided into blocks and random sample is adopted to choose blocks. Instead of the researcher attempting to carry out all this exercise on his own, the divisions already existing may be preferred. For instance, in the case of village, wards or streets may serve as a good identification. Generally governmental agencies use area sampling to collect information about the effectiveness of their programmes like eradication of malaria; implementation of family planning etc. agriculture departments and other organizations connected with agriculture use this technique for compiling agricultural statistics.

This big advantage of area sampling is that the cost per element is greatly reduced since the nonproductive time used for travel between elements is so greatly reduced. Its main advantage is that there is much higher variance in the obtained statistics, and also the cost and difficulty of the statistical analysis are higher than with other type of samples.

While deciding about a specific sample technique, in actual practice the decision should be made in one of the two ways. Either the researcher determines the level of accuracy he must have and then select a sample design which will minimize his cost or an acceptable cost level is selected and then the sample is chosen which will maximize the accuracy

7) Multistage Sampling.

In multistage sampling the material is regarded as made up of a number of the first stage sampling units, each of which is made up a number of second stage units etc. it means that sampling process is carried out in stages. At the first stage of sampling, sampling units are selected from the universe by some suitable method. At the second stage of sampling, sampling units are selected from each of the selected first stage units by some suitable method. This procedure is continued, if desired. This process of selecting the sample is known as multistage sampling.

Non Probability Sampling

Non probability sampling is a method of selecting samples in which the choice of selection of sampling units depends entirely on the discretion or judgment of the sampler. In this method, the investigator inspects the entire population and selects sample of the typical units in which he considers close to the average of the population. This method provides a lot of freedom to the investigator in the inclusion of exclusion of the sample units. The main advantage of non probability sampling is that we can obtain no valid estimate of our risks of errors. But this does not mean that non-probability sampling is never appropriate.

Depending upon the specific type of sample, they must be quite representative of the population. They are cheaper, in both time and money, and almost always they are easier and more convenient to construct, use and analyze than probability samples.

Non-probability methods are used when the purpose is to make generalization about a population sampled. Such methods invariably either make use of interviewer's judgments as to the individuals to be included or permit an individual sampled to be selected out of the study on some nonrandom basis. This method of sampling is mainly used for opinion surveys. But this is not recommended for research purpose as this is subject to drawbacks of prejudice and bias of the investigator. However, for a given expenditure of time and money, we can obtain a larger sample size than is possible with the probability techniques. As a result the larger non-probability sample thus obtained is more representative than the smaller sample obtained through probability sampling.

Four different types of non-probability sampling can be identified:

1) **Quota Sampling**
2) **Convenience Sampling**
3) **Purposive sampling**
4) **Judgment sampling**

1) Quota Sampling

It is proportionate selection of items, i-e cases are selected for the sample on the basis of quota system. The researcher has information about the distribution of certain characteristic which are believed to be related to the research at hand, within the population,, it is possible to establish quotas for their inclusion in the sample.

For example, instructions for a quota sample of university graduate student be interviewed for every four undergraduates, two females for every three males, one literate for four illiterate or the quota of the old and the young; urban and rural etc. these characteristics are known as quota control factor. The purpose of this is to control bias. Bias creeps in because the investigators are free to select particular individual within the quota. They usually look for persons who either agree with their points of view or are personally known to them or can be contacted easily. Being only human one is likely to select those persons who are most conveniently located. If one goes to their homes, he or she may select only those persons who are at home at that time. A very honest researcher might even over sample persons who are seldom at home or lower-class individuals who might be missed by other researcher/interviewers.

Perhaps a well-trained person may become quite expert in the use of his or her judgment. If any group which is either under or over sampled happens to differ markedly from others with respect to the variable being studied, the sample may be seriously biased.

2) Convenience or Accidental Sampling

It is known as convenience sampling as it is based on the convenience of the researcher. Public opinion is generally gathered by using this method. In this type of sampling any person who is easily available to the researcher is selected. In other words the researcher

standing at a particular subject such as the government economic policy. They may be the first 100 persons the researcher encounters on the street, shopkeepers are in a market (if the researcher is interested in finding out the market value), or students in the classes.

The opinions thus collected are produced later as the voice of the people. The scientific value of this method is taken as nil. If the population is larger, ther is no way to take a representative accidental sample and statistical inference technique quite unsatisfactory.

3) Purposive Sampling

it is also known as judgment or expert choice sampling. In this method of sampling, the samples are chosen in order to meet some pre-determined criteria. The researcher selects the cases on the basis of his familiarity with the situation combined with his presumed experts judgment. Or in simple, someone this type of sampling is very advantageous, especially when the researcher is truly familiar with the situation.

4) Judgment Sampling

In this case sampling is done on the judgment of the researcher i-e, the inclusion and exclusion of the sampling units is based on the judgment of the researcher. Through it seems that no logic is involved in this approach, but the utility of this approach cannot be undermined. There may be cases in which the judgment of a specialist in the field may yield a more representative sample than would have been obtained through a probability sampling method. .

5) Snowball sampling

The process of snowball sampling is much like asking your subjects to nominate another person with the same trait as your next subject. Researchers use this sampling method if the sample for the study is very rare or is limited to a very small subgroup of the population. This type of sampling technique works like chain referral.

Hypothesis

Hypothesis is a testable statement. It is formulated after literature review. It explains the behaviors or events. It is also expected outcome of the research. The researcher does not try to prove the hypothesis rather he collects data that either support it or do not support it. All the hypothesis are based on previous knowledge. They are aimed at extending knowledge. Every aspect of research e.g. samples, instruments, design, procedure, data analysis techniques and conclusions are affected by hypothesis.

Definition of hypothesis: i) "A hypothesis is a tentative explanation for certain behaviors, phenomena or the events that have occurred or will occur" *(L.R. Gay)*

ii) "It is tentative supposition or provisional guess which seems to explain the situation under the observation"

iii) "A hypothesis is a statement temporarily accepted as true in the light of what is known about the phenomena and it is employed as a basis for action in the search for new truths. When the hypothesis is fully established it may take the form of facts, principles and theories".

Characteristics of Good Hypothesis

1. A good hypothesis is consistent with previous research:

A good hypothesis should follow precious research and based on sound rationale. The findings of one research provides basis for hypothesis of the other one.

2. A good hypothesis provides suitable explanation:

A good hypothesis should reasonably explain the behaviour, phenomena or events. If handwriting of the student is poor, you might hypothesize that it is because student comes far from the school; such a hypothesis would not reasonably explain. A reasonable hypothesis might be that model writing of the teacher is not good.

3. A good hypothesis states expected relationship between variables:

The relationship between the two variables must be clear in a good hypothesis e.g. "There is significant relationship between poverty and illiteracy"

4. A good hypothesis is testable with the help of data.

Hypothesis should be such that data could be collected and analyzed. Collection of the data will support or not support the hypothesis.

5. A good hypothesis should be testable within reasonable period of time.

A hypothesis that the memory of a student at the age five will be the same while reaching at the age of 45 will need time to test.

Types of Hypothesis

L.RGay has stated following types of the hypothesis:

1. Inductive Hypothesis

It is generalization based on the observation. Certain variables are related to number of situations. By observing specific situation, we can make a generalization i.e. from specific to general.

2. **Deductive Hypothesis**

It is a hypothesis which is derived from the theory. It provides evidence that supports, expands or contradicts. It also suggests future studied. For example; Aussubel found that there is no significant difference in relation between groups receiving a review one day after learning versus seven days after learning. According to him, an early review consolidates material while a delayed review promotes re-learning of forgotten material. Both contribute the retention. The following hypothesis can be developed from above theory.

If Ausulbel was correct, then two reviews, one early and one delayed will be more effective than either two early reviews or two delayed reviews.

3. Research Hypothesis

It states an expected relationship or difference between two variables. It is the relationship that researcher expects to verify through collection and analysis of data. It is also called as **Declarative Hypothesis**.

4. Non Directional Hypothesis

A non directional hypothesis simply indicates that a relationship or difference exists i.e. "There is a significant difference science achievement of elementary student taught through computer and those taught without computers.

5. Directional Hypothesis

A directional hypothesis indicates the nature of relationship or difference.

Example

The science achievement of the elementary students taught through computer is at a higher level than those without computer.

5. Null Hypothesis

A null hypothesis states that there is no relationship (or difference between variables) and that any relationship found will be a chance relationship, not a true one.

Sources of Hypothesis

The task of deriving adequate hypothesis is essentially parallel to that of selecting suitable problems. The derivation of a good hypothesis demands characteristics of experience and creativity.

A good investigator must have not only an alert mind capable of deriving relevant hypothesis, but also a critical mind capable of rejecting faulty hypothesis. The person who is full of ideas may be lacking in critical analysis – that is, originally may be somewhat incompatible with a critical attitude.

The specific sources of hypothesis are being discussed below.

1. **General Culture:**

In the investigation for solving problems, our hypothesis cannot lose sight of the broad general culture to which we belong. While formulating such hypothesis, we cannot ignore religious or moral biases.. Our cultural heritage is a great source of ideas, theories, tentative theories and provisional propositions

2. **Scientific Theory**

There are various scientific laws or theories which are transferable to the field of research. For example, we have theories like- sound body has a sound mind, handicapped children face adjustment problem etc.

3. **Persona Experience**

We have emphasized above that a good hypothesis can come only from experience. Some of our experiences may be directly changed into research hypothesis, for example- teacher's character and personality are imbibed by the students, good study habits improve achievement, teacher's punctuality enhances student's punctuality, library reading enhances interest in knowledge etc.

4. **Analogies**:

Although reasoning by analogy generally is considered unacceptable as a source of proof, it is very fertile source of hypothesis. It is the process of forming hypothesis from the likeness and similarities between two situation is not accidental, but that is the result of the operation of some law common to the two situations, for example, if our problem is similar in nature to a problem studied in a foreign land, we may frame our hypothesis in the same manner.

Variable: Variable is concerned with variation in presence of something in person, object, animal, place or situation or in any natural phenomena. It can be defined as: • A characteristic under study of which an identity or value changes or is possible to change per unit is called variable. OR • A variable is a characteristic that varies in the context of its value or identity.

Referring the definitions of variable, we can say that any such characteristic, possessed by any living or non-living unit or thing, is called variable whose value may change per unit or per groups of unit. Such characteristic is called variable characteristic in research study. Some examples of variable are given below. If we want to study the number of members in families of a village, the number of members will be variable characteristic, because value of this number will change per family and family will be considered as unit of study. In the same way, if we want to study Mathematical Reasoning Ability (MRA) of students, MRA will be considered as variable characteristic and students will be considered as units of study. Units of study is called subject in research study

Types of Variables

Binary variable: Obsevations (i.e., dependent variables) that occur in one of two possible states, often labelled zero and one. E.g., "improved/not improved" and "completed task/failed to complete task."

Categorical Variable: Usually an independent or predictor variable that contains values indicating membership in one of several possible categories. E.g., gender (male or female), marital status (married, single, divorced, widowed). The categories are often assigned numerical values used as lables, e.g., 0 = male; 1 = female. Synonym for nominal variable.

Confounding variable: A variable that obscures the effects of another variable. If one elementary reading teacher used used a phonics textbook in her class and another instructor used a whole language textbook in his class, and students in the two classes were given achievement tests to see how well they read, the independent variables (teacher effectiveness and textbooks) would be confounded. There is no way to determine if differences in reading between the two classes were caused by either or both of the independent variables.

Continuous variable: A variable that is not restricted to particular values (other than limited by the accuracy of the measuring instrument). E.g., reaction time, neuroticism, IQ. Equal size intervals on different parts of the scale are assumed, if not demonstrated. Synonym for interval variable.

Control variable: An extraneous variable that an investigator does not wish to examine in a study. Thus the investigator controls this variable. Also called a covariate.

Criterion variable: The presumed effect in a nonexperimental study.

Dependent variable: The presumed effect in an experimental study. The values of the dependent

variable depend upon another variable, the independent variable. Strictly
speaking, "dependent variable" should not be used when writing about nonexperimental
designs.

Dichotomous variable: Synonym for binary variable

Discrete variable: Variable having only integer values. For example, number of trials need
by a student to learn a memorization task.

Dummy Variables: Created by recoding categorial variables that have more than two
categories into a series of binary variables. E.g., Marital status, if originally labelled
1=married, 2=single, and 3=divorced, widowed, or separated, could be redefined in terms
of two variables as follows: var_1: 1=single, 0=otherwise. Var_2: 1=divorced, widowed,
or separated, 0=otherwise.

For a married person, both var_1 and var_2 would be zero. In general, a categorical variable
with k categories would be recoded in terms of k - 1 dummy variables. Dummy variables
are used in regression analysis to avoid the unreasonable assumption that the original
numerical codes for the categories, i.e., the values 1, 2, ..., k, correspond to an interval
scale. Use: to place cases in specific
groups.

Endogenous variable: A variable that is an inherent part of the system being studied and
that is determined from within the system. A variable that is caused by other variables in a
causal system.

Exogenous variable: A variable entering from and determined from outside of the system
being studied. A causal system says nothing about its exogenous variables.

Independent variable: The presumed cause in an experimental study. All other variables
that may
impact the dependent variable are controlled. The values of the independent variable are
under experimenter control. Strictly speaking, "independent variable" should not be used
when writing about nonexperimental designs.

Interval variable: Synonym for continuous variable

Intervening variable: A variable that explains a relation or provides a causal link between
other variables. Also called by some authors "mediating variable" or "intermediary
variable."

Example: The statistical association between income and longevity needs to be explained
because just having money does not make one live longer. Other variables intervene
between money and long life. People with high incomes tend to have better medical care
than those with low incomes. Medical care is an intervening variable. It mediates the
relation between income and longevity.

Latent variable: An underlying variable that cannot be observed. It is hypothesized to
exist in
order to explain other variables, such as specific behaviors, that can be observed. Example:
if we observe the voting records of members of the House of Representatives on spending

bills for the military, foodstamps, law enforcement, and promoting business investment, we might find underlying patterns that could be explained by postulating latent variables such as conservatism and

liberalism.

Manifest variable: An observed variable assumed to indicate the presence of a latent variable. Also

known as an indicator variable. We cannot observe intelligence directly, for it is a latent variable. We can look at indicators such as vocabulary size, success in one's occupation, IQ test score, ability to play complicated games (e.g., bridge) well, writing ability, and so on.

Manipulated variable: Synonym for independent variable.

Mediating variable: Synonym for intervening variable. Example: Parents transmit their social status to their children directly, but they also do so indirectly, through education: viz.

Parent's status ➤ child's education ➤ child's status

Moderating variable A variable that influences, or moderates, the relation between two other variables and thus produces an interaction effect.

Nominal variable Synonym for categorical variable.

Ordinal variable A variable used to rank a sample of individuals with respect to some characteristics, but differences (i.e., intervals) and different points of the scale are not necessarily equivalent. Examples: anxiety might be rated on a scale "none," "mild," "moderate," and "severe," with numerical values of 0, 1, 2, 3. A patient with an anxiety score of 1 is ranked as less anxious than a patient with a score of 3, but patients with scores 0 and 2 do not necessarily have the same differences in anxiety as patients with scores of 1 and 3.

Outcome variable: The presumed effect in a nonexperimental study. Synonym for criterion variable.

Polychotomous variables: Variables that can have more than two possible values. Strictly speaking, this includes all but binary variables. The usual reference is to categorical variables with more than two categories.

Predictor variable: The presumed "cause" on a nonexperimental study. Often used in correlational

studies. For example, SAT scores predict first semester GPA. The SAT score is the predictor variable.

Treatment variable: Synonym for independent variable

Literature Review

A literature review is a survey of everything that has been written about a particular topic, theory, or research question. It may provide the background for larger work, or it may stand on its own. Much more than a simple list of sources, an effective literature review analyzes and synthesizes information about key themes or issues. What is a literature review? A literature review is a survey of everything that has been written about a particular topic, theory, or research question. It may provide the background for larger work, or it may stand on its own. Much more than a simple list of sources, an effective literature review analyzes and synthesizes information about key themes or issues. What is a literature review? A literature review is a survey of everything that has been written about a particular topic, theory, or research question. It may provide the background for larger work, or it may stand on its own. Much more than a simple list of sources, an effective literature review analyzes and synthesizes information about key themes or issues.

Importance of a Good Literature Review

A literature review may consist of simply a summary of key sources, but in the social sciences, a literature review usually has an organizational pattern and combines both summary and synthesis, often within specific conceptual categories. A summary is a recap of the important information of the source, but a synthesis is a re-organization, or a reshuffling, of that information in a way that informs how you are planning to investigate a research problem. The analytical features of a literature review might:

- Give a new interpretation of old material or combine new with old interpretations,

- Trace the intellectual progression of the field, including major debates,

- Depending on the situation, evaluate the sources and advise the reader on the most pertinent or relevant research, or

- Usually in the conclusion of a literature review, identify where gaps exist in how a problem has been researched to date.

The purpose of a literature review is to:
- Place each work in the context of its contribution to understanding the research problem being studied.
- Describe the relationship of each work to the others under consideration.
- Identify new ways to interpret prior research.
- Reveal any gaps that exist in the literature.
- Resolve conflicts amongst seemingly contradictory previous studies.
- Identify areas of prior scholarship to prevent duplication of effort.
- Point the way in fulfilling a need for additional research.
- Locate your own research within the context of existing literature [very important].

The structure of a literature review should include the following:

- An overview of the subject, issue, or theory under consideration, along with the objectives of the literature review,
- Division of works under review into themes or categories [e.g. works that support a particular position, those against, and those offering alternative approaches entirely],
- An explanation of how each work is similar to and how it varies from the others,
- Conclusions as to which pieces are best considered in their argument, are most convincing of their opinions, and make the greatest contribution to the understanding and development of their area of research.

Ways to Organize Your Literature Review
   a. Chronology of Events

If your review follows the chronological method, you could write about the materials according to when they were published. This approach should only be followed if a clear path of research building on previous research can be identified and that these trends follow a clear chronological order of development. For example, a literature review that focuses on continuing research about the emergence of German economic power after the fall of the Soviet Union.

   b. By Publication

Order your sources by publication chronology, then, only if the order demonstrates a more important trend. For instance, you could order a review of literature on environmental studies of brown fields if the progression revealed, for example, a change in the soil collection practices of the researchers who wrote and/or conducted the studies.

   c. Thematic ["conceptual categories"]

Thematic reviews of literature are organized around a topic or issue, rather than the progression of time. However, progression of time may still be an important factor in a thematic review. For example, a review of the Internet's impact on American presidential politics could focus on the development of online political satire. While the study focuses on one topic, the Internet's impact on American presidential politics, it will still be organized chronologically reflecting technological developments in media. The only difference here between a "chronological" and a "thematic" approach is what is emphasized the most: the role of the Internet in presidential politics. Note however that more authentic thematic reviews tend to break away from chronological order. A review organized in this manner would shift between time periods within each section according to the point made.

   d. **Methodological**

A methodological approach focuses on the methods utilized by the researcher. For the Internet in American presidential politics project, one methodological approach would be to look at cultural differences between the portrayal of American presidents on American, British, and French websites. Or the review might focus on the fundraising impact of the Internet on a particular political party. A methodological scope will influence either the types of documents in the review or the way in which these documents are discussed.

Points in writing

Once you've settled on how to organize your literature review, you're ready to write each section. When writing your review, keep in mind these issues.

    a. Use Evidence

A literature review section is, in this sense, just like any other academic research paper. Your interpretation of the available sources must be backed up with evidence [citations] that demonstrates that what you are saying is valid.

    b. Be Selective

Select only the most important points in each source to highlight in the review. The type of information you choose to mention should relate directly to the research problem, whether it is thematic, methodological, or chronological. Related items that provide additional information but that are not key to understanding the research problem can be included in a list of further readings.

    c. Use Quotes Sparingly

Some short quotes are okay if you want to emphasize a point, or if what an author stated cannot be easily paraphrased. Sometimes you may need to quote certain terminology that was coined by the author, not common knowledge, or taken directly from the study. Do not use extensive quotes as a substitute for your own summary and interpretation of the literature.

    d. Summarize and Synthesize

Remember to summarize and synthesize your sources within each thematic paragraph as well as throughout the review. Recapitulate important features of a research study, but then synthesize it by rephrasing the study's significance and relating it to your own work.

    e. Keep Your Own Voice

While the literature review presents others' ideas, your voice [the writer's] should remain front and center. For example, weave references to other sources into what you are writing but maintain your own voice by starting and ending the paragraph with your own ideas and wording.

    f. Use Caution When Paraphrasing

When paraphrasing a source that is not your own, be sure to represent the author's information or opinions accurately and in your own words. Even when paraphrasing an author's work, you still must provide a citation to that work.

Problems in Social Research

A Social Researcher has to face following problems during conducting research

1) The Subject Matter of Social Scientist Is Complex

The subject matter of the social science is very much complex and difficult to explain. Social research attempts to understand social phenomena. This involves human behavior, his feeling his needs and problems. The social environment is fluid. Individual differences are creating problems. There is always human interaction , which is socially and emotionally oriented, and so many social, cultural, physiological and psychological factors are involved in such interaction.

In short, understanding of social problems, involves large number of variables'.

2) The Social Phenomena Is Not Static

The social phenomenon unlike physical phenomena is less static. It always undergoes rapid changes. The trials of human personality change considerably as an individual reacts to certain kind of experience. Society may enjoy relatively long era of peace and then suddenly experience conflicts. Thus it becomes difficult to get reliable results under changing circumstances.

3) Social Phenomena Is Difficult to be Explained, Predicted and Controlled.

Social phenomenon is difficult to be explained, predict and controlled, as compared to physical phenomenon. Though considerable improvement has been brought about in social, political and economic fields of our country but still there are crises like political instability, social cultural disharmony, economic inflexibility, srising poverty, crimes and other internal dangers and external compulsion. So it is difficult to explain, predict and control social phenomenon.

4) Problems of Society Are Complex and Multidimensional

The problems of society are complex and multi dimensional and will have to be studied in their totality. For example, if a social scientist investigates problems like crime, poverty, or the state of terrorism, he will have to take into considerations innumerable social, political, religious, cultural, geographical, demographic, economics biological and psychological factors, all of which are interrelated, and inseparable. The global influence will also be not out of place in such analysis. In individual case how a social scientist will be able to explain or interpret the human behavior, the indication of which are motives, dreams, anxieties, fears, preferences and so many other relating to his ' inner state' of his personality or consciousness.

5) Direct Observations is Difficult In The Study Of Social Problems

Direct observation for a physical scientist as already indicated is not difficult but for a social scientist, it is very difficult. A physical scientist can repeat his experiment but a historian or a social researcher cannot repeat an event for direct observation.

6) Social Phenomena is Personal

Physical phenomenon is impersonal while a social phenomenon is personal. It is humanized and it is emotionalized. Its subject matter is influenced by human will, ideals, error and human decision. It is constantly changing as a result of decision taken by the human being.

7) Problems in methodology

Social scientists do not possess any laboratory or scientific equipments like physical scientists. Social researches have no accurate scale for measurements. This laboratory is the society or community or social welfare agencies, social welfare departments and such type of institutions where the researcher can find way for research, where the researcher find individual's records, case histories, files etc. The physical scientist can observe the material phenomena whereas the social researcher can observe individuals and man in always changing circumstances. As the social researches has laboratories and scientific tools therefore it is impossible to conduct experiments in methodology manner.

8) Problems in data collection

In order to locate a respondent the social researcher must have a list of the respondents but it is difficult to maintain such a list in every reserch. He has to find the house no. of a particular respondent. Then in order to collect information from the respondents he has to face the problems of transportation. Then it is just possible that the respondent is un cooperative because the majority of our people are ignorant and illiterate and they do not respond to the exploring questions, in cooperative manner. They do not appreciate investigation under certain fears and doubts and they do not provide extra and accurate information.

9) Problems of checking and evaluating

The researcher prepares a questionnaire or interview schedule and goes to the respondents to collect information from them but there is no way to analyze these questions and also there is no scientific equipment for measurement to evaluate whether the respondent is giving correct information. The information is only tentative. The researcher should examine it with his own intellectual inspirations that whether he has prepared a right answer. He [the researcher] has to analyze and evaluate all these factors himself.

10) Problems of sampling

The researcher does not interview all the possible cases in the universe but a small number of respondents are selected from the whole number. For reliable sample, list of the whole universe is to be prepared otherwise poor and unreliable data will be collected. Researcher based on such data will not give correct results.

11) Bias of the Researcher or the Respondent

There may be bias and prejudice on the path of the researcher or the respondent. Bias is a condition in which one adopts special way of thinking .They doesn't part with their behavior and attitude. The biased individuals don't change. Sometimes the researcher asks any

question which can remind him any thing bitter and unpleasant to the respondent and the respondent does not give true information. Similarly some times researcher gets biases.

12) Inadequate Techniques and Tools

One fundamental limitation to social researcher is that its methods are not so well developed as in the case of physical science. In other words, tools and techniques or methods are not precise and because it is recently approved in the horizon of important subject. That is why the tool of social research and its methodology are still in process of development and this particularly true of the social work research.

13) Common Sense Fallacy:

Majority of our people are illiterate, rigid and ignorant. They have superstitious beliefs. They don't realize their duties and if the researcher ask any question from such a person, the reply is not correct. In such situations the social scientist cannot get the true information because people are subjective and partial never try to reason. They don't like to accept new things. This blocks the process of research.

14) Ignorance about Research

People are often found to be ignorant of social research and utility of it. This is particularly true for society like ours. Due to ignorance people may not give correct information and they become doubtful about researchers. False information, if may not check properly may cause in wrong finding.

Remedial measures

A Social researcher may overcome the problems in conducting research by undertaking following measures.

i) Personal experience and qualities of the researcher

Experience is the biggest educator of man .One may read books and literature, but without experience there can be no completion experience makes a man wiser. Research requires a thoughtful consideration, there for the researcher must have his own experience being neutral and objective, with honest intellectual exercise the researcher can overcome many problems and doubts.

ii) Self-awareness:

Self awareness is an important factor in research. One should know his weakness and qualities.

iii) Consultation:

Consultation with other experienced researchers may be helpful in alleviating research problems. They may point out some new way to tackle the problem or point out mistakes in research.

iv) Devotion to work

Devotion to truth and intellectual honesty is required by all researchers.

v) Scientific ethic

The development of scientific ethic based on intellectual honesty personal integrity discipline imagination and independent way of thinking. This can be in overcoming problems such as

ones value judgment and preconception but these two can be achieved by thinking and experience.

vi) Use of certain objective device

Certain objectives instruments and techniques can be developed and applied for observation data collection and interpretation of data .use of such tools as questionnaire interviewing schedule and observational schedule etc. can help in making objective Observation**.**

In addition to these certain mechanical instruments such as the tape recorders movies videos cameras the use of one way visual screen etc can be applied more and more by scientist .for objective analysis of data certain statistical measures can be gainfully applied.

vii) Objectivity

One should try to develop and achieve objectivity this however can not be done overnight but one should make conscious effort to develop an inquiry attitude and disciplined mind. This can only be achieved through constant efforts. One can only develop objectivity, with constant efforts, experience and training

viii) Encouragement of Criticism and healthy doubts

The researcher should not be afraid of criticism because in social research nothing is so correct and exact like mathematics. There for what he has done in research should be subjected to the criticism of others. It may be that the critics point out a new dimension in research direction.