

## **Research Methodology Lectures of the 2<sup>nd</sup> semester(3<sup>rd</sup> year)**

### **The information below are taken from:**

- KOTHARI, C.R. (2004). *Research Methodology: Methods and Techniques*(2<sup>nd</sup> revised edition), New age international (p) limited, Publishers, India. p-p: 95, 96, 97, 98, 99, 100, 101, 102, 103.)

### ***1/ Data gathering tools:***

*The task of data collection begins after a research problem has been defined and research design/ plan chalked out. While deciding about the method of data collection to be used for the study, the researcher should keep in mind two types of data viz., primary and secondary. The primary data are those which are collected afresh and for the first time, and thus happen to be original in character. The secondary data, on the other hand, are those which have already been collected by someone else and which have already been passed through the statistical process. The researcher would have to decide which sort of data he would be using (thus collecting) for his study and accordingly he will have to select one or the other method of data collection. The methods of collecting primary and secondary data differ since primary data are to be originally collected, while in case of secondary data the nature of data collection work is merely that of compilation. We describe the different methods of data collection, with the pros and cons of each method.*

### ***1-1/ Collection of primary data***

*We collect primary data during the course of doing experiments in an experimental research but in case we do research of the descriptive type and perform surveys, whether sample surveys or census surveys, then we can obtain primary data either through observation or through direct communication with respondents in one form or another or through personal interviews. This, in other words, means that there are several methods of collecting primary data, particularly in surveys and*

*descriptive researches. Important ones are: (1) observation method, (2) interview method, (3) through questionnaires, (4) through schedules, and (5) other methods which include (a) warranty cards; (b) distributor audits; (c) pantry audits; (d) consumer panels; (e) using mechanical devices; (f) through projective techniques; (g) depth interviews, and (h) content analysis. We briefly take up each method separately.*

### ***1-1-1/ Observation Method:***

*The observation method is the most commonly used method specially in studies relating to behavioral sciences. In a way we all observe things around us, but this sort of observation is not scientific observation. Observation becomes a scientific tool and the method of data collection for the researcher, when it serves a formulated research purpose, is systematically planned and recorded and is subjected to checks and controls on validity and reliability. Under the observation method, the information is sought by way of investigator's own direct observation without asking from the respondent. For instance, in a study relating to consumer behavior, the investigator instead of asking the brand of wrist watch used by the respondent, may himself look at the watch. The main advantage of this method is that subjective bias is eliminated, if observation is done accurately. Secondly, the information obtained under this method relates to what is currently happening; it is not complicated by either the past behavior or future intentions or attitudes. Thirdly, this method is independent of respondents' willingness to respond and as such is relatively less demanding of active cooperation on the part of respondents as happens to be the case in the interview or the questionnaire method. This method is particularly suitable in studies which deal with subjects (i.e., respondents) who are not capable of giving verbal reports of their feelings for one reason or the other.*

*However, observation method has various limitations. Firstly, it is an expensive method. Secondly, the information provided by this method is very limited. Thirdly, sometimes unforeseen factors may interfere with the observational task. At*

*times, the fact that some people are rarely accessible to direct observation creates obstacle for this method to collect data effectively.*

*While using this method, the researcher should keep in mind things like: What should be observed? How the observations should be recorded? Or how the accuracy of observation can be ensured? In case the observation is characterized by a careful definition of the units to be observed, the style of recording the observed information, standardized conditions of observation and the selection of pertinent data of observation, then the observation is called as **structured observation**. But when observation is to take place without these characteristics to be thought of in advance, the same is termed as **unstructured observation**. Structured observation is considered appropriate in descriptive studies, whereas in an exploratory study the observational procedure is most likely to be relatively unstructured.*

*We often talk about **participant and non-participant types of observation** in the context of studies, particularly of social sciences. This distinction depends upon the observer's sharing or not sharing the life of the group he is observing. If the observer observes by making himself, more or less, a member of the group he is observing so that he can experience what the members of the group experience, the observation is called as **the participant observation**. But when the observer observes as a detached emissary without any attempt on his part to experience through participation what others feel, the observation of this type is often termed as **non-participant observation**. (When the observer is observing in such a manner that his presence may be unknown to the people he is observing, such an observation is described as disguised observation.)*

*There are several **merits of the participant type of observation**: (i) The researcher is enabled to record the natural behavior of the group. (ii) The researcher can even gather information which could not easily be obtained if he observes in a disinterested fashion. (iii) The researcher can even verify the truth of statements made by informants in the context of a questionnaire or a schedule. But there are also certain **demerits of this type of observation** viz., the observer may lose the*

*objectivity to the extent he participates emotionally; the problem of observation-control is not solved; and it may narrow-down the researcher's range of experience.*

*Sometimes we talk of **controlled and uncontrolled observation**. If the observation takes place in the natural setting, it may be termed as **uncontrolled observation**, but when observation takes place according to definite pre-arranged plans, involving experimental procedure, the same is then termed **controlled observation**. In non-controlled observation, no attempt is made to use precision instruments. The major aim of this type of observation is to get a spontaneous picture of life and persons. It has a tendency to supply naturalness and completeness of behavior, allowing sufficient time for observing it. But in controlled observation, we use mechanical (or precision) instruments as aids to accuracy and standardization. Such observation has a tendency to supply formalized data upon which generalizations can be built with some degree of assurance. **The main pitfall of non-controlled observation** is that of subjective interpretation. There is also the danger of having the feeling that we know more about the observed phenomena than we actually do. Generally, controlled observation takes place in various experiments that are carried out in a laboratory or under controlled conditions, whereas uncontrolled observation is resorted to in case of exploratory researches.*

### ***1-1-2/ Interview method:***

*The interview method of collecting data involves presentation of oral-verbal stimuli and reply in terms of oral-verbal responses. This method can be used through personal interviews and, if possible, through telephone interviews.*

**(a) Personal interviews:** *Personal interview method requires a person known as the interviewer asking questions generally in a face-to-face contact to the other person or persons. (At times the interviewee may also ask certain questions and the interviewer responds to these, but usually the interviewer initiates the interview and*

*collects the information.) This sort of interview may be in the form of direct personal investigation or it may be indirect oral investigation. In the case of direct personal investigation the interviewer has to collect the information personally from the sources concerned. He has to be on the spot and has to meet people from whom data have to be collected. This method is particularly suitable for intensive investigations. But in certain cases it may not be possible or worthwhile to contact directly the persons concerned or on account of the extensive scope of enquiry, the direct personal investigation technique may not be used. In such cases an indirect oral examination can be conducted under which the interviewer has to cross-examine other persons who are supposed to have knowledge about the problem under investigation and the information, obtained is recorded. Most of the commissions and committees appointed by government to carry on investigations make use of this method.*

*The method of collecting information through personal interviews is usually carried out in a structured way. As such we call the interviews as structured interviews. Such interviews involve the use of a set of predetermined questions and of highly standardized techniques of recording. Thus, the interviewer in a structured interview follows a rigid procedure laid down, asking questions in a form and order prescribed. As against it, the unstructured interviews are characterized by a flexibility of approach to questioning. Unstructured interviews do not follow a system of pre-determined questions and standardized techniques of recording information. In a non-structured interview, the interviewer is allowed much greater freedom to ask, in case of need, supplementary questions or at times he may omit certain questions if the situation so requires. He may even change the sequence of questions. He has relatively greater freedom while recording the responses to include some aspects and exclude others. But this sort of flexibility results in lack of comparability of one interview with another and the analysis of unstructured responses becomes much more difficult and time-consuming than that of the structured responses obtained in case of structured interviews. Unstructured interviews also demand deep*

*knowledge and greater skill on the part of the interviewer. Unstructured interview, however, happens to be the central technique of collecting information in case of exploratory or formulative research studies. But in case of descriptive studies, we quite often use the technique of structured interview because of its being more economical, providing a safe basis for generalization and requiring relatively lesser skill on the part of the interviewer.*

*We may as well talk about focussed interview, clinical interview and the non-directive interview. Focussed interview is meant to focus attention on the given experience of the respondent and its effects. Under it the interviewer has the freedom to decide the manner and sequence in which the questions would be asked and has also the freedom to explore reasons and motives. The main task of the interviewer in case of a focussed interview is to confine the respondent to a discussion of issues with which he seeks conversance. Such interviews are used generally in the development of hypotheses and constitute a major type of unstructured interviews. The clinical interview is concerned with broad underlying feelings or motivations or with the course of individual's life experience. The method of eliciting information under it is generally left to the interviewer's discretion. In case of non-directive interview, the interviewer's function is simply to encourage the respondent to talk about the given topic with a bare minimum of direct questioning. The interviewer often acts as a catalyst to a comprehensive expression of the respondents' feelings and beliefs and of the frame of reference within which such feelings and beliefs take on personal significance.*

### ***The chief merits of the interview method***

*Despite the variations in interview-techniques, the major advantages and weaknesses of personal interviews can be enumerated in a general way. The chief merits of the interview method are as follows:*

*-More information and that too in greater depth can be obtained.*

*-Interviewer by his own skill can overcome the resistance, if any, of the respondents; the interview method can be made to yield an almost perfect sample of the general population.*

*-There is greater flexibility under this method as the opportunity to restructure questions is always there, specially in case of unstructured interviews.*

*- Observation method can as well be applied to recording verbal answers to various questions.*

*- Personal information can as well be obtained easily under this method.*

*- Samples can be controlled more effectively as there arises no difficulty of the missing returns; non-response generally remains very low.*

*-The interviewer can usually control which person(s) will answer the questions. This is not possible in mailed questionnaire approach. If so desired, group discussions may also be held.*

*-The interviewer may catch the informant off-guard and thus may secure the most spontaneous reactions than would be the case if mailed questionnaire is used.*

*-The language of the interview can be adopted to the ability or educational level of the person interviewed and as such misinterpretations concerning questions can be avoided.*

*-The interviewer can collect supplementary information about the respondent's personal characteristics and environment which is often of great value in interpreting results.*

*But there are also certain weaknesses of the interview method. Among the important weaknesses, mention may be made of the following:*

*-It is a very expensive method, specially when large and widely spread geographical sample is taken.*

*-There remains the possibility of the bias of interviewer as well as that of the respondent; there also remains the headache of supervision and control of interviewers.*

*-Certain types of respondents such as important officials or executives or people in high income groups may not be easily approachable under this method and to that extent the data may prove inadequate.*

*-This method is relatively more-time-consuming, specially when the sample is large and recalls upon the respondents are necessary.*

*-The presence of the interviewer on the spot may over-stimulate the respondent, sometimes even to the extent that he may give imaginary information just to make the interview interesting.*

*-Under the interview method the organization required for selecting, training and supervising the field-staff is more complex with formidable problems.*

*- Interviewing at times may also introduce systematic errors.*

*- Effective interview presupposes proper rapport with respondents that would facilitate free and frank responses. This is often a very difficult requirement.*

### ***Pre-requisites and basic tenets of interviewing:***

*For successful implementation of the interview method, interviewers should be carefully selected, trained and briefed. They should be honest, sincere, hardworking, impartial and must possess the technical competence and necessary practical experience. Occasional field checks should be made to ensure that interviewers are neither cheating, nor deviating from instructions given to them for performing their job efficiently. In addition, some provision should also be made in advance so that appropriate action may be taken if some of the selected respondents refuse to cooperate or are not available when an interviewer calls upon them.*



*In fact, interviewing is an art governed by certain scientific principles. Every effort should be made to create friendly atmosphere of trust and confidence, so that respondents may feel at ease while talking to and discussing with the interviewer. The interviewer must ask questions properly and intelligently and must record the responses accurately and completely. At the same time, the interviewer must answer legitimate question(s), if any, asked by the respondent and must clear any doubt that the latter has. The interviewers approach must be friendly, courteous, conversational and unbiased. The interviewer should not show surprise or disapproval of a respondent's answer but he must keep the direction of interview in his own hand, discouraging irrelevant conversation and must make all possible effort to keep the respondent on the track.*

**(b) Telephone interviews:** *This method of collecting information consists in contacting respondents on telephone itself. It is not a very widely used method, but plays important part in industrial surveys, particularly in developed regions. The chief merits of such a system are:*

- 1. It is more flexible in comparison to mailing method.*
- 2. It is faster than other methods i.e., a quick way of obtaining information.*
- 3. It is cheaper than personal interviewing method; here the cost per response is relatively low.*
- 4. Recall is easy; callbacks are simple and economical.*
- 5. There is a higher rate of response than what we have in mailing method; the non-response is generally very low.*
- 6. Replies can be recorded without causing embarrassment to respondents.*
- 7. Interviewer can explain requirements more easily.*
- 8. At times, access can be gained to respondents who otherwise cannot be contacted for one reason or the other.*
- 9. No field staff is required.*
- 10. Representative and wider distribution of sample is possible.*

*But this system of collecting information is not free from **demerits**. Some of these may be highlighted.*

- 1. Little time is given to respondents for considered answers; interview period is not likely to exceed five minutes in most cases.*
- 2. Surveys are restricted to respondents who have telephone facilities.*
- 3. Extensive geographical coverage may get restricted by cost considerations.*
- 4. It is not suitable for intensive surveys where comprehensive answers are required to various questions.*
- 5. Possibility of the bias of the interviewer is relatively more.*
- 6. Questions have to be short and to the point; probes are difficult to handle.*

### ***1-1-3/ Collection of data through questionnaires:***

*This method of data collection is quite popular, particularly in case of big enquiries. It is being adopted by private individuals, research workers, private and public organizations and even by governments. In this method a questionnaire is sent (usually by post) to the persons concerned with a request to answer the questions and return the questionnaire. A questionnaire consists of a number of questions printed or typed in a definite order on a form or set of forms. The questionnaire is mailed to respondents who are expected to read and understand the questions and write down the reply in the space meant for the purpose in the questionnaire itself. The respondents have to answer the questions on their own.*

*The method of collecting data by mailing the questionnaires to respondents is most extensively employed in various economic and business surveys. **The merits** claimed on behalf of this method are as follows:*

- 1. There is low cost even when the universe is large and is widely spread geographically.*
- 2. It is free from the bias of the interviewer; answers are in respondents' own words.*
- 3. Respondents have adequate time to give well thought out answers.*
- 4. Respondents, who are not easily approachable, can also be reached conveniently.*

5 Large samples can be made use of and thus the results can be made more dependable and reliable.

*The main demerits of this system can also be listed here:*

1. Low rate of return of the duly filled in questionnaires; bias due to no-response is often indeterminate.
2. It can be used only when respondents are educated and cooperating.
3. The control over questionnaire may be lost once it is sent.
4. There is inbuilt inflexibility because of the difficulty of amending the approach once questionnaires have been despatched.
5. There is also the possibility of ambiguous replies or omission of replies altogether to certain questions; interpretation of omissions is difficult.
6. It is difficult to know whether willing respondents are truly representative.
7. This method is likely to be the slowest of all.

Before using this method, it is always advisable to conduct '**pilot study**' (Pilot Survey) for testing the questionnaires. In a big enquiry the significance of pilot survey is felt very much. **Pilot survey** is in fact the replica and rehearsal of the main survey. Such a survey, being conducted by experts, brings to the light the weaknesses (if any) of the questionnaires and also of the survey techniques.

### **1-1-3-1/ Main aspects of a questionnaire:**

Quite often questionnaire is considered as the heart of a survey operation. Hence it should be very carefully constructed. If it is not properly set up, then the survey is bound to fail. This fact requires us to study the main aspects of a questionnaire viz., the general form, question sequence and question formulation and wording. Researcher should note the following with regard to these three main aspects of a questionnaire:

**a- General form:** So far as the general form of a questionnaire is concerned, it can either be **structured or unstructured** questionnaire. **Structured questionnaires** are those questionnaires in which there are definite, concrete and pre-determined questions. The questions are presented with exactly the same wording and in the same order to all respondents. Resort is taken to this sort of standardization to ensure that all respondents reply to the same set of questions. The form of the question may be either closed (i.e., of the type 'yes' or 'no') or open (i.e., inviting free response) but should be stated in advance and not constructed during questioning. Structured questionnaires may also have fixed alternative questions in which responses of the informants are limited to the stated alternatives. Thus a highly structured questionnaire is one in which all questions and answers are specified and comments in the respondent's own words are held to the minimum. When these characteristics are not present in a questionnaire, it can be termed as **unstructured or non-structured questionnaire**. More specifically, we can say that in **an unstructured questionnaire**, the interviewer is provided with a general guide on the type of information to be obtained, but the exact question formulation is largely his own responsibility and the replies are to be taken down in the respondent's own words to the extent possible; in some situations tape recorders may be used to achieve this goal.

Structured questionnaires are simple to administer and relatively inexpensive to analyze. The provision of alternative replies, at times, helps to understand the meaning of the question clearly. But such questionnaires have limitations too. For instance, wide range of data and that too in respondent's own words cannot be obtained with structured questionnaires. They are usually considered inappropriate in investigations where the aim happens to be to probe for attitudes and reasons for certain actions or feelings. They are equally not suitable when a problem is being first explored and working hypotheses sought. In such situations, unstructured questionnaires may be used effectively. Then on the basis of the results obtained in pretest (testing before final use) operations from the use of unstructured

questionnaires, one can construct a structured questionnaire for use in the main study.

**b- Question sequence:** *In order to make the questionnaire effective and to ensure quality to the replies received, a researcher should pay attention to the question-sequence in preparing the questionnaire. A proper sequence of questions reduces considerably the chances of individual questions being misunderstood. The question-sequence must be clear and smoothly-moving, meaning thereby that the relation of one question to another should be readily apparent to the respondent, with questions that are easiest to answer being put in the beginning. The first few questions are particularly important because they are likely to influence the attitude of the respondent and in seeking his desired cooperation. The opening questions should be such as to arouse human interest. The following type of questions should generally be avoided as opening questions in a questionnaire:*

- 1- questions that put too great a strain on the memory or intellect of the respondent;*
- 2- questions of a personal character;*
- 3- questions related to personal wealth, etc.*

*Following the opening questions, we should have questions that are really vital to the research problem and a connecting thread should run through successive questions. Ideally, **the question sequence should conform to the respondent's way of thinking.** Knowing what information is desired, the researcher can rearrange the order of the questions (this is possible in case of unstructured questionnaire) to fit the discussion in each particular case. But in a structured questionnaire the best that can be done is to determine the question-sequence with the help of a Pilot Survey which is likely to produce good rapport with most respondents. Relatively difficult questions must be relegated towards the end so that even if the respondent decides not to answer such questions, considerable information would have already been obtained. Thus, question-sequence should usually go from the general to the more specific and the researcher must always remember that the answer to a given question is a*

*function not only of the question itself, but of all previous questions as well. For instance, if one question deals with the price usually paid for coffee and the next with reason for preferring that particular brand, the answer to this latter question may be couched largely in terms of price-differences.*

**c-Question formulation and wording:** *With regard to this aspect of questionnaire, the researcher should note that each question must be very clear for any sort of misunderstanding can do irreparable harm to a survey. Question should also be impartial in order not to give a biased picture of the true state of affairs. Questions should be constructed with a view to their forming a logical part of a well thought out tabulation plan. In general, all questions should meet the following standards*

*(a) should be easily understood;*

*(b) should be simple i.e., should convey only one thought at a time;*

*(c) should be concrete and should conform as much as possible to the respondent's way of thinking. (For instance, instead of asking. "How many razor blades do you use annually?" The more realistic question would be to ask, "How many razor blades did you use last week?" Concerning the form of questions, we can talk about two principal forms, viz., multiple choice question and the open-end question. In the former the respondent selects one of the alternative possible answers put to him, whereas in the latter he has to supply the answer in his own words. The question with only two possible answers (usually 'Yes' or 'No') can be taken as a special case of the multiple choice question, or can be named as a 'closed question.' There are some advantages and disadvantages of each possible form of question. Multiple choice or closed questions have the advantages of easy handling, simple to answer, quick and relatively inexpensive to analyse. They are most amenable to statistical analysis. Sometimes, the provision of alternative replies helps to make clear the meaning of the question. But the main drawback of fixed alternative questions is that of "putting answers in people's mouths" i.e., they may force a statement of opinion on an issue about which the respondent does not in fact have any opinion. They are not appropriate when the issue under consideration happens to be a complex one and also when the interest of the researcher is in the exploration of a process. In such*

situations, open-ended questions which are designed to permit a free response from the respondent rather than one limited to certain stated alternatives are considered appropriate. Such questions give the respondent considerable latitude in phrasing a reply. Getting the replies in respondent's own words is, thus, the major advantage of open-ended questions. But one should not forget that, from an analytical point of view, open-ended questions are more difficult to handle, raising problems of interpretation, comparability and interviewer bias. In practice, one rarely comes across a case when one questionnaire relies on one form of questions alone. The various forms complement each other. As such questions of different forms are included in one single questionnaire. For instance, multiple-choice questions constitute the basis of a structured questionnaire, particularly in a mail survey. But even there, various open-ended questions are generally inserted to provide a more complete picture of the respondent's feelings and attitudes. Researcher must pay proper attention to the wordings of questions since reliable and meaningful returns depend on it to a large extent. Since words are likely to affect responses, they should be properly chosen. Simple words, which are familiar to all respondents should be employed. Words with ambiguous meanings must be avoided. Similarly, danger words, catch-words or words with emotional connotations should be avoided. Caution must also be exercised in the use of phrases which reflect upon the prestige of the respondent. Question wording, in no case, should bias the answer. In fact, question wording and formulation is an art and can only be learnt by practice. Essentials of a good questionnaire: To be successful, questionnaire should be comparatively short and simple i.e., the size of the questionnaire should be kept to the minimum. Questions should proceed in logical sequence moving from easy to more difficult questions. Personal and intimate questions should be left to the end. Technical terms and vague expressions capable of different interpretations should be avoided in a questionnaire. Questions may be dichotomous (yes or no answers), multiple choice (alternative answers listed) or open-ended. The latter type of questions are often difficult to analyse and hence should be avoided in a questionnaire to the extent possible. There should be some control questions in the

questionnaire which indicate the reliability of the respondent. For instance, a question designed to determine the consumption of particular material may be asked.

## **2/ Plagiarism:**

### **The information below are taken from:**

- <https://www.scribbr.com/category/plagiarism/>
- <https://www.scribbr.com/category/plagiarism/#types-of-plagiarism>

**Plagiarism** is a common problem, primarily among students. Merriam-Webster Dictionary defines plagiarism as follows:

Definition “To steal and pass off (the ideas or words of another) as one’s own: to use (another’s production) without crediting the source”

### **2-1/ Types of plagiarism**

Plagiarism takes various forms. It ranges from reusing an entire document to rewriting a single paragraph. In the end, all types of plagiarism come down to passing off someone else’s ideas or words as your own.

Common types of plagiarism

**2-1-1/ Copy-and-paste plagiarism:** Copy-and-paste plagiarism, also known as direct plagiarism, means using a paragraph from another source without a citation. If you really want to include a passage from another source word for word, you should learn how to quote it.

**2-1-2/ Mosaic plagiarism:** Copying and pasting different pieces of text together to create a kind of “mosaic” or “patchwork” of other researchers’ ideas is plagiarism. Although the result is a completely new piece of text, the words and ideas aren’t new.

**2-1-3/ Self-plagiarism:** When you use parts of your previous work (e.g. a paper, a literature review or a dataset) without properly citing it, you commit what’s called self-plagiarism. Although it sounds a bit crazy to be penalized for plagiarizing your own work, you should know that it is done because it goes against the expectations of the readers of your paper. They expect the work to be original.



*2-1-4/ Global plagiarism: When you use someone else's paper, you are committing plagiarism because you are pretending that the words and ideas are yours. Using someone else's work includes, for example, having a friend or family write the text for you or buying an essay from a so-called essay mill.*

*Scibbr, 2021 <https://www.scribbr.com/category/plagiarism/#types-of-plagiarism>*

### **3/ APA for Academic Writing (2018-2019):**

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