

CHAPTER FOUR

Methods and Tools of Data Collection

Chapter Objectives: at the end of this chapter, the student will be able to:

- Examine the various methods in research
- Indicate the advantages and disadvantages of different methods

🌀Introduction

Dear learners, in unit two on the basic components of research proposal we have discussed about data collection techniques and analysis as one of the chief components in writing a research proposal. Thus, this unit thoroughly discusses the principal insight of various data collection instruments. Besides, it is imperative that you learn about the pros and cons of these instruments in a bid to undertake full-fledged research, hence, indispensable for proper data analysis. The forthcoming unit also discusses about data analysis techniques especially in the light of qualitative research.

Section I. Data collection Techniques

Dear students, in unit two section two you have learned about data collection techniques. This section is about explaining the essence of observation as data collection instrument.

Selecting a method or methods is based on what kind of information is sought, from whom and under what circumstances. There are two major approaches to gathering information about a situation, person, problem or phenomenon. Sometimes, information required is already available and need only extracted. However, there are times when the information must be collected. Based upon these broad approaches to information gathering, data are categorized as:

- Primary data
- Secondary data

Information gathered using the first approach is said to be collected from secondary sources, whereas the sources used in the second approach are called primary sources.

1.1 Collecting data using primary sources

? Dear Students, what is primary source?

Primary sources are sources which are not based on any other existing or kept source. Primary sources provide first-hand information. It serves as an original source of [information](#) about the topic. Finding out firsthand the attitudes of a community towards health services, ascertaining the health needs of a

community, evaluating a social program, determining the job satisfaction of the employees of an organization, and ascertaining the quality of services provided by a worker are example of information collected from primary sources. One of the advantages of primary sources is that it provides researchers with "direct, unmediated information about the object of study".

Several methods can be used to collect primary data. The choice of a method depends upon the purpose of the study, the resource available and the skills of the researcher. There are times when the method most appropriate to achieve the objectives of a study cannot be used because of constraints such as a lack of resources and/or required skills. In such situations you should be aware of the problems these limitations impose on the quality of the data.

In the following sections each of the methods of data collection is discussed from the point of view of its applicability and suitability to a situation, and the problems and limitations associated with it.

1.1.1 Observation

? What is an observation?

As the actions and behavior of people are central aspects in virtually any enquiry, a natural and obvious technique is to watch what they do, to record this in some way and then to describe, analyze and interpret that we have observed. Observation is a purposeful, systematic and selective way of watching and listening to an interaction or phenomenon as it takes place. There are many situations, in which observation is the most appropriate method of data collection; for example, when you want to learn about interaction in a group, study the dietary patterns of a population, ascertain the functions performed by a worker.

A. Types of Observation

? What are the types of observation?

There are two types of observation:

- Participant observation;
- Non-participant observation

Participant observation is when you, as a researcher, participate in the activities of the group being observed in the same manner as its members, with or without their knowing that they are being observed. For example, you might want to examine the reactions of the general population towards people in

wheelchairs. You can study by their reactions by sitting in a wheelchair yourself. Or you might want to study the life of prisoners and pretend to be a prisoner in order to do this.

Non-participant observation, on the other hand, is when you, as a researcher, do not get involved in the activities of the group but remains a passive observer, watching and listening to its activities and drawing conclusions from this. For example, you might want to study the functions carried out by nurses in a hospital. As an observer, you could watch, follow, and record the activities as they are performed. After making a number of observations, conclusions could be drawn about the functions nurses carry out in the hospital.

B. Advantages and Disadvantages of observation

A major advantage of observation as a technique is its directness. You do not ask people about their views, feelings or attitudes; you watch what they do and listen to what they say. This directness contrasts with, and can often usefully complement, information obtained by virtually any other technique. Interview and questionnaire responses are notorious for discrepancies between what people say that they have done, or will do, and what they actually did or will do. On a questionnaire we only have to move the pencil a few inches to shift our scores from being a bigot to being a humanitarian. We do not have to move our heavyweight behavior at all.

Observation also seems to be pre-eminently the appropriate technique for getting at ‘real life’ in the ‘real world’. It is, of course, possible to observe through one-way glass in a laboratory, or set up some other contrived situation and observe that; but direct observation in the field permits a lack of artificiality which is all too rare with other techniques.

However, the use of observation as a method of data collection may suffer from a number of problems, which is not to suggest that all or any of these necessarily prevails in every situation. Some of the disadvantages using observation as a method of data collection includes, among others

- When individuals or groups become aware that they are being observed, they may change their behavior. Depending upon the situation, this change could be positive or negative-it may increase or decrease, for example, their productivity-and may occur for a number of reasons. When a change in the behavior of persons or groups is attributed to their being observed it is known as the *Hawthorne Effect*. The use of observation in such situation may introduce distortion: what is observed may not represent their normal behavior. Moreover, there is a lingering logical problem here in that, how do we know what the behavior would have been like if it hadn’t been observed?

- There is always the possibility of observer bias. If an observer is biased, s/he can easily introduce bias and there is no easy way to verify the observations and the inferences drawn from them.
- The interpretation drawn from observations may vary from observer to observer.
- There is the possibility of incomplete observation and/or recording, which varies with the method of recording. An observer may watch keenly but at the expense of detailed recording. The opposite problem may occur when the observer takes detailed notes but in doing so misses some of the interaction.

Section 2. The interview

★Overview

Dear students in the previous sections you learnt about observation as one data collection techniques. In this section you will learn about interview as the other methods of data collection; how it is defined, its type and the advantages and disadvantages.

2.1 The interview

The interview is a kind of observation; a conversation with a purpose. It is one initiated by the interviewer for the specific purpose of obtaining research-relevant information and focused by him on content specified by research objectives of systematic, description, prediction or explanation.

It is a flexible and adaptable way of finding things out. The human use of language is fascinating both as a behavior in its own right, and for the virtually unique window that it opens on what lies behind our actions.

Face-to-face interviews offer the possibility of modifying one's line of enquiry, following up interesting responses and investigating underlying motives in a way that postal or other self-administered questionnaires cannot. Non-verbal cues may give messages which help in understanding the verbal response, possibly changing or even, in extreme cases, reversing its meaning.

However, interviewing is time-consuming. The actual interview session itself will obviously vary in length. Anything under half an hour is unlikely to be valuable; anything going much over an hour may be making unreasonable demands on busy interviewees, and could have the effect of reducing the number of persons willing to participate, which may in turn lead to biases in the sample that you achieve.

2.2 Types of interviews

? *What are types of interview?*

A commonly made distinction is based on the degree of structure or formality of the interview. Hence, interviews are classified according to the degree of flexibility.

2.2.1 Unstructured interviews

? What do you know about unstructured interviews?

The strength of *unstructured interviews* is the almost complete freedom they provide in terms of content and structure. Hence, you are free to order these in whatever sequence you wish. You also have complete freedom in terms of the wording you use and the way you explain questions to your respondents. There are several types of unstructured interviewing; for example; in-depth interviewing, focus group interviewing, narratives and oral histories.

In-depth interviews

The theoretical roots of in-depth interviewing are in what is known as the interpretive tradition. Accordingly, in-depth interviewing is repeated face-to-face encounters between the researcher and informants directed towards understanding informants' perspectives on their lives, experiences, or situations as expressed in their words'. This definition underlines two essential characteristics of in-depth interviewing; 1) it involves face-to-face, repeated interaction between the researcher and his/her informant(s); and (2) it seeks to understand the latter's perspectives. Because of repeated contacts and hence extended length of time spent with an informant, it is assumed that the rapport between researcher and informant will be enhanced, and that the corresponding understanding and confidence between the two will lead to in-depth and accurate information.

Focus group interviews

The only difference between a focus group interview and an in-depth interview is that the former is undertaken with a group and the latter with an individual. In a focus group interview, you explore the perceptions, experiences, and understandings of a group of people who have some experience in common with regard to a situation or event. For example, you may explore with relevant groups such issues as domestic violence, physical disability or refugees.

In focus group interviews, broad discussion topics are developed beforehand, either by the researcher or by the group. These provide a broad frame for discussions which follow. The specific discussion points emerge as a part of the discussion. Members of a focus group express their opinions while discussing these issues.

Narratives

The narrative technique of gathering information has even less structure than the focus one. Narratives have almost no predetermined contents except that the researcher seeks to hear the personal experience of a person with an incident or happening in his/her life. Essentially, the person tells his/her story about an incident or situation and tells you, as the researcher, listen passively.

Narratives are a very powerful method of data collection for situations which are sensitive in nature. For example, you may want to find out about the impact of child sexual abuse on people who have gone through such experience. You, a researcher ask these people to narrate their experiences and how they have been affected.

Oral histories

Oral histories, like narratives, involve the use of both passive and active listening. Oral histories, however, are more commonly used for learning about a historical event or episode that took place in the past or for gaining information about a cultural, custom or story that has been passed from generation to generation. Narratives are more about a person's personal experiences whereas, historical, social or cultural events are the subjects of oral histories.

Suppose you want to find out about the life after the invasion of Italy in some regional town of Ethiopia. You would talk to persons who were alive during that period and ask them about life at that time.

Data collection through unstructured interviewing is extremely useful in situations where in-depth information is needed or little is known about the area. The flexibility allowed to the interviewer in what s/he asks of a respondent is an asset as it can elicit extremely rich information. As it provides in-depth information, many researchers use this technique for constructing a structured research instrument. On the other hand, since unstructured interview does not list specific questions to be asked of respondents, the comparability of questions asked and responses obtained may become a problem. As the researcher gains experience during the interviews, the questions asked of respondents change; hence, the type of information obtained from those who are interviewed at the beginning may be markedly different from that obtained from those interviewed towards the end. Also, this freedom can introduce investigator bias into the study. Using an interview guide as a means of data collection requires much more skill on the part of the researcher than does using a structured interview.

Questions to avoid in interviews

- **Long questions-** The interviewee may remember only part of the question, and respond to that part.
- **Double-barreled (or multiple-barreled questions)** - e.g. ‘what do you feel about current pop music compared with that of five years ago?’ The solution here is to break it down into simpler questions (e.g. ‘what do you feel about current pop music?’ ; ‘Can you recall any pop music from five years ago?’ ; ‘How do you feel they compare?’)
- **Questions involving jargon** Generally you should avoid questions containing words likely to be unfamiliar to the target audience. Keep things simple to avoid disturbing interviewees; it is in your own interest as well.
- **Leading questions e.g.** ‘Why do you like Jimma?’ It is usually straightforward to modify such questions, providing you realize that they are leading in a particular direction.
- **Biased questions** Provided you are alert to the possibility of bias it is not difficult to write unbiased questions. What is more difficult however is not (perhaps unwittingly) to lead the interviewee by the manner in which the question is asked, or the way in which you receive the response. Neutrality is called for, and in seeking to be welcoming and reinforcing to the interviewee you should try to avoid appearing to share or welcome her or his views.

2.2.2 Carrying out structured interviews

? *What is a structured interview?*

In a structured interview the researcher asks a predetermined set of questions, using the same wording and order of questions as specified in the interview schedule. An *interview schedule* is a written list of questions, open-ended or closed-ended, prepared for use by an interviewer in a person-to-person interaction (this may be face-to-face, by telephone or by other electronic media). Note that an interview schedule is a research tool/instrument for collecting data, whereas interviewing is a method of data collection.

One of the main advantages of the structured interview is that it provides uniform information, which assures the comparability of data. Structured interviewing requires fewer interviewing skills than does unstructured interviewing.

Much of the responsibility for the structured interview achieving its purpose falls on the preparatory work which precedes the interviews themselves. This may include observation and informal interviews, with likely pre-pilot (to develop areas for questions) and pilot (to develop the questions themselves) work. This culminates in the preparation of a detailed interview schedule which covers:

- What the interviewer says by way of introduction
- Introductions to particular questions, groups of questions
- The questions (word for word)
- Prompts (and how they are to be used)
- Response codes
- Possible 'skips' in sequence (e.g. where a 'yes' answer is followed by a particular question, a 'no' answer by a 'skip' to a different question)
- Closing comments
- Reminders to the interviewer about procedure

The codes for different responses are usually circled directly, during the interview, by the interviewer to assist in subsequent analysis. Any apparently open-ended questions are often provided with a set of pre-categorized responses, and it is the interviewer's responsibility to decide in which of these categories the response lies.

General advice for interviewers carrying out structured interviews.

1. **Appearance:** Dress in a similar way to those you will be interviewing. If in doubt err on the side of neatness and neutrality.
2. **Approach:** Be pleasant. Try to make the respondent comfortable.
3. **Familiarity with questionnaire:** view your script as an actor, with the interview schedule as your script. Know it thoroughly.
4. **Questions wording:** Use the exact wording of questions and keep to their sequence.
5. **Answers:** Record the answers exactly. Don't make cosmetic adjustments, correct or fabricate.
6. **Probes:** Use the standard probes only.

2.2.3 Carrying out semi-structured interview

? *What is semi-structured interview?*

Semi-structure interview is used to collect qualitative data by setting up a situation (the interview) that allows a respondent the time and scope to talk about their opinions on a particular subject. The focus of the interview is decided by the researcher and there may be areas the researcher is interested in exploring.

The objective is to understand the respondent's point of view rather than make generalizations about behavior. It uses open-ended questions, some suggested by the researcher ("Tell me about...") and some arise naturally during the interview ("You said a moment ago...can you tell me more?").

Interviewers have their shopping list of topics and want to get responses to them, but as a matter of tactics they have greater freedom in the sequencing of questions, in their exact wording, and in the amount of time and attention given to different topics.

? What are the advantages and weakness of semi-structured interview?

Advantages of semi-structured interview include:

- **Positive rapport** between interviewer and interviewee. Very simple, efficient and practical way of getting data about things that can't be easily observed (feelings and emotions, for example).
- **High Validity.** People are able to talk about something in detail and depth. The meanings behind an action may be revealed as the interviewee is able to speak for themselves with little direction from interviewer.
- Complex questions and issues can be discussed / clarified.
- **Pre-Judgment:** Problem of researcher predetermining what will or will not be discussed in the interview is resolved.
- Easy to record interview (video / audio tapes).

Some of the weaknesses of semi-structured interview include:

- Depends on the **skill** of the interviewer (the ability to think of questions during the interview, for example) and articulacy of respondent.
- Interviewer may give out **unconscious signals** /cues that guide respondent to give answers expected by interviewer.
- Time Consuming / expensive
- Depth of qualitative information may be **difficult to analyze** (for example, deciding what is and is not relevant).

The *interview schedule* can be simpler than the one for the structured interview. It will be likely to include the following:

- Introductory comments (probably a verbatim script)
- List of topics heading and possibly key questions to ask under these headings
- Set of associated prompts
- Closing comments

2.3 Advantages and Disadvantage of the interview

Advantages

- The interview is more appropriate for complex situations. It is the most appropriate approach for studying complex and sensitive areas as the interviewer has the opportunity to prepare a respondent before asking sensitive questions and to explain complex ones to respondents in person.
- It is useful for collecting in-depth information. In an interview situation it is possible for an investigator to obtain in-depth information by probing.
- Information can be supplemented. An interviewer is able to supplement information obtained from responses with those gained from observation of non-verbal reactions.
- Questions can be explained. It is likely that a question will be misunderstood as the interviewer can either repeat a question or put it in a form that is understood by the respondent.
- Interviewing has a wider application. An interview can be used with almost any type of population: children, handicapped, illiterate or the very old.

Disadvantages

- Interviewing is time-consuming and expensive. This is specially so when potential respondents are scattered over a wide geographical area.
- The quality of data depends upon the quality of the interaction. In an interview the quality of interaction between an interviewer and interviewee is likely to affect the quality of the information obtained.
- The quality of data depends upon the quality of the interviewer. In an interview situation the quality of the data generated is affected by the experience, skills and commitment of the interviewer.
- The quality of the data may vary when many interviewers are used. Use of multiple interviewers may magnify the problems identified in the two previous points.
- The researcher may introduce his/her bias. Researcher bias in the framing of questions and the interpretation of responses is always possible.
- The interviewer may be biased. If the interviews are conducted by a person or persons, paid or voluntary, other than the researcher, it is also possible that they may exhibit bias in the way they interpret responses, select response categories or choose words to summarize respondents' expressed opinions.

2.4 Content of the interview

In interviews which are to a greater or lesser extent pre-structured by the interviewers, the content, which can be prepared in advance, consists of a set of items (usually questions), often with alternative subsequent items depending on the responses obtained; suggestions for so-called *probes* and *prompts*; and

a proposed *sequence for the questions* which, in semi-structured interview, may be subject to change during the course of the interview.

The Items or Questions

Three types are used in research interviews: *closed (or fixed-alternative)*, *open*, and *scale* items. Closed questions, as the fixed alternative label suggests, force the interviewee to choose from two or more fixed alternatives. Open questions provide no restrictions on the content or manner of the reply other than on the subject area (e.g. ‘what kind of way do you most prefer to spend a free evening?’). Scale items, which may well not be in question form, ask for a response in the form of degree of agreement or disagreement (e.g. strongly agree/agree/neutral/disagree/strongly disagree). Logically they are the closed or fixed-alternative type, but are sometimes regarded as a separate type.

Open-ended questions are probably more commonly used in interviews than in other settings. They are flexible; they allow the interviewer to probe so that he may go into more depth if he chooses, or clear up and misunderstandings; they enable the interviewer to test the limits of a respondent’s knowledge; they encourage cooperation and rapport; and they allow the interviewer to make a truer assessment of what the respondent really believes. Open-ended situations can also result in unexpected or unanticipated answers which may suggest hitherto unthought-of relationships or hypotheses. The disadvantages lie in the possibilities for loss of control by the interviewer, and in particular in being more difficult to analyze than closed ones.

Probes

A probe is a device to get the interviewee to expand on a response when you intuit that she or he has more to give. The use of probes is something of an art-form and difficult to transmit to the novice interviewer. Sometimes the interviewer may be given instructions to probe on specific questions. There are obvious tactics, such as asking ‘Anything more? Or ‘could you go over that again?’ Sometimes when an answer has been given in general terms, a useful probe is to seek a personal response, e.g. ‘what is your own personal view on this?’. There are also very general tactics, such as the use of

- A period of silence;
- An enquiring glance
- ‘mmhmm...’
- Repeating back all or part of what the interviewee has just said.

Prompts

Prompts suggest to the interviewee the range or set of possible answers that the interviewer expects. The list of possibilities may be read out by the interviewer, or a ‘prompt card’ with them on can be shown (e.g. a list of names of alcoholic drinks for a question on drinking habits). All prompts must be used in a consistent interviewees, and form part of the interview record.

The sequence of Questions

The conventional sequence is as follows,

1. **Introduction:** interviewer introduces him/herself, explains purpose of the interview, assures of confidentiality, and asks permission to tape and/or make notes.
2. **Warm-up:** easy, non-threatening questions at the beginning to settle down both of you.
3. **Main body of interview:** Covering the main purpose of the interview in what the interviewer considers to be a logical progression. In semi-structured interviewing this order can be varied, capitalizing on the response made (ensure ‘missed topics are returned to unless this seems inappropriate or unnecessary.) Any ‘risky’ questions should be relatively late in the sequence so that, if the interviewee refuses to continue, less information is lost.
4. **‘Cool-off’** : Thank you and good bye. Interviewees may, when the recorder is switched off or the notebook put away, come out with a lot of interesting material. There are various possible ways of dealing with this (switch on again, reopen the book, forget about it) but in any case you should be consistent and note how you dealt with it.

Section 3. The Questionnaire

🔗Overview

Dear students, so far we have been discussing about observation and interview as a data collection instrument. In this section, you will learn about questionnaire; definition, advantages and disadvantages, forms of question and consideration in formulating questions.

3.1 The Questionnaire

A questionnaire is a written list of questions, the answers to which are recorded by respondents. In a questionnaire respondents read the questions, interpret what is expected and then write down the answers. The only difference between an interview schedule and a questionnaire is that in the former it is the interviewer who asks the questions (and if necessary explains them) and records the respondent’s replies on an interview schedule and in the latter replies are recorded by the respondents themselves.

In the case of a questionnaire, as there is no one to explain the meaning of questions to respondents. It is important that questions are clear and easy to understand. Also, the lay out of a questionnaire should be such that it is easy read and pleasant to the eye and the sequence of question should be easy to follow.

A questionnaire can be administered in different ways:

- **The mailed questionnaire-** the most common approach to collecting information is to send the questionnaire to prospective respondents by mail. Usually it is a good idea to send a prepaid, self-addressed envelop with the questionnaire as this might increase the response rate. A mailed questionnaire must be accompanied by a covering letter. One of the major problems with this method is the low response rate.
- **Collective administration-**one of the best ways of administering a questionnaire is to obtain a captive audience such as students in a classroom, people attending a function, participants in a very high response rate as you will find few people refuse to participate in your study. Also, as you have personal contact with the study population, you can clarify any questions that respondents may have.
- **Administration in a public place-**Sometimes you can administer a questionnaire in a public place such as shopping center, health center, hospital, school or pub. Usually, the purpose of the study is explained to potential respondents as they approach and their participation inn the study is requested.

It is essential that you write a covering letter with your mailed questionnaire. It should very briefly:

- Introduce you and the institution you are representing
- Describe in two or three sentences the main objectives of the study
- Explain the relevance of the study
- Convey any general instructions
- Indicate that participation in the study is voluntary
- Assure respondents of the anonymity of the information provided by them.
- Provide a contact number in case they have any question
- Give a return address for the questionnaire and deadline for its return
- Thank them for their participation in the study.

3.2 Advantages and Disadvantage of a questionnaire

? What are the advantages and disadvantages of a questionnaire?

A questionnaire has several advantages:

- It is less expensive- As you don't interview respondents, you save time, and human and financial resources. Particularly, when it is administered collectively to a study population, it is an extremely inexpensive method of data collection.
- It offers greater anonymity-As there is no face-to-face interaction between respondents and interviewer, this method provides greater anonymity.

Although a questionnaire has several disadvantages, it is important to note that not all data collection using this method has these disadvantages. The prevalence of a disadvantage depends on a number of factors, but you need to be aware of them to understand their possible bearing on the quality of the data.

These are;

- Application is limited: One main disadvantage is that its application is limited to a study population who can read and write. It can't be used on a population that is illiterate, very young, very old, or handicapped.
- Response rate is low: Questionnaires are notorious for their low response rates; that is, people fail to return them. If you plan to use a questionnaire, keep in mind that because not everyone will return their questionnaire, your sample size will in effect be reduced. The response rate depends upon a number of factors: the interest of the sample in the topic of the study, the lay out and length of the questionnaire, the quality of the letter explaining the purpose and relevance of the study, and the methodology uses to deliver the questionnaire.
- There is a self-selecting bias: Not everyone who receives a questionnaire returns it, so there is a self-selecting bias. Those who return their questionnaire may have attitudes, attributes or motivations that are different from those who don't.
- Opportunity to clarify issues is lacking- If, for any reason, respondents don't understand some questions, there is no opportunity for them to have the meaning clarified.
- Spontaneous responses aren't allowed for- Mailed questionnaire are inappropriate when spontaneous responses are required, as a questionnaire gives them time to reflect before answering.
- The responses to a question may be influenced by the responses of other questions. As respondents can read all the questions before answering (which usually happens), the way they answer a particular question may be affected by their knowledge of other questions.
- It is possible to consult others. With mailed questionnaires respondents may consult other people before responding.

- A response cannot be supplemented with other information. An interview can sometimes be supplemented with information from other methods of data collection such as observation. However, a questionnaire lacks this advantage.

3.3 Forms of Questions

The form and wording of questions is extremely important in a research instrument as they have an effect on the type and quality of information obtained. The questions should therefore be appropriate and relevant.

In an interview schedule or a questionnaire, questions may be formulated as:

- Open-ended; or
- Closed ended

In open-ended questions the possible responses aren't given. In the case of a questionnaire, the respondent writes down the answers in his/her words, whereas in the case of an interview schedule the investigator records the answers either verbatim or in a summary describing a respondent's answer. In a closed-ended question the possible answers are set out in the questionnaire or schedule and the respondent or the investigator ticks the category that best describes the respondent's answer.

Examples of Closed-ended questions

A. Please indicate your age by placing a tick in the appropriate category.

Under 15 ☐

20-24 years ☐

15-19 years ☐

B. How would you describe your current marital status?

Married ☐

Divorced ☐

Single ☐

Separated ☐

Examples of open-ended questions

A. What, in your opinion, are the qualities of a good administrator?

1. _____

2. _____

3. _____

B. How would you describe your current marital status? _____

3.3.1 Advantages and disadvantages of open-ended questions

? What are the advantages and disadvantages of open-ended questions?

Open-ended questions have a number advantages and disadvantages.

- Open-ended questions provide in-depth information if used in an interview by an experienced interviewer. In a questionnaire, open-ended questions can provide a wealth of information, provided respondents feel comfortable about expressing their opinions and are fluent in the language used. On the other hand, analysis of open-ended questions is more difficult. The researcher usually needs to go through another process-content analysis-in order to classify the data.
- In a questionnaire, open-ended questions provide respondents with the opportunity to express themselves freely, resulting in a greater variety of information. Thus, respondents are not 'conditioned' by having to select answers from a list. The disadvantage of free choice is that, in a questionnaire some respondents may not be able to express themselves, and so information can be lost.
- As open-ended questions allow respondents to express themselves freely, they virtually eliminate the possibility of investigator bias (investigator bias is introduced through the response pattern presented to respondents). On the other hand, there is a greater chance of interviewer bias in open-ended questions.

3.3.2 Advantages and disadvantages of closed-ended questions

? What are advantages and disadvantages of closed-ended questions?

Closed-ended questions, like open-ended questions have many advantages and disadvantages.

- One of the main disadvantages of closed-ended questions is that the information obtained through them lacks depth and variety.
- There is greater possibility of investigator bias because the researcher may list only the response patterns that s/he is interested in or those that come to mind. Even if the category of 'other' is offered, most people will usually select from the given responses, and so the findings may still reflect the researcher's bias.
- In a questionnaire, the given response pattern for a question could condition the thinking of respondents, and so the answer provided may not truly reflect respondent's opinions. Rather, they may reflect the extent of agreement or disagreement with the researcher's opinion or analysis of a situation.

- The case of answering a ready-made list of responses may create a tendency among some respondents and interviewer to tick a category or categories without thinking through the issue.
- Closed-ended questions, as they provide 'ready made' categories within which respondents reply to the questions asked by the researcher, help to ensure that the information needed by the researcher is obtained.
- Because the possible responses are already categorized, they are easy to analyze.

3.4 Considerations in formulating questions

? What need to be considered in formulating questions?

The wording and tone of your questions are important because the information and its quality depend upon these factors. It is therefore important to be careful about the way you formulate questions. The following are some considerations to keep in mind when self-completed questionnaires

3.4.1 Specific questions are better than general ones.

The goal of standardized measurement is central to survey research; specific questions provide more standardization. With more general questions there is wider range of interpretations by respondents, greater susceptibility to order effects: and poor prediction of behavior.

Example

General: List the newspapers and magazine you looked at yesterday

Specific: Which of these newspapers and magazines did you look at yesterday?

(Show it)

3.4.2. Closed questions are usually preferable to open questions.

The advantage is again in potential differences in interpretation with the open forum. They are also some difficult to code and analyze. However, in some circumstances the open form is preferable (e.g. when not enough is known to write appropriate response categories; and in the measurement of sensitive or disapproved behavior).

Examples

Open: People look for different things in a job; what would you most prefer in job?

Closed: People look for different things in a job; which one of the following

five things would you most prefer in a job; work that pays well, work that gives a feeling of accomplishment, work where there is not too much supervision and you make most of the decisions yourself, work that is pleasant and the other people are nice to work with ; or work that is ready with little chance of being laid off?

3.4.3. Offer a ‘no-opinion’ option

Polls often assume that because a problem is of importance everyone will have an opinion about it. There is evidence that if no option is given substantial numbers of people manufacture an opinion for the survey.

Example:

Separate ‘no opinion’ filter The Russian leaders are basically trying to get along with the west. Do you have opinion on that?
(If yes) Do you agree or disagree?

‘no opinion’ response option The Russian leaders are basically trying to Get along with the west. Do you agree, disagree, or not have an opinion on that?

3.4.4. Use of forced choice rather than ‘agree/disagree’ statements

Agree/disagree statement (as commonly used in attitude measurement) suffer from ‘acquiescence response set’ i.e. the tendency of respondents to agree irrespective of item content. Generally, forced choice items appear more apt to encourage a considered response than agree/disagree statements.

3.4.5. Question order

The meaning of almost any question can be altered by a preceding question. However, research hasn’t to date suggested any general rules to order questions, beyond the suggestion that general questions should precede specific questions.

3.4.6. Wording effects

While small changes in wording can have large effects on the answers of many respondents, it is difficult to predict in advance whether or not a particular wording change will have an effect. This indicates the importance of not basing conclusions on results from a single question. Strategies for doing this include:

Creation of split-sample comparison

Different forms of words can be incorporated in to the surveys administered to different people. This can be handled by multiple Questionnaires, or different skip patterns in a single questionnaire.

Asking multiple on a topic

This is essentially the solution adopted when attitudes or other scale are used.

3.5 The construction of a research instrument

The construction of a research instrument or tool is the most important aspect of a research project because anything you say by way of findings or conclusions is based upon the type of information you collect, and the data you collect is entirely dependent upon the questions that you ask of your respondents. The research tool provides the input into a study and therefore the quality and validity of the output, the findings, are solely dependent upon it. Dear students, the guidelines suggested below outline a broad approach. The underlining principle is to ensure the validity of your instrument by making sure that you questions relate to the objectives of your study. Therefore, clearly defined objectives play an extremely important role as each question in the instrument must stem from the objectives, research questions and/or hypothesis of the study.

It is therefore suggested as a beginner you should adopt the following procedures:

Step I: If you have not already done so, clearly define and individually list all the specific objectives, research questions or hypotheses, if any, to be tested

Step II: For each objective, research question or hypothesis, list all the associate questions that you want to answer through your study

Step III: Take each research question identified in step II and list the information required to answer it.

Step IV: Formulate question(s) to obtain this information.

3.6 The concept of Validity and reliability

The concept of validity refers to quality and can be applied to any aspect of the research process. With respect to measurement procedures it relates to whether a research instrument is measuring what it set out to measure. There are two approaches used to establish the validity of an instrument: the establishment of a logical link between the objectives of a study and the questions used in an instrument, and the use of statistical analysis to demonstrate this link.

We use the word ‘reliability’ very often in our lives. When we say that a person is reliable, what do we mean? We infer that s/he is dependable, consistent, predictable, stable and honest.

The reliability of an instrument refers to its ability to produce consistent measurement each time. When we administer an instrument under the same or similar conditions to the same population and obtain similar results, we say that the instrument is ‘reliable’- the more similar the results, the greater the reliability. You can look at reliability from two sides: reliability (the extent of accuracy) and unreliability (the extent of inaccuracy). Ambiguity in the wording of questions, a change in the physical setting for data collection, a respondent’s mood when providing information, the nature of the interaction between interviewer and interviewee and the regressive effect of an instrument are factors that can affect the reliability of a research instrument.

Section 4. Data collection techniques using secondary sources

★ Overview

Dear students, in the previous section you have learned about data collection techniques using primary sources. In this section, you will learn about data collection techniques using secondary sources.

Secondary Sources

? *What is secondary source?*

A secondary source contrasts with a [primary source](#), which is an original source of the information being discussed. Secondary sources involve generalization, analysis, synthesis, interpretation, or evaluation of the original information. Examples of secondary sources include the use of census data to obtain information on the age-sex structure of a population, the use of hospital records to find out morbidity and mortality patterns of a community, the use of organization’s records to ascertain its activities, and the collection of data from sources such as articles, journals, magazines, books and periodicals to obtain historical and other type of information.

Dear students, so far we have discussed the primary sources of data collection where the required data was collected either by you or by someone else for the specific purpose you have in mind. There are occasions when your data has already been collected by someone else and you need only to extract the required information for the purpose of your study. This section lists some of the many secondary sources that can be grouped into the following categories:

- **Government or semi-government publications-** there are many government and semi-government organizations that collect data on a regular basis in a variety of areas and publish it for use by members of the public and interest groups. Some common examples are the census, vital statistics registration, labor force surveys, health reports, economic forecasts and demographic information.
- **Earlier research-**for some topic, an enormous number of research studies that have already been done by others can provide you with the required information.
- **Personal records-**Some people write historical and personal records that may provide the information you need.
- **Mass media-**reports published in newspaper, magazines and so on may be another good source of data.

4.2 Problems of using data from secondary sources

When using data from secondary sources you need to be careful as there may be certain problems with the availability, format and quality of data. The extent of these problems varies from sources to source. While using such data some issues you keep in mind are:

- **Validity and reliability** –the validity of information may vary markedly from source to source. For example, information obtained from census is likely to be more valid and reliable than that obtained from most personal diaries.
- **Personal bias**-the use of information from personal diaries, news papers and magazines may have the problem of personal bias as these writers are likely to exhibit less rigorousness and objectivity than one would expect in research.
- **Availability of data-** it is important to make sure that the required data are available before you proceed further with your study.
- **Format**-before deciding to use data from secondary sources it is equally important to ascertain that the data are available in the required format. For example, you might need to analyze age in the categories 23-33, 34-48 and so on, but in your source, age may be categorized differently, for example 21-24, 25-29 and so on.

