
UNIT 10 OBSERVATION METHOD

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10.1 OBJECTIVES

After completing this Unit, you will be able to:

- understand what is observation method;
- how to plan this method for collecting the data;
- identify the various types and differentiate them; and
- describe advantages and disadvantages of this method.

10.2 INTRODUCTION

Observation means watching carefully. We do see many things, situations in our routine life. There may not be any motive behind seeing. What we see is mostly casual and without any purpose. But observation is different from casual seeing; it is being done systematically with a definite purpose. In the process of observation the observer uses all his sensory organs in an integrated manner. The observer obtains information about the World around him for a definite purpose. This is one of the best scientific tools to collect the data for research.

Observation has to be done carefully and systematically. On the basis of observation the data is collected, analysed, processed and used for research purpose. Most important is the need for impartial observation. The observer's experience is unique and peculiar to himself. Naturally, the data collected may be less standardised. Still this is one of the most useful methods of data collection for research especially in social sciences. Even in the libraries this method is used to understand the behaviour and attitude of the users in making use of the library services.

Observation method of collecting the data is one of the oldest and this technique is used by both the scientists and social scientists. The term observation sounds to be simple and gives an impression that the collection of data through this method is easy. But it is not true in scientific investigation. There is also a criticism that this method is unreliable but by doing it more scientifically, limitations could be overcome. This method of data collection is one of the oldest method and it can be treated as scientific only when the criteria such as objectivity, free from bias, reliability and systematisation is followed.

This Unit discusses the meaning and purpose of the observation method of data collection. It also dwells on how to plan for and the different types of observation. The advantages and disadvantages are also stated.

10.3 MEANING AND DEFINITION

Every human being observes the things around him, many times it is casual and without any purpose. They observe it because it is in front of them. As seeing is not planned and concentrated the observer may not be able to remember what has happened and even what is remembered could not be in detail. The observation takes place in natural situation without any controls imposed by the observer on the situation. It helps to collect the data as it occurs without any interference.

Complete and detailed data is collected and recorded through observation of a phenomena or behaviour. However, it needs to be planned and all the sensory organs have to be used. The data has to be collected and recorded systematically. Many disciplines/subjects including sciences and social sciences have been developed with the data collected through this method. The behavioural scientists and anthropologists devised/prepared several theories on the basis of observation. To make the data reliable and valid, the process has to be planned and the data has to be recorded systematically. There is also a need for checks and controls while collecting the data.

Observation is defined as *a planned methodical watching that involves constraints to improve accuracy (Ram Ahuja).*

Krishna Swami defined observation as *a systematic viewing of a specific phenomenon in its proper setting for the specific purposed of gathering data for a particular study.*

Observe means *“to watch attentively in a scientific manner”*. *In an observational study, the current status of phenomenon is determined not by asking but by observing Ronald R Powell).*

The definitions state that watching with a definite plan / systematically a specific situation/ phenomena with a definite purpose of collecting the data helps in recording accurate data.

10.3.1 Purpose

The purpose of observation is to :

- to capture the human conduct as it actually happens;
- to provide more graphic description of social life;
- to study important events and situations;
- to verify and extend the generalisations or theories formed on the basis of other studies; and
- to gain insights in to the problem.

The purpose of the observation method is to collect valid data for qualitative research used in both basic and applied research.

10.3.2 Characteristics

The characteristics of observation method of data collection are:

- It involves both mental and physical activity. The observer may see many things but attention has to be drawn only on the items useful / relevant for the study.
- Observation is made on selective basis i.e. the researcher selects a relevant sample.
- Observation takes place in natural surroundings.
- It helps the researcher to determine the reality by himself or herself.
- It avoids manipulations.
- The collection and recording of data is not selective, it is done as it is observed in natural environment rather than creating an artificial/laboratory environment.
- It involves few or no controls on the surroundings.
- It could be observation of fewer items/subjects.
- It must serve the formulated research purpose.

Self Check Exercise

1) Define observation method. Enumerate its purpose.

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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10.4 PLANNING AND PROCESS OF OBSERVATION

Observation involves human interaction and use of their sensory organs. Human beings have their own limitations as well as the observation is likely to be influenced by their background or culture. To overcome the limitations and collect factual data, there is a need for planning for observation.

The observer should examine the following questions well in advance to enable to have effective plan of action. They are:

- what should be observed;
- how the observation should be recorded;
- what type of tools and techniques need to be used;
- how to ensure accuracy of observation; and
- what type of relationship should be there between the observers and observed- how the desired relationship should be established.

The planners need to have comprehensive knowledge of the problem and techniques of investigation. They also need to have experience, on the basis of which the plans could be devised. The planning includes forecasting the situation and preparation of step-by-step procedure. Each step has to be logically arranged to get the factual data. Proper planning is essential to get the factual data through this method.

The following are the steps used for planning:

- It is essential to examine the relevance of the observation method for collecting data for the study of research problem.
- If observation method is found suitable, it is essential to identify and analyse the type of data the researcher is looking for through observation.
 - The questions are to be identified, for which the answer / data has to be collected from the observation. Specific types of questions to be included and types of behaviour to be observed have to be decided at the planning stage. Adequate definitions for the kinds of behaviour have also to be developed.
- The samples for observation have to be identified.
- The researcher has to examine the conditions, events and activities, where the observation is being made. It may be essential to provide training to the observer; decision needs to be taken on the basis of the background of the observer.
- On the basis of the above, the researcher has to plan how to observe, what tools to be used, what will be the place of the researcher in the specific situation and how can the process of observation be initiated. While selecting a tool or technique the researcher should weigh their pros and cons.
- While observing, the researcher finds many variables and it is essential to observe and collect the data from relevant variables only. It is also essential to state the operational definition for each variable chosen for observation.
- It will be better to decide the timings for observation, recording procedure, and identify subjects/items to be observed. It may be worth to work out these things in detail.

- There may be a situation, where number of observers are being arranged for the purpose of observation. All of them may not be trained nor equally knowledgeable for the chosen purpose. Therefore, it is essential to train them properly both theoretically and practically.
- It is also necessary to consider seriously about the validity of the observation. Therefore, the researcher may need to take measures to validate the data.

Williamson... [et al] have suggested four stages for the observer. They are:

- 1) choosing the research site;
- 2) gaining access in setting and taking a role;
- 3) jotting down notes; and
- 4) formulating the analysis.

Observation must be done under conditions which will enable to collect accurate results. The distance and light must be satisfactory. Proper mechanical aids should be chosen. The observation should have sufficient number of samples. If it is possible, the observation could be repeated through another set of observers for verification or accuracy.

Self Check Exercise

- 2) Discuss the points you would keep in mind while planning an observation.

Note: i) Write your answer in the space given below.

- ii) Check your answer with the answers given at the end of the Unit.

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10.5 RECORDING OF DATA

The observer needs skills and training to observe and record the data. It is essential to have the knowledge of different types of tools used to record the data. This is mainly due to the reason that the observer is totally relied upon for amount and quality of information. He may collect the data single handedly. Therefore, he may need a background, such as knowledge of the subject, experience, adaptability, flexibility, ability to mix with others. Further, he should not mix his ideology with observation data and should be free from bias. If necessary, the observers may be given training to enable them to concentrate on the subject of study.

The observer needs to know:

- topic and background of the research;
- purpose of the observation;
- knowledge of the group / people to be studied;
- level and extent of involvement;
- environment or conditions in which the observation has to be made; and
- knowledge of tools and techniques used for data collection.

The observer has to record the observations systematically. He has to prepare schedules similar to that of other method schedules. It will help to concentrate and also prepare the method to analyze the collected data. The observer can write down the information either as a summary or in verbatim. Tape recorders or other electronic gadgets may be used to record the voice / expression / speech. It may be best to record the information but it may not be possible to use the tools directly in front of the subject. If not possible then notes may be prepared, where it may be difficult to note down each and every word. Therefore, he may note down the key words and elaborate the same as early as possible to enable not to forget the information. The expressions, facial feelings, language used, behaviour, communication, etc., play an important role in data collection. The observer has to take all these things into consideration while recording the data. For example: Some one may accept to do a work, but facial expression may show that he is not interested to do the same and accepted to do it under obligation. In such cases the expression gains lot of weightage. It may be advantageous, if the field observation log is also maintained. This could be maintained with each item under appropriate headings and notes. Subsequently, the complete and full observation record may be prepared.

The observer may also have sheets of papers with coded categories for marking. Number of instruments, such as inter-actional chronograph, audio-introspectometer, inter-actional recorder, were devised by various scientists. We can observe how tiny size cameras are being used for recording the pictures and voice of the people as a part of investigation. Even the mobile phone cameras are being used for recording the pictures as well as conversation / communication. It could be possible to also use sound recordings and video recordings. These days TV channels are able to video graph lot of things and show the same in their broadcasting programmes. Modern technology is giving enough opportunity to record group or individual behaviour, and many times it is proven information without any interpolation.

10.6 TYPES

10.6.1 Participant–Non Participant

The role of the observer / investigator is necessary to be defined. In participant observation, the investigator becomes a part of the group or phenomenon. Then the investigator become participant or member of the group and also investigates / observes the situation. He participates in all the activities and functions of the group and simultaneously observes the behaviour of the group. The investigator has to play twin roles such as observer and participant. He introduces himself in a disguised manner. To enable the group to accept him as a member, the observer has to plan how to enter into the group and being accepted by the group. The observer involves in the setting /

group, which is being studied as a research subject. The observer also shares the activities of the community studied and observes what is going on around. It allows close proximity to the subject studied; therefore it gives an opportunity for intimate study. The observation is supplemented with the interaction, conversations and interview, so that more authentic data is collected. By living with the group, the language, habits etc could be learnt by the researcher, which in turn can be used to converse in the native language and helps in free flow of the information from the group. However, to know what the subject is really doing, the observation is the best in comparison to enquiring the members of the group. Even the data collected from conversation could be validated through the observation i.e. the statements made by the members could be checked for its accuracy.

The observer's motive of collecting the data should not be known to the group. Even the researcher may find some type of role in the group, but it should be acceptable to the group. If it is known, the behaviour of the group is likely to be changed or modified or disturbed and will have impact on collecting the factual data. As a participant, the observer gets a position in the group and learns the pattern of activity. It could be possible that the period of observation could be a long term i.e. continued for months. Therefore, the range of material collected could be good and qualitative but it could be enormous in quantity. While the data is recorded the context has to be given. Participant observation method is better than many other methods of data collection. This method is used in social sciences to study the society and behaviour of its members. The type of information collected through this method would not be possible through other methods.

This type of investigation is made to study the behaviour of the groups such as inmates of jail, agricultural labor, study of tribal culture and workers in an industry in natural conditions. Even this method could be used for studying the users of the library, in terms of their behaviour in searching for information or using catalogue for identification of their relevant books. In all these cases the participation of the researcher is possible. Now there are number of research studies on behaviour of the users in accessing information in the libraries. Unfortunately, no scholar makes use of this method, instead uses the questionnaire for collecting the data.

Greater degree of participation by the researcher may also result in developing close relationship with the group. Further, he may learn to follow the behaviour pattern of the group and may get accustomed to it. In turn, the behaviour of the group may not look different and the observer may develop sympathy for the group resulting in emotional attachment with them. This type of activity may destroy the quality of information / data collected. It may be worth noting that participation becomes more difficult when one wants to get information from the different strata of the society which are antagonistic to each other or in direct conflict with each other. Based on the relationship, it is essential to decide the degree of participation and the type of relation between the observer and the observed.

This method is being used by sociologists, anthropologists, where in the observer becomes part of the group and makes the observation. In this method, certain limitations are also identified. They are:

- when the observer becomes part of the group, naturally he gets accustomed to the behaviour. it may effect on maintaining the objectivity of data.
- unforeseen factors might interfere with the observational work.

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- the ego, anger, prestige of the observed may create impact on the data as well as create problems to the researcher.
- after some time the observer may get accustomed to the behaviour of the group and may fail to note the important details.
- interrelatedness of the investigator to the situation has to be taken into consideration. He/she might be influenced with the events.
- the observer needs to spend longer time and adjust to the situation, which may not be possible for a long time.
- the observation could be subjective. Possibly all the data is not possible to be recorded.
- this method could not be used for study of illegal activities.
- complete observation of each and every event may not be possible or may not be needed.

In non-participant observation, the observer, gets detached with the group and does not participate or intervene in their activities. Here he observes their behaviour and there is also a possibility that the behaviour of the subject may become unnatural /gets changed. In this type of observation, the observer is ever present but never participating. In this case both feel uncomfortable. Further, there is no standard set of relationships or role patterns for the non-member observer to follow. There is no emotional involvement on the part of the observer. The observer may need skill in recording the observations in an unnoticed manner. As stated earlier, the observer can not be a participant in a criminal activity, in such situations, this type may be useful. In this method, the facts are collected in more formal manner. May be as a non-participant observer, it is difficult to maintain the quality of information. This method could be used in Library Users studies.

Many investigators opt for quasi-participant observation method, where in both the above methods are used and involves the merits of the both the types and excludes their defects.

Self Check Exercise

- 3) Define participant observation. Enumerate the areas in LIS research suitable for participant observation

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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10.6.2 Systematic–Non Systematic

In Systematic observation, stated procedures are used for observation and recording the data has to be done following certain rules or logical approach. This data could be possibly replicated.

Unsystematic observation does not follow any rules or logic and replication becomes difficult.

10.6.3 Structured –Unstructured

Structured observation is organised and planned which employs formal procedure. The units to be observed have to be carefully defined. It is also necessary to define the information to be recorded, selection of data and standardisation of conditions of observation; the observer is supposed to be knowing the situation and therefore need to prepare specific plan for collection and recording the data. In this type, the categories of observation have to be developed. It is subjected to high levels of control and differentiation.

The unstructured observation is contrasting to the above situation. The participant observation could be of this type as the observer may have to observe many things for longer time and may not be able to structure his program. Further, he will depend on the natural situation, which is not in his control and difficult to structure. However, the researcher should decide the relationship between him and the group; the period of observation; type of behaviour to be observed, etc.

For an observer, it is essential to know- what should be observed; what should be recorded; how to ensure accuracy and how to check the data. It may be vital to know what type of tools can be used and how to use them. With such knowledge and background, there is a possibility of structuring the investigation.

Observation is also categorised as:

10.6.4 Natural – Laboratory

Natural observation is made in natural settings.

While the *laboratory observation* is made in the laboratory.

10.6.5 Open – Hidden

In *open observation* the identity of the researcher as well as the purpose of study are known to the participants.

In *hidden observation*, both the identity and purpose are kept hidden from the people under observation.

10.6.6 Direct – Indirect

In *direct observation*, the observer merely records what occurs. No attempt is being to control / manipulate the situation.

Indirect observation is being made where either the subject is dead or refuses to take part in the study. The observer may observe the physical traces left behind and make conclusions about the subject. For example the police may visit the site of the crime and look for traces left by the criminal for further investigation or study.

10.6.7 Covert – Overt

In *Covert observation*, the subjects / group being observed are not aware that they are being observed. Participant observation could be covert observation as the observer is a participant in the group and their activities.

In *Overt observation*, the subjects are aware that they are being observed. Once the subjects know that they are being observed, there is every possibility of change in their behaviour. We can take an example of a police man's behaviour with the accused/ criminals, while he knows that he is being observed. He will be polite and may not use abusive language.

Self Check Exercise

4) Differentiate between structured and unstructured observation.

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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10.7 ADVANTAGES AND DISADVANTAGES

The observation method has several advantages and disadvantages. The advantages are:

- It is direct and helps to study the behaviour as it appears / occurs (collected in natural environment). One need not ask any one about the behaviour but can do self watching and collect the data.
- The data collected in a natural environment or situations is reliable.
- The data may be much more accurate as it is collected out of intimate and informal relationship.
- It is one of the best methods which can be adopted in a situation where people are unable to state meaningfully, e.g. studies about the children, tribal, animals etc.
- It helps to study the whole event and therefore, may provide the opportunity to study the insights or all aspects.
- It is easy to observe in disguising rather than disguised questioning.
- It helps to collect when the respondents are unwilling to cooperate for giving information.
- It is expensive but it is also possible to collect the data on emotional reactions.
- It helps to analyse the contextual background also.

The disadvantages are:

- This method is not useful to study the past events.
- It will not help to study the opinions. It may be difficult to structure the situation.
- Another limitation is stability of the conditions. Observation is difficult under unstable conditions.
- The collected data may not be possible to quantify.
- Most difficult could be how to get entry in the group being observed, i.e., how to become participant?
- It may not be possible to study or observe everything simultaneously, and the study could be limited.
- The internal attitudes and opinions are difficult to study.
- The sample may have to be limited; unlike the questionnaire- where in number of respondents from different places is difficult to study.
- It may be essential to wait till the event takes place. For example- to study the marriage customs, one has to wait till such an event takes place.
- It is a slow, time consuming and expensive process.
- This method is difficult to apply in large social settings and there is no set procedure for observation.
- It does not offer control measures.
- Some types of behaviours are too private or personal in nature. These types of behaviours are difficult to observe. For example: participating in criminal activity or sexual behaviour etc.
- The observer's ability, consistency, knowledge, bias and familiarity influences the data collected.

10.8 APPLICATION IN LIBRARIES AND INFORMATION CENTERS

Observation method is used in libraries, the data collected is analysed, and the outcome is used for improvement of the library activities and services. Some of the sample observations are listed below:

- How do the users approach the library for identification of relevant books? Do they use catalogue or directly go to the shelf? What is the outcome of directly going to shelves? In the process, how much time is lost by them?
- What is the approach of the users in identifying the relevant reference books or information?
- How far the furniture (especially chairs, tables etc) are comfortable to the users?
- The work standards can be prepared with the observation method. For example, how many labels can be pasted in an hour?
- It is also possible to observe the accessibility of the documents / information and the satisfaction levels of the users.

- Behaviour of the users in use of various types of documents such as periodicals, AV materials etc can be observed.

Lot of research studies on information seeking behaviour is being made by the researchers in LIS. They use questionnaire method of data collection rather than observation method. Probably, if they use this method the results could be more accurate. Further, the data collected from observation may be combined with the data collected through other methods / sources and the conclusions be made, which can be used for improvement of the library.

Self Check Exercise

5) Give some examples of use of observation method for research in libraries.

- Note:** i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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10.9 SUMMARY

Observation method is one of the most important and authentic method used for data collection. The observer uses his sensory organs and observes the behaviour / attitude of the people or a group. The observer has to plan carefully and execute the plans to collect accurate information. The observation could be supported with interaction. This method gives an opportunity to know the insights of the group and naturally, the observer will be able to get the factual data compared to other methods of data collection. Further, unlike other methods, the observer will be able to also observe the individual in a specific situation and integrate between what is being said and being done. It means, the facial and verbal expressions can be put together to understand the subject. In other methods, the data is collected from the subject and it is not known to what extent it is being practised.

The observer needs to have necessary skills, and knowledge of the tools, techniques applied in the observation. Even the investigator needs to have the knowledge of the subject, and should have an initiation to join into the group without any difficulty. If necessary, the training should be given to the observer and while choosing the observer, one has to assess and evaluate the capabilities. The observer also needs to be told about the period of time and schedules.

Observation method has several types. The types include: participant and non-participant, structured and unstructured; systematic and nonsystematic etc. Even though they appear to be different types, there is a close relationship between these categories. The type has to be chosen on the basis of the subject and environment.

10.10 ANSWERS TO SELF CHECK EXERCISES

- 1) Observation is defined as planned, systematic viewing of a phenomena or event to record its occurrence in a scientific and unbiased manner. Its purpose is to collect valid data for inference to analyze and draw inference regarding a situation to finally propose a theory.
- 2) While planning an observation, one should keep in mind the following:
 - What should be observed;
 - How the observation should be recorded;
 - What type of tools and techniques need to be used;
 - How to ensure accuracy of observation; and
 - What type of relationship should be there between the observers and observed- how the desired relationship should be established.
- 3) The role of the observer / investigator is necessary to be defined. In participant observation, the investigator becomes a part of the group or phenomenon. Then the investigator become participant or member of the group and also investigates / observes the situation. He participates in all the activities and functions of the group and simultaneously observes the behaviour of the group. The investigator has to play twin roles such as observer and participant. Areas in LIS research suitable for participant observation are:
 - Use of OPAC by users
 - Information needs and requirements of users
 - Attitude of users towards use of IT in libraries
 - Reasons for pilferage and theft in libraries
- 4) Observation can be structured or unstructured. Structured observation is planned and carried out accordingly. The conditions are known in advance and under control. Unstructured observation is not so, as the conditions are not under control. It is participant observation where the observer is part of the group to be observed.
- 5) Observation method can be used for research in libraries in the following cases:
 - Use of catalogue by users in a library;
 - Information seeking behaviour of users;
 - Reading habits of school children;
 - Attitude of users towards the use of IT in libraries; and
 - Courtesy among the library staff towards users.

10.11 KEYWORDS

- Observation** : Planned, methodical watching with a view to record accurate and objective data regarding objects, events or phenomena
- Participant Observation** : Observation where the observer is part of the observants He participates in all the activities of the group while observing them.

Structured Observation

: It is organised and planned which employs formal procedure. The units to be observed have to be carefully defined. The observer is supposed to know the situation and therefore need to prepare specific plan for collection and recording the data. It is subjected to high levels of control and differentiation.

Covert Observation

: In this type of observation the participants do not know that they are being observed

Overt Observation

: In this type of observation the participants are aware that they are being observed

10.12 REFERENCES AND FURTHER READING

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UNIT 11 QUESTIONNAIRE METHOD

Structure

- 11.0 Objectives
- 11.1 Introduction
- 11.2 Questionnaire Method: Definition
- 11.3 Questionnaire Construction
 - 11.3.1 Types of Questionnaires
 - 11.3.2 Types of Questions
 - 11.3.3 Use of Scales
 - 11.3.4 Precautions
- 11.4 Pretesting of Questionnaire
- 11.5 Distribution of Questionnaire
- 11.6 Response Rate
- 11.7 Advantages and Limitations of Questionnaire Method
- 11.8 Summary
- 11.9 Answers to Self Check Exercises
- 11.10 Keywords
- 11.11 References and Further Reading

11.0 OBJECTIVES

After reading this Unit, you will be able to:

- understand the meaning of questionnaire;
- state the methodology of its construction;
- learn the technique of preparing and pretesting the questionnaire and the precautions to be taken;
- elucidate the administration of questionnaire distribution and collection;
- identify advantages and limitations of questionnaire method; and
- comprehend the emerging trends in this field.

11.1 INTRODUCTION

In the field of Library and Information Science, survey research is heavily used in exploring the user information needs and use patterns. In order to strengthen the information resources and services in the libraries the researchers conduct surveys. These library surveys are attempted to gather data for investigations and to know the characteristics of users, their needs, etc. For detailed information on survey research please refer to Unit 3 of this course.

During recent times most of us have the experience of filling up a questionnaire, may be for some utility product, service, etc. This type of research is a market based research, which has a goal to enhance the quality and sale of product or service by getting the users response.

In survey research, the data is gathered by using the three types of methods namely, Observation, Interview and Questionnaire. In this Unit we will learn the technique of preparing questionnaire, its distribution, advantages, limitations and emerging trends in this area. In the next Unit you will learn about interviews as a methods of gathering data.

11.2 QUESTIONNAIRE METHOD: DEFINITION

Questionnaire is a data collection instrument. The researchers most commonly use this method for collecting data. In order to gather data on a particular research topic, the researcher lists the questions to which s/he requires answers. The list of questions grouped in some order is either given personally, or sent / mailed to the target population.

In simple words, a questionnaire is a set of written questions for respondents to answer. These answers become primary data for investigation. According to Krishan Kumar (1992) “a questionnaire is a written document listing a series of questions pertaining to the problem under study, to which the investigator requires the answers”. Schvaneveldt (1985) defined questionnaire “a data-gathering device that elicits from a respondent the answers or reactions to printed (pre-arranged) questions presented in a specific order.” Busha and Harter (1980) opined that questionnaires are often used in surveys as the primary data collection instruments.

11.3 QUESTIONNAIRE CONSTRUCTION

While preparing a questionnaire, caution must be taken in selection of questions and variables so that the researcher could receive accurate answers that a researcher wants to explore. The purpose of this type of data gathering technique is to obtain valid and reliable information so that smooth investigation can be conducted and hypothesis can be tested. It is essential for the researcher to have a clear understanding of the problem under study. Hence, s/he needs to review the related literature before finalising the contents of the questionnaire.

The covering letter explains the identity of the researcher and the objectives of the research. It also includes the need for questionnaire. It should also tell the respondents what use will be made of the results and precisely what will happen to their answers. Hence, a covering letter, requesting the respondent for cooperation should explain the purpose of the questionnaire, and it must also ensure the confidentiality of their answers. This assurance will motivate the respondents to express their views freely.

Please find below a specimen copy of the covering letter given:

For Private Circulation Only

Questionnaire

Impact of the Internet on Scholarly Communication of Social Scientists of Central Universities in Delhi

Dear Respondent,

I am conducting research on the impact of Internet on scholarly communication of

social scientists. In this connection I have designed a questionnaire to get the responses of social scientists. I request you to spare some of your valuable time in filling up this questionnaire. The answers will be kept confidential and will be used for the purpose of research only.

Please find enclosed the questionnaire and a self addressed stamped envelope. You are requested to fill the questionnaire and post it within a week. Your cooperation in this regard will be highly appreciated.

Thanking you,

Yours sincerely,

(Name and address of the Researcher)

Only those types of questions should be asked which the target population not only understands but also has the knowledge to answer them. Williams (1997) is of the opinion that researcher should conduct some fieldwork with the target group in the form of interview or observation work. This in turn assists the researcher in knowing the pulse of the sample and also their reaction to a particular section of questionnaire.

In the mailed questionnaire stamped self-addressed envelope should be provided. Reminders should be sent two to four weeks after posting the initial questionnaire.

Steps to be followed in Questionnaire Construction

- 1) Determining the scope of the questionnaire;
- 2) Deciding the type of questions (close ended or open ended) to be asked;
- 3) Preparing the draft questionnaire;
- 4) Pretesting the questionnaire with a sample population;
- 5) Revising the questionnaire according to the suggestions received;
- 6) Distributing the questionnaire;
- 7) Sending reminders to the population under study;
- 8) Receiving the responses;
- 9) Analysing and interpreting the data received; and
- 10) Writing the report.

Length of the Questionnaire

There is no prescribed length for a standard questionnaire. Researchers want to ask maximum number of questions in one questionnaire due to its cost effectiveness. There is a belief that if the questionnaire is too long its response rate drops. Length of the questionnaire depends on the topic of the research problem and size of the target population. The response rate may vary according to the type of clientele it approaches. But there are exceptions, which cannot be ruled out. Length of the questionnaire should also include cost and the willingness of the target population to answer. Hence, a general statement about the length of questionnaire cannot be made.

Questionnaire is not simply listing of relevant questions on a subject. The researcher must know what is the objective of the research undertaken and what type of questions to be asked. Questions should be such, that will elicit the required information.

Guiding Principles to be followed for Questionnaire Construction

- 1) It should be self-explanatory.
- 2) Questions should be restricted to close ended as opened ended questions receive vague and incomplete responses, which are difficult to interpret.
- 3) Less number of questions in the questionnaire helps in receiving high response rate.
- 4) Attractive layout of the questionnaire is necessary. It helps in getting completed questionnaires.
- 5) Proper instructions should be provided to the respondents in filling up the questionnaire.

Self Check Exercise

- 1) Explain why length of a questionnaire determines its response rate.
- 2) Why is covering letter necessary in a mailed questionnaire?

Note: i) Write your answers in the space given below.
 ii) Check your answers with the answers given at the end of the Unit.

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11.3.1 Types of Questionnaires

McKornam (1996) categorised questionnaires into three types: i) Mailed questionnaire ii) Group administered questionnaire iii) Personal contact questionnaire.

First of these three types is a mailed postal questionnaire. Williams (1997) calls this type self-completion questionnaire. This type has a predetermined set of questions. The respondents are provided with self-addressed stamped envelope to return it within two to four weeks after posting the questionnaire. This type of questionnaire contains a covering letter, which explains the purpose, and objectives of the research. It also requests the respondent for co-operation and assures them for confidentiality of their answers. This type of questionnaire costs less compared to other types. Respondents can take their own time in filling it. Its advantage is that it covers wider geographical area. The biggest disadvantage of mailed questionnaire is low response rate. While most of the questionnaires return after two weeks, some may even return after two months adding to the time and cost of data collection. Mailed questionnaire may be filled by someone other than the respondent. The answers may also be incomplete; that pose a serious problem at the time of analysis of data.

The second type is group-administered questionnaire. In this type the respondents gather at one place and complete the questionnaire. It is basically used by the teachers to gather data on any research query. In the third category, i.e., personal contact questionnaire the researcher and the respondents come together and questionnaire is filled in the presence of the former. It enables them to interact and clarify on areas that may need clarification.

11.3.2 Types of Questions

What type of questions should be included in the questionnaire for survey research? There is no unanimity on this issue. Each type has its own advantages and disadvantages. Numen (1997) has opined: “The crucial issue is not which form is best. Rather it is under which conditions a form is most appropriate”. The choice of questions also depends upon the topic of research, the target population, etc. Survey questions can be grouped into two categories i.e. open ended and close-ended questions.

Open Ended Questions

Open-ended questions give liberty to the respondents to express their views. They give tremendous freedom to the respondents to answer according to their interpretation. Given below is an example of an open-ended question.

Example of Open Ended Questions:

Can you suggest some ways to further improve the use of Internet in your research?

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Advantages of Open Ended Questions

- Unanticipated answers can be obtained from the respondents.
- Researcher can have real views of the respondents.
- Respondents can give their views in their own language reflecting creativity, self expression and richness of detail.
- Such answers reveal the logic of the respondents.

Disadvantages of Open Ended Questions

- Different answers may be received from the respondents on the same question.
- Responses can be vague, irrelevant or not to the point.
- Many interpretations of the same question may not lead to valuable analysis.
- Coding of the responses is not possible.
- Respondent needs more time to answer.

Research Methods

- More space is required for answers in the questionnaire.
- Respondents may use different terms for the same concept.

The responses to open ended questions are difficult to analyse but not impossible. It is possible that some of the answers may put forcibly into one of the categories. The researcher has to carefully study the responses and put them in different categories. However, it is very time consuming.

Close Ended Questions

Close-ended questions are best suited for large-scale surveys. They are easier and quicker for the respondents to answer as well as for the researcher to interpret. All the close-ended questions in the questionnaire may bring distorted results. This problem can be overcome by taking interviews, which can supplement the information on the close-ended questions.

There is another problem faced by the researcher while coining different choices for a particular question. If the choices are less the desired results cannot be achieved. If the choices are too many, it may confuse the participant and appropriate answers cannot be received.

Close-ended questions are provided with a list of acceptable options. A respondent has to pick and choose one or more of these options. The responses chosen by respondents may be best suited to them but they may not be the correct answers. There is a possibility that the list of alternative answers may not be sufficient for the respondent, hence, limiting his/her options. Given below is an example of a close-ended question.

Example of Close Ended Question

Given here are some reasons with regard to dissatisfaction with the current state of Internet based resources. Rank your answers by 1,2,3... etc. Rank no. 1 is for the highest.

- There is dearth of research resources on the net
- Instability of e- resources
- Difficulty in verifying the authenticity of information on the net
- The state of indexing and search engines not helpful
- Lack of standardisation

Paul Burton further classifies the close-ended questions into single choice or multiple-choice questions.

Example

Single choice question

Gender: Male ☐ Female ☐

Multiple-choice question

Which of the following computing skills do you have?

Word processing ☐ Internet browsing ☐ E-mail ect. ☐

Database
searching

☐

Power point

☐

Questionnaire Method

Any other please specify

Advantages of Close Ended Questions

- Cost effective.
- Answers of the respondents can be compared.
- Easy for respondents to answers.
- Easy to code and tabulate.
- Performance of the respondents is more reliable
- Researcher can also reliably interpret the answers.
- Sensitive questions can be properly answered
- Less number of confused answers
- Less knowledgeable persons can also answer
- With limited number of answer options the possibility of getting enough responses to the options or categories may be useful for analysis.

Disadvantages of Close Ended Questions

- Ideas of the researchers are imposed on the respondents.
- Less knowledgeable can also answer due to the availability of multiple choices.
- It is possible that respondents get frustrated by not getting the desirous options of their choice.
- Multiple choices from the researcher may be confusing for the respondents
- Answers can be misinterpreted or may not be correct

The disadvantages of both types of questions can be reduced if there is a judicious mix of both the categories in the questionnaire. Most of the questionnaires mix these two types. Open and close-ended types of questions are required to get facts or opinions of the respondents. Which type of the questions will be adopted will depend on various factors. For quantitative data the factual questions are required. In this case close-ended questions will suit the most. For qualitative data the open-ended questions are required though they are less easy to categories and less amenable to computer techniques.

Framing of Questions

Before framing the questionnaire the researcher has to review the literature on the area to determine the type of questions to be asked. Flower (1987) has suggested four queries to be addressed before finalising a question in the questionnaire.

- 1) Is this a question that can be asked exactly the way it is written?
- 2) Is this a question that will mean the same thing to everyone?
- 3) Is this a question that people can answer?

- 4) Is this a question that people will be willing to answer, given the data collection procedure?

Terminology and jargon play a very important role in obtaining relevant responses. The researcher who is immersed in the subject so much sometimes forgets the target population's limited knowledge to understand the terms. Paul Burton suggests that to overcome the problem of use and relevance of technical terms, pretesting the questionnaire is essential. Pretesting may also help in eliminating ambiguity in the questions. For example, questions on frequency of use, visit to the library, etc. should not use the terms like 'Frequently', 'Often', and 'Occasionally' as the users may interpret these terms differently.

While drafting close ended questions the researcher has to decide the inclusion of negative answers, like not sure, not at all, do not know, etc. There is a possibility that the target population finds it easy to just strike these choices without trying out other options. If such a choice were not given the respondent would definitely choose some other option. Hence, it is advisable not to include negative options in the close-ended questions.

Sensitive questions should also be avoided. Precaution must be taken in choosing the controversial, emotional words. The choice of words should be such which increases willingness on part of the respondents to answer as well as increases the response rate for the questions. High technical jargon, confusing words, words with two meanings also cause hindrance.

Sequence of Questions

Questions in the questionnaire should be arranged or grouped in logical sequences. Questions should be arranged in such a way that they do not scare the respondent but make him/her comfortable in answering/responding. Questionnaire should start with general but relevant questions and then move to the specific ones. It helps to set the logical flow in the questionnaire. Same type of questions may be put together in a group or section. For example, Question nos. 1 to 10 deal with the use of library sources and services. This type of instruction helps the respondents to understand the grouping of questions. If need arises relevance of questions should be explained to the respondents. One can divide the questionnaire into three parts namely, opening part, middle part and end part. In the opening part the questions are basically on the personal background of the respondents. These questions also come under the category of demographic information; for instance questions on age, gender, qualifications, institution, contribution in the field, specialization, etc. This category also involves questions pertaining to elementary information (relating to the topic of survey research), which helps in preparing the respondents' profile. The middle category involves questions directly concerning the topic of survey research. The questions here are also organised in smooth and logical flow, which accelerate the respondents' comfort level. The first question is related to the next one and so on. The questions on the first topic create the context within which the respondent moves on to the next without much hindrance. For example, if the users in a particular survey are asked about their awareness of library services or sources, the next question should be about the usage of library and services or sources, and this should be followed by the question on improvement of services or sources. Finally, the last portion of the questionnaire is basically loaded with open-ended questions on suggestions, improvement and their opinion on the research problem taken. The logical and proper organisation of questions helps in getting questionnaire completed.

Format and Layout of the Questionnaire

The format of the questions and physical layout of the questionnaire should be made attractive, neat and easy to follow.

Questions should be properly numbered and enough space should be given to write answers and spacing between questions should also be adequate. This will automatically increase accuracy and completeness of questionnaire response rate. Questions whether mailed or distributed personally, should have attractive layout to motivate the respondents to answer. A polite covering letter with a sentence like thank you for your cooperation is a must. The questionnaire should leave the respondent with the feeling that he/she is very an important component in the research project; his/her participation in the research is very much appreciated.

Researcher has to decide the format of the questions. Only those questions to be preferred, which require answers in 'yes' 'or' no marking right (Ö) or wrong (C). The main objective is to get clear responses. Questions should be arranged in such a way that they save space. In some cases it is noticed that answer to one question will determine the answers to the subsequent questions. For example, if a respondent answer to question number 10 is 'no' then instructions may be given to the respondent to skip question number 11 and 12 and go to the question number 13.

Consistency of format should be maintained. Close-ended question commonly use boxes, brackets tick mark or cross to facilitate quick responses. However, the researcher needs to use one type to maintain uniformity and consistency.

Examples of Question Format

Horizontal type

What is the level of satisfaction for Internet search results? (Tick mark (Ö) the answer)

High ——— Moderate ——— Low ———

Vertical type

What is the level of satisfaction for Internet search results?(Tick mark(Ö) the answer)

High ———

Moderate ———

Low ———

Example of Matrix Question Format

How frequently do you find information accidentally on the web? Tick mark (Ö) the answers.

Methods	Frequently	Often	Sometime	Rarely	Never
Browsing websites	()	()	()	()	()
Following hyperlinks	()	()	()	()	()
Through cited works in the websites	()	()	()	()	()
Any other method please specify———	()	()	()	()	()

Given below examples of some response category choices. The choices are adapted from the source Neuman (1997).

Research Methods

Excellent, Good, Fair, Poor

Strongly Agree, Agree, Somewhat Agree, Somewhat Disagree, Disagree, Strongly Disagree

Too Much, Too Little, About Right

Better, Worse, About the Same

Regularly, Often, Seldom, Never

Always, Most of the Time, Rarely, Never

More Likely, Less Likely, No Difference

Very Interested, Interested, Not Interested

Self Check Exercise

3) Differentiate between open ended and close-ended questions.

- Note:** i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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11.3.3 Use of Scales

The questions should be designed in such a manner that the answers could be easily and quickly analysed. Some of the questions involve simple calculation of number and percentage. To tackle other complex issues, scaling techniques such as rating scale and rank order scale should be used. Analysis of responses to such questions should be done on the basis of weighted averages.

Rating Scale

A rating scale is a measuring instrument that requires the observer to assign the rated object to categories or continua that have numerals assigned to them. This is perhaps the most used measuring instrument as they are easy and quick to use. Time required for administering and measuring response is shorter than many other instruments. As a consequence, it is less expensive. However, they “lack validity due to their proneness to constant or biased error. If used with knowledge, skill and caution, a rating scale can prove to be a valuable measuring instrument.”(Krishan Kumar, 1992)

Rating scale can be of several types. The most usual is simply a form of precoded questions, e.g.,

Do you find the collection in your area of research in libraries you use adequate enough to meet your demands? Please tick mark (Ö) the appropriate columns.

Excellent? _____ Very Adequate? _____ Adequate? _____ Inadequate? _____ Poor? _____

The number of categories affects the dispersion of answers. A variation on the verbal expression scale may be used to elicit the extent of agreements with various statements. It is a normal practice to have a range of five answers, from positive to negative, with a neutral mid-point. The above responses may be assigned weights 5,4,3,2,1 at the stage of analysis of data. Numerical rating scale is easy to construct and use. The numbers can be used directly for the purpose of statistical analysis.

The procedure of Likert scale essentially involves allocating scores to statements for which the respondents can select a range of responses from 'very useful' to 'no use'.

Example:

Do you consider conferences/seminars as useful sources of information? If yes, please indicate (tick mark (Ö)) how useful they have been for your research work?

Very useful? _____ Useful? _____ Satisfactory? _____ Little use? _____ No use? _____

In this example, choices that are most favourable to the use of conferences are assigned the greatest weights, and the least favourable responses are assigned the lowest weights. In this method the weighted index has been created by multiplying the number of respondents with the numerical value assigned to all the scales (e.g., very useful = 4, useful = 3, satisfactory = 2, little use = 1, and no use = 0) and then dividing the product by the total number of respondents. Next the averages of all the variables in different scales are calculated according to weighted index and are rearranged according to the rank order.

The responses are assigned weights like 5,4,3,2 and 1 or 4,3,2,1 and 0 in a 5-point scale and 3,2, and 1 in a 3-point scale. A three-point scale is developed for the level of difficulty. The following Tables 11.1, 11.2, 11.3 clarify the point.

Table 11.1: Three-Point Scale

Scale	Weights		
	3	2	1
Level of Difficulty	High	Moderate	Low

Table 11. 2: Five-Point Scale

Scale	Weights				
	4	3	2	1	0
Frequency	Frequently	Often	Sometimes	Rarely	Never
Dependence	Solely	Most of the time	Often	Some extent	Not at all
Degree	Very useful	Useful	Satisfactory	Little use	No use

Table 11.3: Five-Point Scale

Scale	Weights				
	5	4	3	2	1
Adequacy	Excellent	Very adequate	Adequate	Inadequate	Poor

Rank Order Scale

Another rating scale used in the questionnaires is rank order scale. It is a simple and most useful form of scale. Here the respondent ranks a list of items in order of preference. This method “is far more economical in time and effort, on the part of respondents as well as investigators, particularly when a large number of items is involved.” (Line, 1981). Example:

Which methods would you adopt to find out the sources of information the library possesses on your topic of research? Mark 1,2,3, etc., indicating your preferences (1 stands for first preferences and 2 for second, etc.) You will learn more about the measurement techniques in Unit –6 of MLIS-E2.

Table 11.4: Rank Order Scale

Methods	Order of Preference
Consult the Librarian	
Consult the Library Staff	
Consult Subject Bibliography	
Consult Subject Catalogue	
Searching the Shelves	

Self Check Exercise

4) What is a rating scale?

- Note:** i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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11.3.4 Precautions

Preparation of a questionnaire is an art. It is an instrument for collecting data in survey research. If it is constructed properly half of the survey research is done. The researcher while constructing a questionnaire must take some of the precautions. Neuman (1997) has suggested the following points to be avoided while writing survey questions.

- Use of jargons, slang and abbreviations must be avoided.
- Ambiguity, confusion and vagueness have no place in a well-constructed questionnaire.
- Use of emotional language is not recommended; natural language makes the respondents more comfortable.

- Double-barreled questions should be avoided and each question should be asked for one specific aspect.
- Leading or loading questions as they make the respondent to choose one response over another need to be avoided.
- The capability of the respondents should always kept in mind while framing the questions otherwise it will lead to incomplete questions or questionnaires with poor responses.
- Questions leading to hypothetical situation need not be asked.
- Questions about future intentions are not desirable.
- No question should have double negatives.
- Overlapping or unbalanced response options need to be avoided.

Busha and Harter(1980) suggest the following precautions “The investigators have a professional responsibility:

- a) To analyse carefully and understand their research problems;
- b) To state their questions clearly
- c) To request only information that can be easily provided by respondents; and
- d) To place emphasis upon brevity and economy of participant effort, consistent with an adequate treatment of the subject.
- e) The objectives of questionnaire and the nature of needed data must be made clear.
- f) Respondent’s background, ability and knowledge must also be considered. If the respondent is not having adequate knowledge from it is difficult to obtain valid data.
- g) Willingness of the Respondent must be ensured, otherwise questionnaire will not be of any value.
- h) Care must be taken to do away with unneeded or irrelevant questions. This may discouraged the participants to answer the questions.
- i) With the help of pre test the biased questions may be identified.
- j) Ambiguous questions must be avoided.
- k) Questions that convey double meaning or pose two questions at once need to be enter eliminated or restated/reworded. These types of questions are called double-barreled questions.”

11.4 PRETESTING OF QUESTIONNAIRE

Survey research questionnaire act as an instrument for gathering data. It should be pre tested before putting it to actual use. Pre testing helps in further improving the questionnaire and works like a measuring yardstick, seeking perfection. Once the final questionnaire is printed then there is no room for corrections and improvement. If the researcher tries to make corrections it will be expensive as well as difficult. To pre test the questionnaire it has to be circulated to the sample population to receive useful

comments and the researcher can revise accordingly. Pre test also includes verbal communication with sample population about confusing questions, difficult questions, overlapping categories, etc. In this method the sample first fills up the questionnaire and then discusses with the researcher on the unintelligible questions. Formal pre testing is an invaluable part of questionnaire design process. It is a learning process for the researcher as well. Pre testing helps the researcher in recording, simplifying, transforming some of the questions. The process generally involves drafting the questionnaire and discussing it with colleagues and also circulating it among the small sample of the population for whom the questionnaire is designed. This helps in removing any problem relating to clarity, understanding of technical or professional terminology, order of questions, etc. Paul Burton (1990) states, pretesting may therefore go through a number of iterations, but this is a necessary part of questionnaire design. Pretesting, also called pilot survey, is very much desirable to finalize the questionnaire. Krishan Kumar (1992) has also suggested that a second pretest must be carried out with a revised questionnaire. He further observes that if some difficulties cropped up, another pretest might be required. Pretest also indicate the time required to fill up the questionnaire. It is a practice not to include the pretest sample to the actual population.

Self Check Exercise

5) Why pretesting is required before finalisation of questionnaire?

- Note:** i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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11.5 DISTRIBUTION OF QUESTIONNAIRE

Questionnaire can be either distributed personally or through mail/ by e-mail/ Internet. Each of the system has its own merits and demerits.

In Person

Questionnaire can be distributed personally to the respondents. For example, if the researcher is surveying the use pattern of a particular library, then the questionnaire can be given at the time when users enter the library. If, by chance, the researcher does not find respondents there then it can be given to them personally at the place of work or at their residence.

Questionnaire can be sent by post to the target population with a self-addressed envelope stamped/pre-paid so that the respondents can return the filled questionnaire in time without hassle. Mailed questionnaire should also accompany a covering letter stating the objective of the survey, requesting the respondent to fill in time, etc.

In order to deliver the questionnaire to the respondents in person, a number of visits have to be made to their place of work, study or to the libraries, which they usually consulted. As it is not possible to contact each of the respondents some questionnaires may be left with the library staff or with the department where they work or study with the prior permission of the librarian / authorities.

Through E-mail

Nowadays with the coming of the Internet connectivity: It is possible to circulate the questionnaire through e-mail. In this method the respondents who are having e-mail address as well as the Internet connectivity can receive and send the questionnaire as an e-mail attachment. This is a quick, easy and cost effective way of distribution and collection of questionnaire. It can easily extended or resent to the respondents any time at any place. E-mail based questionnaire is easy to construct, distribute and manage the results. Through this method online survey can be made available to any one with Internet connectivity.

The pre requisite of this method is the Internet connectivity and list of e-mail addresses of respondents.

Web Questionnaire

There is another method of distribution and collection of questionnaire where the population is wide spread, covering state, country, etc and it is difficult for the researcher to reach or meet the target population. In this method the questionnaire is put on the website. Whosoever comes under the purview of the survey can fill the questionnaire and submit it giving required details. Web questionnaire is also having a time frame to complete/submit. This type of questionnaire also has a set of respondents, for example, if the survey is on the “Use of Search Engines by the Central University Teachers of India in the field of Indian Politics” only the Central University teachers of India should fill up the Questionnaire. It has the same layout, open as well as close ended questions. The close-ended questions can be filled up with the help of mouse click. For open-ended questions the respondents can simply type the answer and after completion the questionnaire can be submitted. A specimen of web questionnaire is given below for your information.

Fig. 11.1 : Snapshot of a Web Questionnaire

Designing of Web –based Questionnaire

It should be designed in such a way that attracts the respondents to fill and submit it. Here also the length should be restricted to achieve high response rate. Only those questions should be included which are important and meaningful to research. It is advisable to use clear and specific wording for the questions. Reassurance should be given to the respondents regarding the privacy measures taken for their answers.

Advantages and Disadvantages

The researcher gets answers from a wide spread population. With this size of the population the old data analysis methods may not suit. It is for the target population to access, fill and submit. The data may be accessed in short span of time. It is easy, fast and inexpensive. Researcher is free from the hassle of collecting properly filled questionnaires. For example, if a respondent fills a question wrongly, out side the defined range of answers or s/he misses some of the questions: the web-based questionnaire program can detect the error and direct the user to answer the particular question again and then submit. The data received from the web –based questionnaire is automatically validated.

Some of the disadvantages are like; that this type of questionnaire may not successfully attract a representative sample of the population of interest. The population is wide spread it is not possible for the researcher to personally contact them. Due to technical snag like server crash or browser freeze a lot of data may be lost. It is advisable to keep such questionnaire small. If it has number of pages the respondent has to submit the answers page wise. If a web-based questionnaire has six pages and after filling up five pages if server crashes in such a situation the data of those five pages already submitted may be captured. There is a possibility that after submitting the questionnaire an error message occurs in front of the screen and the respondent may not fill it again. To over come such situation it is necessary to test and retest the questionnaire. Alternatively the web program should have a very soft and humble error message, which prompts the respondent to return and fill it.

Self Check Exercise

- 6) State the advantages of web-based questionnaire.

Note: i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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11.6 RESPONSE RATE

Response rate in survey research is very crucial. Different types of surveys have different response rates. For example, very high rate of response is required for census survey. If the researcher fails to get adequate response then there is a need for introspection.

The reasons may include: i) the target population at the top-level may not answer due to time constraint, ii) difficulty in approaching the scattered respondents, iii) respondents refuse to answer due to ignorance of the topic under research iv) lengthy questionnaire or the use of highly technical language discourages the respondents, v) if the questionnaire seeks more views from the respondents they get conscious of their privacy and may not like to reveal their opinion.

A researcher can increase the response rate to a point by contacting the respondents frequently, on the phone or by mail or by meeting them personally. The researcher may have to make repeated visits or may send soft reminder letters periodically persuading to return the completed questionnaire. If the questionnaire is short and simple it generates good response. Those respondents should be motivated periodically to fill up the questionnaire. Timing of the distribution is also important in getting responses. If teachers or students are given the questionnaire during vacations or weekends, it will generally yield higher response.

A polite reminder letter along with another copy of the questionnaire should follow two weeks after the specified date of return the questionnaire. Second copy is required because there is a possibility that the respondent has misplaced the questionnaire. Researcher should be polite and patient while distributing and reminding or receiving the questionnaire.

11.7 ADVANTAGES AND LIMITATIONS OF QUESTIONNAIRE METHOD

Advantages of Questionnaire Method

- Easier and quicker to collect data. Through this method large amount of data can be generated in short span of time.
- Direct responses can be obtained.
- Information received is quantifiable. Quantitative as well as qualitative responses can be procured. Back ground information of the respondents, which is otherwise difficult to obtain, could be collected.
- Empirical data can be collected
- Cost effective
- Response from a large population can be received covering a wide geographical area.
- High rate of response can be generated from educated population.
- Respondents get a chance to prepare and revise their answers before finally answering the questionnaire.
- Researchers also get a chance through pretest to revise the final questionnaire.
- Responses are easy to analyse and tabulate.
- Questionnaire method provides the respondents to express their views on any given topic freely.
- Questionnaire has a fixed format with a given number of questions. This helps in eliminating variation in questioning process.

Limitations of Questionnaire Method

- Difficult to receive adequate response rate. People are in the habit of not filling and returning in time.
- Reliability of data can be questioned
- Truthful answers cannot be ascertained.
- It is time-consuming activity, which includes preparation, pretest, revision, distribution and sending reminders adding to time and cost of data collection.
- Incomplete answers also cause problem during analysis stage.
- Researcher cannot observe the respondents reaction at the time of filling up of the questionnaire.
- The questions can be wrongly interpreted which can affect the analysis.
- Assumptions of the researchers for certain things may prove opposite to the respondents perceptions.
- Technical jargon/ professional terminology may play havoc for the respondents. It may be possible that the questionnaire is returned with substantial number of unanswered questions.
- Complex worded questions also fetch poor results.
- There is a possibility that the questionnaire may be biased. It may not have included certain important questions though are very useful otherwise, due to the lop-sided preference of the researcher.
- Verification of the accuracy of the responses received from questionnaires might be difficult.
- Potential respondents may become discouraged by getting ill prepared questionnaires.

11.8 SUMMARY

Paul Burton has very rightly said: “Properly designed and analysed questionnaires can be a rich and reliable source of research data, both quantitative and qualitative”. Hence, proper attention has to be paid to carry out a questionnaire survey. If not done properly, it may lead to misleading results.

This Unit has described the method of construction of questionnaire. It has also highlighted the type of questions to be asked and precautions to be taken while listing the questions. Merits and demerits of asking open and close-ended questions have also been discussed. Questionnaire is an effective tool to gather both quantitative as well as qualitative data in survey research quickly, is considered the most popular research method.

11.9 ANSWERS TO SELF CHECK EXERCISES

- 1) What should be the length of the questionnaire has been debated for a long. There is a belief that if it is lengthy the respondents may not fill it and leave it incomplete. Therefore, resulting in low response rate. If the questionnaire has less number of questions there is a possibility of getting high response rate.

- 2) Covering letter explains the objective of the survey and it requests the respondents to fill it. The researcher through this letter assures the respondents the confidentiality of their answers and the usage of data for research purpose only.
- 3) Open ended questions are those questions where respondent give answer in their own language. They freely express their views and answer according to their interpretation. These questions are also called unstructured questions. Close-ended questions are structured questions. Every question has a number of alternate answers. A respondent has to select one answer. These questions are also called precoded questions.
- 4) Rating scale is a measuring tool that requires the observer to assign the rated object to categories or continuum that have numerals assigned to them.
- 5) Pretesting as the name suggests is a process of finalizing the questionnaire before putting it to actual use. It is essential as it alerts the researcher to the weaknesses, trouble points, and ambiguity in the questions. After pretesting the researcher revises it and circulate to the target population.
- 6) Web-based questionnaire has advantages over printed questionnaire. The former can be distributed and received back from the wide spread population automatically. The answers can be validated. It is easy, quick and inexpensive.

11.10 KEYWORDS

Questionnaire	: It is data gathering instrument in survey research. It is a list of written questions, which are to answered by the target population.
Open Ended Questions	: They are also called unstructured questions. In such questions respondents express their views freely.
Close Ended Questions	: They are also known as structured questions. These questions are having number of answers. The responded is asked to choose one from the given options.
Pretesting	: Before finalizing the questions in the questionnaire it is circulated to a sample for their opinion and suggestions. It is also called pilot survey.
Response Rate	: The number of respondents returned the filled in questionnaire.
Rank Order Scale	: Respondents are asked to rank all items according to some specified order.
Scaling Technique	: A finite sample of concepts or items is ordered along a continuum. This may or may not accompanied by qualitative measurement of the variable represented by continuum.
Weighted Index	: Weighted index derives by multiplying the percentage of respondents (weights) with the numerical value assign to the scale, and dividing the product by total value of the scale in terms of percentage.

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UNIT 12 INTERVIEW METHOD

Structure

- 12.0 Objectives
- 12.1 Introduction
- 12.2 Interviewing
- 12.3 Types of Interviews
 - 12.3.1 Structured Interview
 - 12.3.2 Unstructured Interview
 - 12.3.3 Focussed Interview
 - 12.3.4 Non-directive Interview
 - 12.3.5 Clinical Interview
 - 12.3.6 Telephonic Interview
 - 12.3.7 Computer Assisted Telephone Interviewing (CATI) System
- 12.4 Interview Process
- 12.5 Advantages and Limitations of Interview Method
- 12.6 Summary
- 12.7 Answers to Self Check Exercises
- 12.8 Keywords
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12.0 OBJECTIVES

After reading this Unit, you will be able to:

- understand the role of interview method in survey research;
- know the types of interviews used for data collection;
- identify the steps and guidelines to be followed in interview method;
- learn the procedure to conduct interviews; and
- visualise the advantages and limitations of interview method as a tool of data collection.

12.1 INTRODUCTION

Data collection is a difficult and yet very important part in survey research. Each data collection method has its own complexities as well as advantages and limitations. We cannot say which method is the best out of them. Each method should be seen in relation to the type of research to be conducted and more particularly the research problem to be investigated. Survey type research has been discussed at length in Unit 3 of this course.

The basic instruments of data collection in survey research are questionnaire and interview methods. Unit 11 of this course deals with questionnaire method. This Unit introduces you to interviewing as one of the data collection instruments.

In research the question arises how one can gain access to data required. One can access it through documents, or visiting places, like institutions, organisations, work places, or through questionnaires and interviews. Before selecting the method the researcher must know and finalise the target population, the questions to be asked, the schedule to be drafted. Because these tools help us to generate empirical data which will yield qualitative as well as quantifiable results.

12.2 INTERVIEWING

You must have witnessed many programmes on TV, which are basically interview-based. These programmes usually invite celebrities, film personalities, politicians, industrialist, etc. to get information on their life, works or they may be asked questions pertaining to some social theme or current political event. Interviewing in Survey Research is different from these interviews.

We will study some of the definitions to know the meaning of this term. According to Neuman (1991) “the interview is a short term, secondary social interaction between two strangers with the explicit purpose of one person’s obtaining specific information from the other. . . . Information is obtained in a structured conversation in which the interviewer asks pre arranged questions and records answers, and respondent answers.”

Krishan Kumar (1992) defines “interviewing is a process of personal interaction between a researcher and a respondent.” Ranjit Kumar in his book *Research Methodology* (1999) opined that “any person- to- person interaction between two or more individuals with a specific purpose in mind is called interview.” O’Leary (2004) of the view that “Interviewing a method of data collection which involves researchers asking respondents basically open-ended questions.”

In simple words we can say that survey interviewing is a face-to-face interaction with the respondents to get specific information. The questions may be pre decided. Invariably it is seen that for data collection, the interview method includes only open-ended questions.

Interviewing as a method of data collection is not just easy. You may think that it involves only jotting down questions and recording the answers. This method has its own complexities. O’Leary (2004) has suggested that the complexities may arise due to people or the target population you interview and secondly, due to complexities of communication. People are complex, complicated or may be introvert. There is no doubt about this. Getting proper answers without annoying them is a difficult task. If the interviewee and interviewer have some understanding, gathering data is assured. If there is no chemistry between them, it may hamper the interview process.

Self Check Exercise

1) Explain the role of interview in survey research.

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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12.3 TYPES OF INTERVIEWS

Adams (1985) has compared questionnaires and interviews with the surgical tools in the medicine. He further stated that these tools are the most commonly used modes of data collection in many branches of social and behavioural sciences. We all know that these tools are very flexible and adaptable by various research scholars to different types of research problems. Interviews can be structured or unstructured. It can be for personal, impersonal or mixed type of interaction. The most important aspect here is that the social behavioural researcher must know how to prepare and use it; what type of interview will suit the particular research problem, etc. In the following sub-sections we will learn about different types of interviews. The type of interview to be chosen will definitely depend on research topic, purpose of research and population under study.

12.3.1 Structured Interview

During structured interview the interviewer asks the pre-drafted questions. Here, he/she cannot change the questions, or their sequence. No freedom is given to add new questions or delete any question. The interviewer is strictly instructed to ask the pre decided questions in verbatim and also to record them.

The interview scheduled is prepared in advance. It contains open ended as well as closed ended questions. The question schedule may be given to the interviewee in advance so that he/she can prepare the answers. There is a difference between interviewing and interview schedule. Ranjit Kumar (1999) suggested that interview schedule is a tool to collect data while interviewing is a process/method of data collection.

As compared to unstructured interview this type generates uniform data. It does not need any professional skill to conduct interview sessions because of listed questions. It is required from interviewer that he/she should remain unbiased. The interviewer can be biased in the case of unstructured interview. The interviewer is supposed to give only clarifications on and when it is desired. Krishan Kumar also said that it should restrict to only clarifications and no suggestions be given. This type of interview can be conducted person-to-person or through telephone or by using electronic device.

Example

- 1) Do you make use of computers in your research?
 Yes
 No
- 2) Are you aware of the concept of invisible college?
 Yes
 No
- 3) Do you communicate with other scholars to seek information for your research?
 Yes
 No

12.3.2 Unstructured Interview

During the interview when the interviewer exercises autonomy in asking questions what ever comes to his/her mind on a particular research problem under investigation, is called unstructured interview. This type of interview can be conducted on one - to- one basis or with a group of interviewees. Unstructured interview may permit the interviewee to give responses freely or it may restrict free responses. Hence, the interviewer asks the respondents only such questions, which comes under the area of research problem. There are no set typed questions. One question leads to another and so on. The main aim of the interviewer is to get personal viewpoint of the respondents on a given topic

The interviewer should keep interview guide/schedule with him/her at the time of the interview. It helps him/her to know the areas to be covered and it also provides guidelines for smooth conduct of interview session.

Interviewer is free to ask additional questions and also repeat or delete questions as mentioned in the guide. If he/she feels some questions are not very clear he/she can exercise full freedom to change or reward it. At the time of the interview if it is felt that putting certain questions or changing the sequence may yield some useful results, interviewer can do it freely. On the respondent's side, they are given opportunity to give their views, opinion freely on the questions asked. An effort can be made during interview to encourage them to speak freely. This flexibility helps generating spontaneous, useful responses on the area of research. Unstructured interview is easy to conduct but difficult to analyse the results. Reason is that no two interviews reveal same type of responses. On same questions you may get different responses. This type of interview calls for sufficient knowledge background, good interviewing skills, command on language; and ability to convince the respondent to answer. This type of interview demands specialised training to be imparted to the interviewer/researcher to get best results.

Unstructured interview is also called in-depth interview. It is also said that this type of interview is best suited to those situations where very little is known. Such interviews aim to elicit information from the respondents which otherwise may not be procured. Kothari (2004) opined, "Depth interviews are designed to discover underlying motives and desires and are often used in motivational research. Such interviews are held to explore needs, desires and feelings of the respondents."

Depth interviews can be projective or non-projective in nature. Projective depth interview includes such type of indirect questions, which are related to interviewee's behaviour, attitude towards the subject of study. Both types of depth interviews can generate data, which may be useful in understanding the behaviouristic attitudes of people under study.

Examples

- 1) How do you keep up-to-date in the field of your research?

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- 2) Would you like to delegate search for information?

Yes

No

3) If yes, give reasons.

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4) If no, give reasons.

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12.3.3 Focussed Interview

Focussed interview is conducted basically to get focussed, in depth information on any given issue from the respondent. It is one of the types of unstructured interview. The main task of the researcher in such type of interview is to involve the respondent in discussion on specific topic so that the researcher gets desired information. Here the interviewer has the freedom to decide the questions and their sequence. Kothari (2004) is of the opinion that such interviews are helpful in the development of hypothesis. Here the information is gathered from the respondent's area of experiences, effects, participation, etc. Here the interviewer is not only properly informed about the area of research but he/she also be knowledgeable and skilled to get required information from the experiences, background of the respondent which has a direct bearing on the topic under study. The selection of respondents is done on the basis of knowledge experiences of the respondents on the area of study.

12.3.4 Non-directive Interview

Interviewer in this type of interview acts like a catalyst. He/She prompts the respondents to give information on the topic under investigation. Like in focussed interview here questioning is very less. But the area(s) to be covered remains under the control of the interviewer. He/She is supposed to give free environment to the respondents so that they can express their views freely and to the point; the interviewer simply supports the views expressed by the respondent instead of approving or disapproving them.

12.3.5 Clinical Interview

This type of interview also comes under the category of unstructured interview. Adams and Schvaneveldt (1985) reported that this type of interview has been used in social care work, counselling and prison setting, and is also called personal history interview. This type covers basically the feelings, life experiences, of the respondents. The interviewer has the freedom to interact freely with the respondents to elicit the information on the given topic. This type of interview is flexible and it includes introductory questions as well. Here the respondent can also give new information on related factors and elaborate on them. It may prove very helpful in predicting, analysing, and concluding on some areas. The area under investigation, its objectives, scope are the main determinants of selection of questions and area to be covered in the clinical interview.

12.3.6 Telephonic Interview

As the name suggests this type of interview is conducted on phone. You need a telephone connection and an instrument, a phone directory and a set of questions to be asked. It is best suited for market type of survey, poll, etc. The main advantage of this type of method is to get data very fast without wasting time on visiting the respondents. It does not require special skills to conduct the interview session. Telephone interview is a faster and cheaper method for obtaining information. Extra staff i.e., field staff is not required in this method. Moreover, it is very flexible in comparison with mailed questionnaire method. Non-response percentage is very low in telephone interview. On the other hand, long distance calls, number of calls, length of call time adds to its cost. There is a possibility of many respondents not having a connection. The voice quality or the connectivity may also pose problems. For short conversation it may be ideal but lengthy conversation may not be liked by the respondents. It is very difficult to find out doubtful information provided by the respondent. Like mailed questionnaire the personal touch will be missing in this type of interview also. If respondents do not wish to talk to the interviewer or do not cooperate it may turn a disaster for the researcher.

Self Check Exercise

2) What do you understand by clinical interview?

- Note:** i) Write your answer in the space given below.
 ii) Check your answer with the answers given at the end of the Unit.

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12.3.7 Computer Assisted Telephone Interviewing (CATI) System

The increasing use of information technology has changed the traditional scenario of conducting surveys. It has definitely eased the efforts and enhanced the quality of research with minimising time.

Now, you can see that software companies have introduced many software programmes to facilitate data collection, analysis, etc. Some of them are mentioned here for your information sake only. They are CAPI (Computer Assisted Personal Interviewing), CATI (Computer Assisted Telephone Interviewing), ACASI (Audio Computer Assisted Self Interviewing) WinCati System, Wincati Mixed Mode and Sensus Web, and many more to cite here.

CATI System is used to conduct telephone interview to gather data from number of respondents scattered all over the world. In this system computers are used to automate the activities done in the formal interviewing. In simple words, computers are used to conduct surveys. They keep control of questions, data, data entry, and data analysis. It can also facilitate the status of the study whenever it is required. It also helps in interview administration and monitoring. This system requires PC, which is linked through network to server where data can be stored centrally. Telephone, head set and of course set of questions to be asked, and telephone numbers of the respondent are required in this system also. Interviewer sits facing the computer screen, reads the questions and simply record by keying the responses.

Looking at the advantages of this system we should not underestimate the importance of human touch to the interviewing. For example, the proper wording of questions, sequencing their explanations, suggestions to the questions, and more importantly, convincing the respondent to answer the questions freely and frankly definitely generate credible responses from the respondents.

This system has many advantages:

- Uniformity may be maintained.
- Questions can be stored in the computer memory.
- Responses can be recorded directly into the computer.
- It eliminates the errors on the part of interviewers or in case missed questions
- Analysis can be done very fast.
- It helps in keeping automatic records.

In this Unit our main emphasis is on traditional way of interviewing. Hence, we will not discuss CATI system in detail.

Interviews are basically structured, semi-structured or unstructured. They can be formal or informal. Formal interview follows the rules and roles associated with this method where as informal does not follow any rule of interviewing and it seems casual and relaxed form of interviewing which removes the gulf between interviewer and interviewee. Formal interview is structured and informal is highly unstructured. Interviewing can be done one to one and in groups also. Telephone interview is the best example of one to one interviewing. In-group interview the interviewees are seen as focussed group and the interviewer acts as a moderator or facilitator.

Self Check Exercise

3) What are the infrastructure requirements for CATI system?

- Note:** i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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12.4 INTERVIEW PROCESS

In the foregoing sections you have learnt about the interviewing and its different types. In this section we will focus our attention to the process of conducting interview, which involves the preparation of plan of action to meet all types of contingencies, training of interviewers or field staff, preparation of interview schedule, selection of data recording system, pilot run of the interview, modifications for the final interview, conducting interview sessions and finally the data analysis.

Plan: In this stage the researcher plans the whole interview process, which includes the training of interviewer, time to be taken in the interview and the venue of the interview. It also takes into account the cost factor, travel time and wait around time. Field staff is required when number of interviewees is more. One principal interviewer/research assistant is not sufficient for the large number of respondents. Training of field staff/enumerator or research assistant is needed to successfully manage the interview session. In this process the interviewer will become aware of the questions and the instructions to be followed in the session.

Preparation of Interview Schedule: Interview schedule is a list of printed questions, set in some order or sequence, and the interviewer records the answers on the printed schedule during the interview session. Interview schedule is prepared in advance. People (researcher, interviewer, or simply the enumerator) who are going to take this assignment need practical training to conduct the interview smoothly. However, we cannot ignore the interviewer's bias towards the interpretation of answers. Through interview schedule the identity of the respondent is known to the researcher. The problem of low response rate is not faced in this method. However, information received from the respondent is recorded there only the ones which prove to be highly accurate. Through Interview schedules personal contact with the respondent can be established. This method can prove successful even when the target population is not educated. This method has some drawbacks also. Interviewer may be biased, if he/she is not well trained, then it will hamper the investigation and this method is not feasible when target population is geographically wide spread.

The researcher must keep in mind certain points while preparing interview schedule.

The researcher should be clear in mind regarding the objectives, scope of the research area under study.

The choice of closed or open-ended questions should be made.

Complex, emotional and sensitive type of questions should be avoided.

Format of the interview schedule should be attractive and it leaves sufficient place to enter the answers.

The sequence of questions should be finalised before conducting the interview session. It is preferable to put questions in logical order.

Relevant questions should be drafted on the basis of area of research.

Please refer to Unit no. 11 of this course to get detailed information on construction, and selection of open and close-ended questions. The Unit also discusses the relative advantages and disadvantages of both the types of questions.

Pilot Test of the Schedule: Before the actual interview process starts it is advisable to pre test the interview questions. A group of interviews should be selected for pilot study. This group should not be included in the proper study. Interviewer should request the selected respondents to give their suggestions/observations to improve the interview schedule. After getting the responses from the pilot study group the researcher should modify it accordingly. This practice is very important to get proper responses from the respondents.

Conducting the Interview: We all know that interview is an art. But for researcher it is the most difficult task. The researcher/interviewer has to manage multiple tasks at

one time. For example he/she is putting questions to the respondent, listening to the answers carefully, giving clarification, sometimes explanations, directions to clear the doubts of the respondents and recording the answers manually, or with the help of any electronic device (i.e., tape recorder). The interviewer is also keeping tap on time, the questions to be covered in the session, etc. It is a skilled job. The interviewer should be trained to undertake such job. Experience shows that this skill can be improved over time.

How an interviewer is conducting himself/herself in the interview session is very important. His/Her appearance, pleasing personality, behaviour, use of words, and knowledge of the area can make a lot of difference to the results. Body language can also affect the communication process. It may increase the level of comfort or ease of respondent.

Interviewer should not keep waiting the respondent. He/she should be punctual, polite and courteous. Before starting the actual interview session he/she should introduce the objective of the study and clearly explain the importance of contribution of the respondent in the research. The interviewer should listen more than talk. He/She should have listening skills. The main objective of the interview is to facilitate respondents to answer. So it is important that the interviewer should ask right types of questions prompting the respondent to answer and then properly recording the answers.

Guidelines for Conducting Interviews

- Interviewer should plan in an advance the venue, time, etc. of the interview session.
- He/She should have the friendly approach so that a proper understanding/rapport can be established between the interviewer and interviewee.
- He/She should have the ability to mobilise the respondent to answer freely and frankly on the subject.
- Questions should be well framed. Complex questions should be avoided. Such questions should be added which will elicit the desired answers.
- He/She should be properly trained to have proper control of the interview session. He/She should be responsible for creating a friendly atmosphere of mutual trust and confidence.
- He/She should not show any surprise or disapproval to the answers of the respondent but at the same time he/she should be supportive of the respondent answers.
- He/She should have friendly, courteous, unbiased approach.
- He/She should be non judgemental and should not try to change or influence the reactions or opinions of the respondents.
- The interviewer should not indulge in any argument, even though he/she may know that respondent's replies are not accurate.
- At the end of the interview session the interviewer must show gratitude for their cooperation. The respondent should get the feeling that they are actively participating in the research process and their views are valuable and important to research.

In addition to this Adams (1985) suggested three factors, which make an interview successful. They are:

“having a thoroughly tested questionnaire or interview form which to work;
being familiar and “wise” in the interview process;
treating respondents with trust, respect and courtesy”.

Recording the Interview: In the structured interviews where mostly the questions are closed ended, it is easy to record the responses on the interview schedule. This method is called **Note Taking method**. It is difficult for the interviewer to remember all the responses and enter at the end of the day. It is advisable for he/she to record accurately and fully whatever responses emerge after the session. In the Note Taking method no answer should be left blank if the respondent did not answer. In such situations it should be written “not responded”, etc. Some explanation should be recorded against unanswered questions Interviewer should also note the comments made by the respondent on the margin area near the questions. The explanations given by the interviewer should also be recorded separately question wise. These noting will prove highly useful at the time of data analysis.

In this method the interviewer should be extra careful. He/She should be questioning, listening, and recording the answers simultaneously. In the case of highly structured interviews use of tape recorder is not required. It may prove helpful in the case of open-ended questions.

For open-ended questions, writing the responses, which may be long, is not only difficult but time consuming also. In order to get the main substance of the answer recording of exact wordings is required. In such situation interviewer may make use of the **Tape Recording** method to have the verbatim copy of the answers. Data generated through audio recordings can be preserved and used later. The use of this method saves the time of the interviewer and the same can be utilised for further analysis and report writing. The only disadvantage of this method is that it may put respondents at unease.

At the end or in between the interview session if time and other conditions permit the respondents should be shown the marked responses. The openness, truthfulness and trust on the part of the interviewer may generate confidence in the respondent and he/she is prompted to cooperate with the interviewer. If the marked responses are not shown to them then they may get the feeling that something is being concealed from them and they may not continue the interview session. Such situations may play havoc not with the interview but with the research as such. For the case of tape recorded responses the transcripts of the recordings in verbatim should be shown to them for the confirmation of accuracy. It is expected from the respondent that he/she should not revise the answers.

Preparation of Verbatim Transcripts: After the interview the recordings are transformed into verbatim transcripts. This forms the primary material for research. Helen Finch (1990) is of the opinion that preparing transcripts is a arduous task. It is time consuming. It is better to give such task to some outside professional agency and the researcher can utilise the time elsewhere.

Analysis of Data and Report Writing: Analysing the qualitative data is a very difficult task. Same sets of questions receive diverse answers. Analysis of data and report writing will be discussed in detail in this course.

4) Enumerate different stages of interview method.

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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12.5 ADVANTAGES AND LIMITATIONS OF INTERVIEW METHOD

Advantages

- Through questioning in depth information can be obtained from the respondent.
- In personal interaction clarifications and explanations can be made.
- This is a very flexible method. Questions can be restructured to eliminate ambiguity.
- Through personal interaction complete responses can be obtained from the respondents.
- Personal information, as well as complex and sensitive information can be generated.
- Non-response percentage is very less. As compared to questionnaire method here participant rate is high.
- The interviewer may come across information, which is most spontaneous.
- Interviewer can remould the questions, change the language according to knowledge, educational background of the respondent.
- Many people do not want to answer questionnaires due to time constraints but at the same time they may very willingly face the interview session. It takes less effort and time of the respondent.
- Quarterly data can be retrieved from interview session.
- Through personal interaction the interviewer can observe the respondent's reactions, body language, facial expressions vis-à-vis a particular question. These expressions help the researcher/interviewer to reword or remould the questions spontaneously. Some of these reactions, if observed carefully, may prove useful at the time of analysis.
- Face –to –face or group interaction gives respondent the feeling of direct participation in the research process.
- Conducting interview is an art. A properly trained interviewer can make the respondent answer even sensitive, emotional and sometimes complex questions with ease. Information gathered from this method can be supplemented to the original findings of the research.

No method is fool proof. There are some inherent weaknesses, limitations associated with this method. Some of them are mentioned below:

- It is a very time consuming as well as very expensive method especially when the target population is big in number and widely spread over a geographical area.
- There is a possibility of biased analysis, interpretations from the side of researcher or interviewee. Biased reactions can also be received from the interviewee. Age, class, race, gender, social status, etc. can play crucial role in generating biased opinions from both the sides. Biased reactions, analysis and interpretation can hamper proper research results.
- If the interviewer/ researcher is not skilled, trained in the art, he/she may not able to conduct successful interview session with proper control.
- There is a possibility if majority of the target population consists high and top-level management groups, executives, therefore this method may not prove approachable to such clientele. Getting information from such people is not under the control of interviewer.
- Proper training, selection and supervision of the interviewer are very essential to this method.
- Getting free, frank responses from the target population is not a easy task. Establishing proper rapport with the target group is very difficult requirement.
- Information received from this method is difficult to analyse. Same set of questions may receive diverse responses.
- Interview method may call for some errors, which are difficult to eliminate.
- The use of computers in data collection has its own set of limitations. Infrastructures, connectivity, knowledge to operate such system are some of the essential requirements. Without them the system may not run.

Interviews vary in form and purpose. Each type has its own advantages and limitations. However in any given situation one type of interview may yield excellent results and it may not prove fruitful in some other situation. We all know that interview is an important tool of survey research. In the following section we will learn the inherent advantages and limitations of this method. Adams has rightly said, “It is a most sensitive device for the acquisition of reliable valid data.”

12.6 SUMMARY

In this Unit we have studied the interviewing as a tool for data collection. This method can be useful when it is combined with questionnaire, observation, case study method and especially in user studies will definitely add qualitative analysis to the interpretation of results. Interviewing in one of the methods of getting data under primary sources. Each method of data collection has its own merits and demerits. The success of interviewing method is dependent upon the target population, trained/skilled and knowledgeable interviewer. Like other methods this method also cannot generate 100% accurate results. This Unit elaborates in details different types of interviews, the process of interviewing, the guidelines to be followed and finally the chief merits and limitations of this method. The construction of research instrument is the key aspect in conducting the research. This tool will generate the primary and quality information for analysis.

This instrument may be designed keeping in view the target population, the objectives, and scope of the research.

Interview is an expensive as well as time consuming tool but at the same time it can be used as an excellent mode of communication between interviewer and interviewee. Personal, complex, confidential types of information can easily be gathered from the respondents.

Busha and Harter (1980) have said that some investigations give more weight to the interview method than questionnaire method. The reason they likely give that the former generates more complete answers.

Interview is a data-gathering device, which elicits answers or information from a respondent to the already printed questions or spontaneous questions from the interviewer. Interview may be structured, unstructured, and telephonic or computer assisted, consisting of open or close-ended questions. Any type of interview is basically to get information from respondents on information on themselves, their experiences, their views, expressions, attitudes, etc. The purpose(s) for which interview method is used differs considerably. Use of interview method in survey research signifies its utility and flexibility. The presence of researcher and respondent and interaction between them has a great influence on both the quality and quantity of response(s) generated from respondent.

12.7 ANSWERS TO SELF CHECK EXERCISES

- 1) Interview method is a very common tool of data collection in survey research. One author has equated this tool with the surgical instrument in medicine. Through this method qualitative data can be collected which will supplement the research findings.
- 2) Clinical interview is one of the types of unstructured interviews. This type is being used in social work, counselling and prison setting. This is also called personal history interview. This interview is used to get data on the personal feelings, life experiences of the respondents.
- 3) For CATI system one requires PC which is linked through network to server, telephone line connection, head phones set of questions, list of respondents to be interviewed.
- 4) Stages of Interview Method are:

Planning the interview process, construction of Interview Schedule, pre testing the schedule, recording the answers, preparing the transcripts, data analysis and finally, the report writing.

12.8 KEYWORDS

Personal Interview : It is a face – to face interaction between researcher and respondent.

Interviewer : It is the person who is asking questions. He or she may be a research assistant or a researcher himself/herself.

Interviewee : It is the person who is being asked questions on a particular research problem under investigation. He or she may be called respondent or target population.

CATI : It stands for Computer Assisted Telephone Interviewing. In this system computer is used to conduct interview.

Interview Schedule : List of printed questions for seeking answers from the respondents. Interviewer records the responses on it.

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UNIT 13 EXPERIMENTAL METHOD

Structure

- 13.0 Objectives
- 13.1 Introduction
- 13.2 Research Problem Appropriate for an Experiment
- 13.3 Parts of an Experiment
- 13.4 Steps in Planning an Experimental Research
- 13.5 Laboratory Experiment and Field Experiment
- 13.6 Experimental Research Design
- 13.7 Advantages, Disadvantages and Limitations of Experimental Method
- 13.8 Summary
- 13.9 Answers to Self Check Exercises
- 13.10 Keywords
- 13.11 References and Further Reading

13.0 OBJECTIVES

After reading this Unit, you will be able to:

- understand the basics of experimental method;
- know the definitions of parts of experiments;
- get acquainted with the steps in planning experimental method; and
- understand the importance of experimental design.

13.1 INTRODUCTION

Webster's Dictionary states the meaning of the term experiment as:

- trial made to confirm
- to disprove something
- operation undertaken to discover some unknown principles or effect
- to test some suggested truth
- to demonstrate some unknown truth
- conducting of tests.

These points emphasise the seriousness of the experimental process to find out the truth. Further Greenwood elaborately describes that "An experiment is the proof of hypothesis which seeks to hookup two factors into a causal relationship through the study of contrasting situations which have been controlled on all factors except the one of interest, the latter being hypothetical cause or hypothetical effect".

Experimental research is one of the basic methods of research specifically in the field of physical sciences. This is useful for tracing the cause and effect relationships. Normally experiments are carefully planned and conducted to record the results through observations under controlled conditions.

It involves independent and dependent variables. It aims to study the effect of an independent variable on a dependent variable. Experimental approach provides an answer as to why certain phenomenon occurs or what happens if a particular factor is changed.

Why we need Experiment?

Experiment requires special efforts. It is often difficult to design and also it is time consuming. So the question arises why one should take such a trouble? Why not simply observe/survey the phenomenon? The fundamental weakness of any non-experimental study is its inability to specify the cause and effect. It can only show correlation between variables but correlation alone never prove causation. Experimentation is the only way which can show the effect of an independent variable on dependent variable. In experimentation, the researcher can manipulate the independent variable and measure its effect on the dependent variable. Moreover, experiment provides the opportunity to vary the treatment in a systematic manner.

Experimental Method in Social Sciences

There is a question on the possibility of conducting experiment in social sciences as comfortably as in the case of physical sciences. It is true that the experimentation in social sciences is not as effective as physical and chemical sciences. In physical and chemical science the experiments can be repeated endlessly under controlled and practical conditions. Where as in the case of social sciences it is impossible to repeat the experiment under varied conditions. Though true experimentation in social sciences may be of minor importance, the recent developments in the application of statistical methods to social problems have brought-in enormous changes.

Experimental method connotes laboratory situation. How it is possible for social scientists to bring a piece of society in to the laboratory? And how to observe its behaviours in a test tube under varied conditions? If it is true, then the question comes does the astronomer bring the solar system in to the laboratory?

Though this kind of controversies are still prevailing, the research techniques and tools have improved considerably to tackle the issues. Hence, the fast development of scholarship in social sciences on the strong footings of scientific method.

13.2 RESEARCH PROBLEM APPROPRIATE FOR AN EXPERIMENT

Experimental research in library and information science covers areas such as testing of new tools and techniques for developing, designing, maintaining and utilising the total collection of the library. It is also possible to identify inadequately conceived ideas, until not known or not observed phenomena along with exploring the conditions under which certain phenomena occur in library and information science. The growth and development of the library over a period of time is revealing the fascinating changes that have occurred from time to time. Understanding of these changes and their implementation in different situations, naturally leads to explore newer experimental research approaches.

13.3 PARTS OF AN EXPERIMENT

It is essential to know here the parts of experiment to understand better the process of experimental research. Some of the identified parts of an experiment are subject, experimental group, control group, treatment, independent variable, dependent variable, pretest, posttest and random assignment.

Variable

A variable is a changeable element in phenomena. Variables are divided into two types;

Dependent Variable

Independent Variable

- **Independent Variable**

is an experimental variable, which is manipulated in an experiment it is also known as causal variable.

- **Dependent Variable**

is a subject variable associated with control group. This is also known as effect or criterion variable.

Experimental group

The subjects who are randomly assigned to get the treatment are called experimental group.

A treatment

A treatment is the condition that is applied to experimental group of subjects. In the case of library and information science treatment covers the facilities developed to provide more easy access to the scattered information in the form of an index, catalogue, bibliography, current awareness lists and abstracting services. Even user education and information literacy programmes can be considered as the treatment aspects.

Random assignment

In an ideal experiment all the factors that might affect the outcome of the experiment (the dependent variable) are controlled by the experimenter. This is more possible in the case of natural sciences where as in social sciences, complex subjects matters pose the problems of identification of variables and their control. Therefore, to overcome this problem the concept of randomisation is used. This randomisation is nothing but assigning subjects to experimental and control groups at random. Random assignment is a requirement of statistical tests of the significance of experimental results.

A subject

A Subject is a basic unit on which the experiment is conducted. This varies from discipline to discipline. In the case of library and information science or for that matter social sciences subjects are often people – patrons, librarians or users.

Control Group

Control is central to experimental research. This helps in distinguishing the experimental research from other methods of research. Control group is that on which the experiments are not conducted. Control group helps in the process of comparison. Even the treatment is not applied to control group.

Cause and effect relationship

The results of the experiment showing the influence of manipulating the independent variable (cause) on the dependent variable (effect).

Pretest

The measurement of dependent variable after the random assignment of subjects to experimental group and control group is called pretest.

Posttest

The measurement of dependent variable for experimental and control groups after the pretest and introduction of treatment is called posttest.

13.4 STEPS IN PLANNING AN EXPERIMENTAL RESEARCH

Experimental research is to be planned carefully considering all the details so as to obtain the best possible results from the experiment. The experimenter is supposed to bear in mind the following steps while planning the experimental research.

Selecting the Problem

Selection of the problem suitable for experimental method has to be done very cautiously. The elaborate study of the literature related to the field and the successful application of experimental method for the collection of data will give good insight. Another factor is that the possibility of manipulating independent variable to study its effects on the dependent variable has to be cautiously decided. It is true that all problems cannot be approached through the experimental research. Therefore, only such problems which are amenable for experimental research are to be taken for investigation. In the case of library and information science problems like compatibility of different indexing systems, classification codes and also methods of innovative teaching to enhance the performance among the library and information science students can be the best examples to be tackled through experimental research.

The selection of the problem is followed by the formulation of hypothesis, with conceptual clarity and fixing of the place, time, duration and materials for the experimentation. Further, proper attention is paid in deciding the subjects and groups on which the experiment is going to be conducted.

Selection of Setting

Experiment in the laboratory environment will have an automatic setting, where as in the field experiment environment natural setting has to be selected. Usually the important factors that are to be considered for a good setting are as follows:

- the environment conducive to the phenomena be studied;
- the phenomena must occur in the setting so that organising the experiment is possible;
- the researcher has to have all skills and techniques to manipulate independent variables as well as the knowledge of controlling the other factors which might come in the way of experimentation; and
- there should be enough freedom for the researcher to access and publish the data.

Pilot Study

The pilot study is a pre-requisite in all serious research activities to find out the realities. It gives an idea to the researcher to understand and clarify number of doubtful factors involved in the experiment. As a result the experimenter will be in a sound position to conduct the experiment and convince the authorities as far as the successful conducting of experiment is concerned.

Research Design

This is a rough layout of the total structure of the experimental research. Research design involves enumerating the independent and dependent variables and gives the direction to the researcher to manipulate the situation. Further, research design also

helps in selecting control groups, experimental groups, random assignment of subjects to eliminate the personal bias and problem of choice and also measurement of the effect manipulation of independent variable, repetition of experiments to confirm, etc.

Conducting the Experiment

The following are the important steps normally used in conducting the experiment:

- controlling the variable or non-experimental factors;
- manipulating the independent variable;
- measurement of experimental results;
- analysing, classifying and interpreting the findings;
- cross checking the findings with the existing facts;
- drawing conclusions from the findings; and
- reporting the results.

Evaluation of an Experiment

Evaluation forms an important component in experimental research. The evaluation consists of hypothesis(es) testing, identifying the experimental error, sensitivity, internal validity and external validity.

Experimental research usually starts with the formulation of null hypothesis and testing the same. Null hypothesis asserts that within the specified limits of credibility the control and experimental groups are essentially equivalent. A test of null hypothesis intends to show that the experimental variable has not effected any change in the value of dependent variable. For the purpose of testing a null hypothesis, the tests like T tests, Chi-square test and analysis of variance are used according to the need.

The sensitivity of an experiment is its ability to detect relatively small effects. To increase the sensitivity of an experiment the investigator increases the number of subjects.

The experimental error is decreased by exerting additional control over the experiment. This is achieved by matching subjects on the basis of as many variables as possible.

The internal validity of an experiment is mainly estimated through answering the questions like: i) Are variables sufficiently controlled? ii) Has random assignment of subjects been employed throughout?

The external validity of an experiment is tested by answering the questions like: i) Can the results of experiments be generalised? If so, what is the population to which it can be generalised? ii) When a sample is taken, to what extent sample is repetitive for the target population.

Justification of the generalisation is easier in the case of field experiments. Because of the artificiality, the generalisation can hardly be justified in the laboratory experiment environment.

To conclude, the evaluation of experimentation findings is always in terms of reliability of the data, importance of experimental results and the extent to which the data can be generalised.

13.5 LABORATORY EXPERIMENT AND FIELD EXPERIMENT

An experiment can be defined as a form of experience of natural facts that occur following deliberate human intervention to produce change, as such it distinguishes

itself from the form of experience involving the observation of facts in their natural settings. This definition leads to think of two distinct types of experimentation. They are laboratory experiment and field experiment.

Laboratory Experiment

A laboratory experiment is an investigation conducted in a setting created specifically for the purpose. Here the researcher manipulates an independent variable and studies its effect on a dependent variable, keeping other variable constant.

Purpose of Laboratory Experiment

The main purposes of laboratory experiment are:

- to discover causal relations under uncontaminated conditions;
- to test the predictions derived from theory and other researches; and
- to refine theories.

Users of Laboratory Experiment

This method is useful not only in physical science research, but also in social science research. Even though experimentation on a social science problem has special difficulty, it can be used for a variety of problems. Studies such as information seeking behaviour, and use of specific types of documents, etc., can be approached through this method.

Merits of Laboratory Experiment

Laboratory experiment has several merits as listed below:

- It has the possibility of securing relatively complete control over extraneous factor(s);
- It can manipulate one or more variables and can study its impact on dependent variables;
- High degree of specificity can be achieved in operationalising the variable; and
- It yields precise results and it is replicable.

Demerits of Laboratory Experiment

- The greatest weakness of this method is probably the lack of strength of independent variables. Because, laboratory situation is artificial, so the effects of experimental manipulation are usually weak.
- This method is highly structured, thus limiting flexibility
- The results cannot be simply generalised to real life situations because various extraneous forces operate in the latter stage.

Field Experiment

This is an experiment conducted in a real life situation in which the experimenter manipulates an independent variable in order to prove the experiment. In comparison with laboratory experiment, a field experiment involves less control, because it is very difficult to foresee and control extraneous factor in the field.

Uses of Field Experiment

This is well suited to both testing of theory and finding solutions to practical social problems. It is useful for studying variety of social action programmes such as improving the work culture, productivity and increasing the efficiency in the professional performance.

The field 'experiment' will be more successful if preceded by a field study which gives a more thorough knowledge of the setting.

Merits of Field Experiment

Field experiment has several merits as listed below:

- The variables in a field experiment usually have a stronger effect than those of laboratory method, as the field situation is real. Realism increases with strength of the variable.
- This method is particularly appropriate for studying methods of social influence, social processes and social changes in real life setting.
- As this deals with the total life situation it is well suited for studying complex syndromes and social processes where inter-relationship among many analytical variables are involved.

Demerits of Field Experiment

- The major demerit of this method is the practical difficulty involved in the manipulation of independent variables and randomisation in many fields.
- Another weakness is the lack of precision, precise measurement in realistic situation is not possible as in laboratory method.

Self Check Exercise

- 1) Differentiate between the Laboratory and Field Experiments

Note: i) Write your answer in the space given below.

- ii) Check your answer with the answers given at the end of the Unit.

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13.6 EXPERIMENTAL RESEARCH DESIGN

'Necessity is the mother of invention', thus goes an adage. An inquisitive mind is always trying to search for new things. Then the feeling of need, identifying the deficiency and attempting to improve the situation all contribute to create the experimental attitude which is required for experimental research.

An experimental design involves two groups of subjects. Of these, one is the control group, which is not subjected to experimentation, while the other is the experimental group on which experiments are performed. At a time, a single variable is added in the case of the experimental group to check if its presence produces a change in the condition of this group. The operative rule of experimental design is to vary one circumstance at a time maintaining all other circumstances unchanged. This is known as the law of the single variable, which has to be satisfied in every experimental design to establish cause and effect relationship. Thus, adequate control is the essential factor of the experimental method of research. An experimental design is prepared to include the following elements:

- A problem that can be solved;
- Experimental factors;
- The best type of set-up for experimentation;
- The operative rule, i.e. the law of the single variable;
- Measurement programme;
- The experimental design concerns the technical and organisational features, which define the experiment - the number of experimental groups, the way in which the groups are made, number and types of independent variables, any repetition of observations, etc. Such characteristics may vary greatly and when combined give rise to a multitude of possible experimental designs;
- In experimental design, experts have categorised four distinct designs which are as given below:
 - Before – After or Pre test experimental design;
 - After only or Post-test only experimental design;
 - Quasi – Design or Post-facto experimental design; and
 - Special design or Mixed design.

Before-After or Pre- test- Post-test Experimental Design

This is normally called classical experimental design. It is more reliable and it represents the so-called four-cell design (Fig. 13.1). Here, before experimentation all the groups are selected, observed and measured. There is one independent variable - the treatment - and one dependent variable. Subjects are assigned randomly to the control group and experimental group. Then the dependent variable is measured for both the groups. After pretest, the treatment is introduced to the subjects in the experimental group only. The dependent variable is then measured again for both the groups and compared. This is the Post- test. This design suffers from one limitation, that is, it does not ensure to be free from the influence of external factors.

	Value of Dependent Variable Before Treatment	Value of Dependent Variable After Treatment
Control Group		
Experimental Group		

Fig. 13.1: The Four-Cell Experiment Design

After-only or Pre-test only Experimental Design

In this type of design the study is carried out under social conditions, which are not at all in the control of the physical or natural conditions. Two groups of subjects, who are similar in all conditions, are chosen. One is called experimental group and the other is called control group. Experiment is carried out on the experimental group as per the

pre-determined method. After the prescribed period both groups are observed and the results are measured. The results are compared and changes that are observed in the experimental group are recognised as a result of manipulating the variable in the experiment.

Quasi or Ex-Post Facto Experimental Design

The name of the quasi experiment has been given to those situations in which the experimenter cannot randomly assign subjects to experimental groups, but can still manipulate the independent variable. However when even such manipulation is impossible - that is to say, when the stimulus is also beyond the control of the researcher – we can no longer speak of experimentation, what we have is purely and simply, an analysis of co-variation. Never the less there are research situations which, although lacking both features of experimentation (i.e. randomisation and manipulation) involve a design that closely resembles that of experimentation. Such designs are called *ex post facto*.

‘*Ex Post Facto*’ is a Latin phrase which means ‘done or made after a thing but retro action upon it’. In this the experimenter does not achieve the change which studies, he invariably chances upon the effect after it has already occurred. In Library Science, children reading habits and behaviour of a fresh reader in the library can be studied with the application of this design.

Special design (Mixed Design)

There is a special design called multifactor - between subjects design (also called mixed design). Where one factor is between and the other is with-in. This design demands as a pre-requisite, computer programme and the statistical consultant. This kind of mixed designing is used in a situation where the experimenter:

- needs power;
- wants to generalise the results to real life situation where people are bound to get more than two levels of the treatment; and
- feels that order effects are not a problem.

Self-Check Exercise

2) Enumerate the different experimental designs.

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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13.7 ADVANTAGES, DISADVANTAGES AND LIMITATIONS OF EXPERIMENTAL METHOD

Experimentation has two basic advantages; firstly it is the research method that best enables us to tackle the problem of the causal relationship; secondly it allows isolation of specific phenomena, which could not be studied, systematically in their natural setting, owing to the presence of other factors that hide, confuse and distort them.

Advantages

- Its power to determine causal relationship is much better than that of all other methods.
- The influence of extraneous variables can be more effectively controlled.
- The element of human error is more reduced.
- More conditions may be created and tested in this method.
- This method yields generally exact measurements and it can be repeated.

Disadvantage

- It is very difficult to establish comparable control group and experimental group.
- The scope of experimentation with human beings is extremely difficult.
- Experiment is often difficult to design as it tends to be expensive and time consuming.
- Experimentation can be used only in studies of the present but not in studies relating to the past or future.

Limitations

- Experimentation is applicable to certain phenomena and certain social situations.
- Experimentation cannot be conducted if the independent variable cannot be manipulated.
- This approach is generally suitable to 'micro' issues (involving interpersonal relationships) rather than to 'macro' situations (on account of the difficulty of manipulating institutions or social groups).

Self-Check Exercise

3) State the advantages of experimental method.

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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13.8 SUMMARY

We have seen so far a brief description of experimental research method and its different aspects. The use of experiment to collect the data for testing the hypothesis(es) is a hallmark of research in physical and chemical sciences. The literature review reveals that there is an increasing application of experimental method in recent years in library and information science research.

Experimentation is a social research technique well suited for specific issues, group analysis and dynamics of interaction among individuals and all those phenomena that occur in limited segment of space, time and number of persons involved. Cause – effect relationship is the very basics of scientific reasoning. In social science, experiments can be sub divided into laboratory experiments and field experiments, in the first case the experiment is carried out in an artificial situation, where as in the second a real life setting is used. Laboratory experiments can be classified in to impact studies, judgements studies and observational studies.

Four cell experimental design is a popular design in the field of research. Generally identified experimental designs are:

- Before – After or Pre test experimental design;
- After only or Post-test only experimental design;
- Quasi – Design or Post-facto experimental design; and
- Special design or mixed design.

13.9 ANSWERS TO SELF CHECK EXERCISES

- 1) The difference between Laboratory experiment and the field experiment is simple. Usually the laboratory experiment is conducted in an artificial situation. Where as the field experiment is carried out in a real-life setting.
- 2) Before – After or Pre test experimental design
 After only or Post-test only experimental design
 Quasi – Design or Post-facto experimental design; and
 Special design or Mixed design
- 3) Advantages:
 - Its power to determine casual relationship is much better that that of all other methods
 - The influence of extraneous variable can be more effectively controlled
 - The element of human error is more reduced
 - More conditions may be created and tested in this method
 - This method yields generally exact measurement and it can be repeated.

13.10 KEYWORDS

Variable	: The treatment variable
Null Hypothesis	: Hypothesis, that there is no evidence that the treatment has an effect
Experimental Hypothesis	: A prediction that the treatment will cause an effect
Randomisation	: A tool used to establish internal variability
Mixed Design	: A special design where one factor is between and the other is within.

13.11 REFERENCES AND FURTHER READING

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UNIT 14 CASE STUDY

Structure

- 14.0 Objectives
- 14.1 Introduction
- 14.2 Case Study
 - 14.2.1 Definition
 - 14.2.2 Characteristics
 - 14.2.3 Importance
 - 14.2.4 Uses
 - 14.2.5 Advantages, Disadvantages and Limitations
- 14.3 Research Problem Appropriate for a Case Study
- 14.4 Research Design in Case Study
 - 14.4.1 Selection of an Object for a Case Study: Essential Precautions
 - 14.4.2 Sources of Data
- 14.5 Steps Involved in Case Study Method
 - 14.5.1 Skills Needed for a Researcher
- 14.6 Case Study and Case Work
- 14.7 Case Study and Other Methods
- 14.8 Summary
- 14.9 Answers to Self Check Exercise
- 14.10 Keywords
- 14.11 References and Further Reading

14.0 OBJECTIVES

After reading this Unit, you will be able to:

- understand the meaning of case study method of research;
- delineate the sources, procedures and steps involved in conducting the case study method;
- know the relation of case study method with other methods of research; and
- apply the case study method in library and information science research.

14.1 INTRODUCTION

Case study method is an important method of social research. This method is extensively used in sociology, education, political science, public administration, management and psychology. Library and information science is not an exception to it.

The staunch advocates of this method were Frederick Le Play (1806-1882) a French Social reformer and Dr. William Healey. Case study is a deep intensive study of particular social unit. It is recognised as a versatile device for research in providing

an insightful explanation about a phenomenon that other methods will find difficult to match. However it is often talked that the potential of case study has been over shadowed by lack of validity, reliability and generalisability. This method is also considered as a diagnostic study oriented towards finding out what is happening and why is it happening and what can be done about it. Further it enables to determine social process revealing the complexity of factors and indicate their sequence along with their inter-relationships.

14.2 CASE STUDY

14.2.1 Definition

Charles H Cooley says that ‘Case study deepens perception and gives a clear insight into life.’ Pauline Young opines that “it is a method of exploring and analyzing the life of a social unit-be it a person, a family, an institution, cultural group or even an entire community.” Goode and Hatt say “Case Study is a way of organizing social data so as to preserve the unitary character of social object being studied.” According to F.L. Whitney, “Case study is a complete analysis and report of the status of an individual subject with respect as a rule to specific phases of his total personality.” Another social scientist compares the case study as equivalent of the spotlight or the microscope that takes, as its subject, one or more selected examples of a social entity such as organisations, work team, events, and roles or relationships. Each case is studied using a variety of data collection techniques such as analysis of administrative records and documents, in-depth interviews, structured interviews etc.

The definitions stated above lead to suggest that the case study attempts to explain holistically the dynamics of certain historical periods of a particular social unit. Case studies are also useful in formulation of policies and procedures including planning for the enterprises, service sectors and organisations. Case study as a research strategy is considered as a vehicle in providing rich description of events from more than one perspective which other research strategy such as survey or experiment cannot possibly provide.

Library and information science like other disciplines of social sciences is having number of examples of case studies. The purpose of case studies on individuals and institutions is almost invariably fact finding. Normally case studies are helpful in providing the solutions to management problems and enable the researcher in planning new information services or remodeling the earlier ones.

14.2.2 Characteristics

Some of the very important characteristics of the case study method are listed below:

- Case study is a deep, detailed and intensive study of a social unit;
- It is a method of qualitative analysis;
- It is a comprehensive study;
- In this study all the variables and traits are linked with one another;
- In case study, there are changes for wide variety of units to be selected;
- It preserves wholeness of the units i.e. it is an approach which views any social unit as a whole;
- In case study complex factors are studied; and
- Traits are the subject matter of the study.

14.2.3 Importance

Case study method is important in many ways. Some of them can be listed as follows:

- It helps in formulating valid hypothesis(es);
- It is of immense value in forming questionnaires and schedules;
- Discovering deviant units;
- It is intensive in nature; and
- It is very comprehensive.

14.2.4 Uses

- It helps to collect detailed information about the unit of study and gives clue to new ideas and further research;
- As a tool of analysis, it helps to ascertain a number and variety of traits, qualities and habits confined to a particular instance;
- It helps to identify the peculiarities of a case for observation;
- Case Study method shows the way to deepen our perception and sharpen insights to understand biographies; and
- It is often useful to advance a new interpretation.

14.2.5 Advantages, Disadvantages and Limitations

Advantages

Case Study is a deep and diagnostic study. It is acclaimed as a useful research technique. Many expert researchers in social sciences have assessed the importance of case study research. The following are some of the specific advantages of the case study:

- It helps to probe the entire life span of a social unit intensively and to analyse the complex factors that are influencing the social unit.
- Case data are vivid, absorbing and tend to reproduce a person's social attitudes and values.
- Case Study facilitates to understand every thing about a social unit and the variety of habits, traits and qualities combined in a social unit.
- Case Study helps to secure a detailed information about the growth of the unit, group structure, individual life pattern etc.,
- The relationship between individual and society is well brought out in the Case Study.
- Case Studies are indispensable for therapeutic and administrative purpose
- It is also easy to generalise cases with the case and helps prepare a plan of action for treatment.
- Case Study is followed for comparison, classification, and analysis and for the formulation of hypothesis leading to further research.

Disadvantages

Following are the few disadvantages of the Case Study method as stated by research experts:

- It is inefficient in situations, which are already structured where the important variables are identified.
- It often assumes that all the past experiences of the individual or past happenings in the situation have contributed to the final result.
- It depends upon the recall of others as to what had happened, thereby giving room for fallibility of memory.
- Usually undesirable traits being over-emphasised where by desirable characteristics given a low priority resulting in typical situation.
- There is possibility of getting disturbed due to incompleteness of data in certain circumstances.

Limitations

Case Study method has been criticised for several reasons. Numerous debates have taken place about case study as regards to its value and validity. Still the method has contributed considerably to the field of social research. Following are some of the limitations commonly attributed to case studies:

- Does not provide universal impersonal and common aspects of a phenomenon
- Tendency for a researcher to draw generalisation after studying a few cases, which may not be relevant to all situations
- Tendency to over-emphasise the unique or universal events which are seldom comparable
- Collected subjective data do not lend themselves to quantitative check
- Time consuming, costly and wasteful in certain cases
- Sometimes case study is loose and unsystematic and the generalisations drawn from few cases are not always accurate
- Temptation to ignore the basic principles of research design is often seen

Self Check Exercise

- 1) Explain the significance of case study method.

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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14.3 RESEARCH PROBLEM APPROPRIATE FOR A CASE STUDY

Case studies in library and information science cover the varied category of library users, library personnel, institutional libraries like academic, research, and public libraries including national and children libraries. It is to be clearly understood that case studies allow close examination of unique problems of individual or group situations-which other methods do not readily permit. Library is a social institution with the committed societal responsibility. Case study approach to investigate related problems –that is, their social control, performance, and impact on society-is the appropriate approach. Number of researchers in the subject have employed case studies approach and achieved varying degree of success.

According to Busha and Harter, the case study is particularly suitable for gathering extensive data about a single research object and this allows a concentrated attention on a single phenomenon and the utilisation of a wide array of data gathering methods. Sometimes questionnaire, schedule and interviews including observation methods are used to gather the varied data in case studies. Case studies are also useful in studying the institution like University library, assessing the contributions of the persons to the growth and development of the library, also the mechanisms devised to maximise the use of collected resources.

Case study method is suitable to tackle the research question calling for a response to ‘how’ and ‘why’. And also considered appropriate if the research focuses on contemporary issues. In library and information science the most important current issues that are amenable to case study research are:

- Library Automation;
- Impact of IT on Library and Information Services;
- Performance of Library Consortia;
- Growth and Development of INFLIBNET ;
- Evolution of Library Professionals from Gatekeeper to Gateways;
- Growth and Development of Information Skills; and
- Information Literacy in the Information Society etc.,

Further, case study like other research strategies can be applied in all phases of research and for all purposes of exploring, describing and explaining.

Case Study serves a dual purpose. While intensive investigation of a single case is often made for the purpose of increasing general knowledge of a given area, perhaps, more often than not, it is carried out with the ultimate purpose of making a practical improvement in the specific instance examined and only incidentally it contributes to the general knowledge. As a research method, it is examined with respect to the way in which it can help to solve scientific problems.

14.4 RESEARCH DESIGN IN CASE STUDY

The successful conduct of case study research is mainly based on the clear research design. As we know the research design is an action plan or a ‘blueprint’ of research that guides the researcher to proceed smoothly and produce the expected results. It also helps to connect the empirical data to research questions and ultimately to its

conclusions. According to Yin (1994), the research design in case study contains the following component parts:

- 1) A study's questions in terms of who, what, where, how and why;

These components are argued to provide a clue to the type of research strategy, which can be used in case study research.

- 2) Its propositions, (if any);

Study propositions help to direct research attention to matters that ought to be examined closely. This will guide the research in the right direction by providing further dues to what data to collect and from where data may be obtained.

- 3) Its unit of analysis;

This helps to define what the 'case' is and further focuses on a precise research question.

- 4) The logic linking of data to the propositions 'pattern-matching approach'; and
This is used for case study. This approach helps in putting together several pieces of information from the same case and relating to the some theoretical proposition.

- 5) The criteria for interpreting the findings;

There is no precise way of interpreting case study findings. Certain type of data in a case, such as statistical data, may be tested for its validity or variance. Other quantitative data such as independent and dependent variables may be analysed for their relationship. While time series data may be analysed for its trend quantitative data however, may require contextually innovative ideas for interpreting it. The nature of relationship between data such as 'positive' and 'negative' perhaps in one criterion and another would probably be in terms of its effects on the other such as sequential, circular, constant and temporal.

For the purpose of data collection and analysis Yin proposes two alternative strategies namely the strategy of relying on theoretical propositions and the strategy for developing a case description. The final part of the process is to prepare the report as the end product of the research. Thus produced report depicts the picture to the audiences or readers the contributions of the researcher to the field.

14.4.1 Selection of an Object for a Case Study: Essential Precautions

It is known that, a case refers to a unit of study. Unit is understood to be a family or social group, a class of persons, a set of relationships or processes. There are some essential precautions to be taken while choosing the object for case study:

- Selection of typical and representative unit;
- Identification of situations and problems;
- Time to be covered-the phase of life cycle;
- Unitary character of the unit-breadth of data, levels of data, use of indices and types;
- Quality of data;
- Availability of data and its reliability;
- Cost to be incurred;

- Time to be spent;
- Researchers courage, interest, skill and training in research; and
- Possibility to repeat the case study.

These precautions are to be carefully taken note of by the researcher to conduct the Case Study method successfully.

14.4.2 Sources of Data

Case studies are not limited to any single source of data. They employ a number of sources. The following are some of the identified sources of information for the case study method:

- Life histories;
- Personal records;
- Personal documents;
- Personal letters;
- Confessions;
- Biographies;
- Interviewing individuals; and
- Observations.

Life history is very essential in getting the actual experience and attitude of persons. The information collected may be cross-checked by conducting interviews and through observation. Briefly the entire life of an individual is studied, tested and enquired from the life history, letters including diaries, and correspondence. The hidden secrets of an individual, his way of life, the objects and the mode of life can be studied from these sources. Thus to collect reliable and accurate data researcher has to use various sources and techniques in case study method.

Self Check Exercise

- 2) What is the aim of case study?
- 3) Enlist the different sources of data for case study research.

Note: i) Write your answers in the space given below.

- ii) Check your answers with the answers given at the end of the Unit.

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14.5 STEPS INVOLVED IN CASE STUDY METHOD

Generally the steps involved in the case study method are:

- **Determining the present status** - Collection of descriptive information which enables to determine the present status of the unit selected for the study.

- **Collecting background information** - Gathering the information and examining the circumstances leading to the current status and also to list the possible causes or problems in the present situation.
- **Testing the suggested hypothesis(es)** - Collecting specific evidence about each of the hypotheses from the background information gathered. Since the behaviour is varying, investigator is not able to come up with a single solution for the breakdown of the situation.
- **Instituting remedial action** - Subsequent to the existing situation, some corrective or improvement programme should follow to check what effect the change has brought about.

Busha and Harter (1980) have suggested the following steps to conduct the case study successfully:

- The research object is explicitly identified and described at a level of explanation commensurate with whatever pertinent knowledge has already been produced about it.
- Information about the research object and the investigative task are then assembled and analysed, and relevant terms and variables are defined and described.
- The research question is stated or hypotheses are formulated appropriately-based upon available information and the body of theory related to the topic of the study (More often than not, case studies are based upon research questions rather than hypotheses; in any event, the research problem should be examined within the context of existing theoretical knowledge).
- An entity (case) is chosen as the specific object to be studied with reference to the research problem.
- The object of the study is then carefully observed, and if necessary causal factors associated with the observed phenomenon are identified.
- If sufficient research data is collected, the hypotheses may be tested with some degree of certainty; however investigators can be more certain when they select and examine similar cases (i.e. conduct follow-up case studies in the same problem area).

14.5.1 Skills Needed for a Researcher

Experts and scholar social scientists over a period of time have come to the conclusion that some specific skills are required to conduct the case study smoothly. They are listed as follows:

- Should be able to ask good questions and to interpret the answers;
- Should be a good listener and not be trapped by his or her own ideologies or preoccupations and be able to observe and sense more generally;
- Should be adaptive and flexible so that new encountered situations can be seen as opportunities, not as threats;
- Should have firm grasp of the ideas being studied whether it has a theoretical or policy orientation. Such a grasp reduces the relevant events and information to be sought to manageable proportions; and
- Should be unbiased by preconceived notions including those derived from theory. Thus person should be sensitive and responsive to contradictory evidence.

14.6 CASE STUDY AND CASE WORK

The terms case study and case work are often used in the social research. It is essential here to know the distinction between these two terms. Case study refers to the intensive investigation of a particular unit where as case work relates to the developmental and adjustmental procedure that follows diagnosis. Of course, these two terms are different facets of the same approach to problems, and as such are interrelated and essentially complementary. As M H Gopal says Case study is often understood as a method and sometimes as technique, and sometimes as an 'approach' to a social reality and occasionally, a mode of organising data in terms of some chosen units. He further states that it is infact a technique which considers all pertinent aspects of a situation, employing as the unit of study –an individual, institution or group, and intensively investigating it.

14.7 CASE STUDY AND OTHER METHODS

Case Study as a method of research has a potential to stand along with other methods of research. It was George Lundburg who called it futile to consider superiority or inferiority of different methods of research. He holds the view that "each has its place, and for a particular purpose, or at a particular stage of investigation, is best." In his opinion "Any method which achieves its purpose is valid for that purpose."

Scholars have agreed that there is much the same connection between case study and statistical method. They are interdependent and complementary. In some areas of investigation especially when prediction must be made quickly, statistical techniques have to replace case study. Sometimes, case studies may supply the raw data for latter statistical study. When an overall generic picture of a problem is needed case study steps in and statistical tools become its handmaid for interpreting and analysing the data.

One of the noted Social Scientist states that, "Critical or rigorous statistics grew out of one form of Case Study, that of the general Survey." Thus according to him, the general survey, one form of survey method is, but a type of case study. In fact the interview Schedule used to collect the data, sufficiently complete and detail, as well as arrayed with respect to some degree of unity is in a sense a case study. Therefore, case study method has a close relationship with survey method.

Case study, as a method of research, frequently employs more techniques than one. Thus for tracing the developmental process, it makes use of the historical method, wherever factual picture is needed it uses the descriptive method and it also relies on questionnaire, checklist and rating scales etc., to gather the data, and it looks to statistics at the classification and analysis stages. Even in the context of choosing the units for case study, the out come of the earlier case studies and the final processing and analysis of the material is to be treated by statistics. Thus, the case study has to go to statistics if its data are to reveal frequencies, types, trends, uniformities and patterns.

L.L. Bernard a noted authority in social science research expresses the view that "the case method corresponds roughly to the laboratory experiment, except, that the social case describes situations as they are, while the laboratory case describes conditions under artificial controls. Therefore it can be concluded that case study is the first step in scientific method and leads directly into statistical, method forming

the basis for its generalisations. It is also very close to schedule, questionnaire as well as experimental and historical method.

Self Check Exercise

- 4) Discuss the complementary role of the case study and statistical technique.

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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14.8 SUMMARY

Research goes beyond the securing of data for the purpose of information or publicity. It must help to explain causal relationships. Case study research involves an attempt to publish certain principles in the analysis of social situations, which the case studies will bring to light. In spite of the drawbacks of the case study method, research experts still use this method for conducting their research. Considerable attempts are being made by eminent research experts like Carl Rogers, Alfred Kinsey, John Dollard, Elton Mayo to improve the effectiveness of the method and to overcome those visible disadvantages and limitations. In library and information science the use of case study method in the contemporary research is increasing day by day. Goode and Hatt lament that “as against the analysis of individual traits alone, it is highly fruitful approach as yet insufficiently exploited by those who are currently doing research into research techniques”, M.H.Gopal rightly summarises the significance of case study method, that of given time, money and the right type of investigators, the potentialities of case study technique are immense, particularly in underdeveloped countries. If the ‘cases’ are chosen objectively, wherever possible by utilizing statistical devices and investigated intensively, it should be possible to formulate generalisations, whose validity would of course, depend on how representative the cases are. A wise combination of the case study and statistical techniques would perhaps make this tool highly significant in a vast country with multiple and inter related influences.

14.9 ANSWERS TO SELF CHECK EXERCISES

- 1) Case study method has been in use for many decades and has contributed to knowledge significantly. It is a viable strategy for research and can be versatile device for bridging the gap between the phenomenon and image that a researcher has about it. Case study is relevant in the situation where researcher has to answer for ‘why’ and ‘how’. It is considered appropriate if the research is focused on the contemporary events.
- 2) The aim of case study is to find out the factors that are account for behaviour pattern of the units and its relationships with the environment. In other words, the researcher using the case study method tries to understand the complex of factors that are operative within a social unit.

- 3) The possible sources of data for case study research are, life histories, personal documents of all types, confessions, biographies and interviewing individuals. Case studies are not limited to any single source of data collection. They employ a number of sources.
- 4) Case study and statistical approaches have been considered as rivals and not really mutually exclusive. They are in fact, complementary and both may be employed with advantage in the same project. While one analyses mass of data horizontally and otherwise, the other studies vertically a small number of individual cases in detail and as a whole-the number of units may be small but the total number of traits would be large. The two approaches have their significant role.

14.10 KEYWORDS

Case Study	: Intensive investigation of a particular unit.
Case Work	: Developmental and adjunct mental procedure that follows diagnosis.
Research Design	: A plan of action or a blueprint.
Trait	: Distinguishing feature in character.

14.11 REFERENCES AND FURTHER READING

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