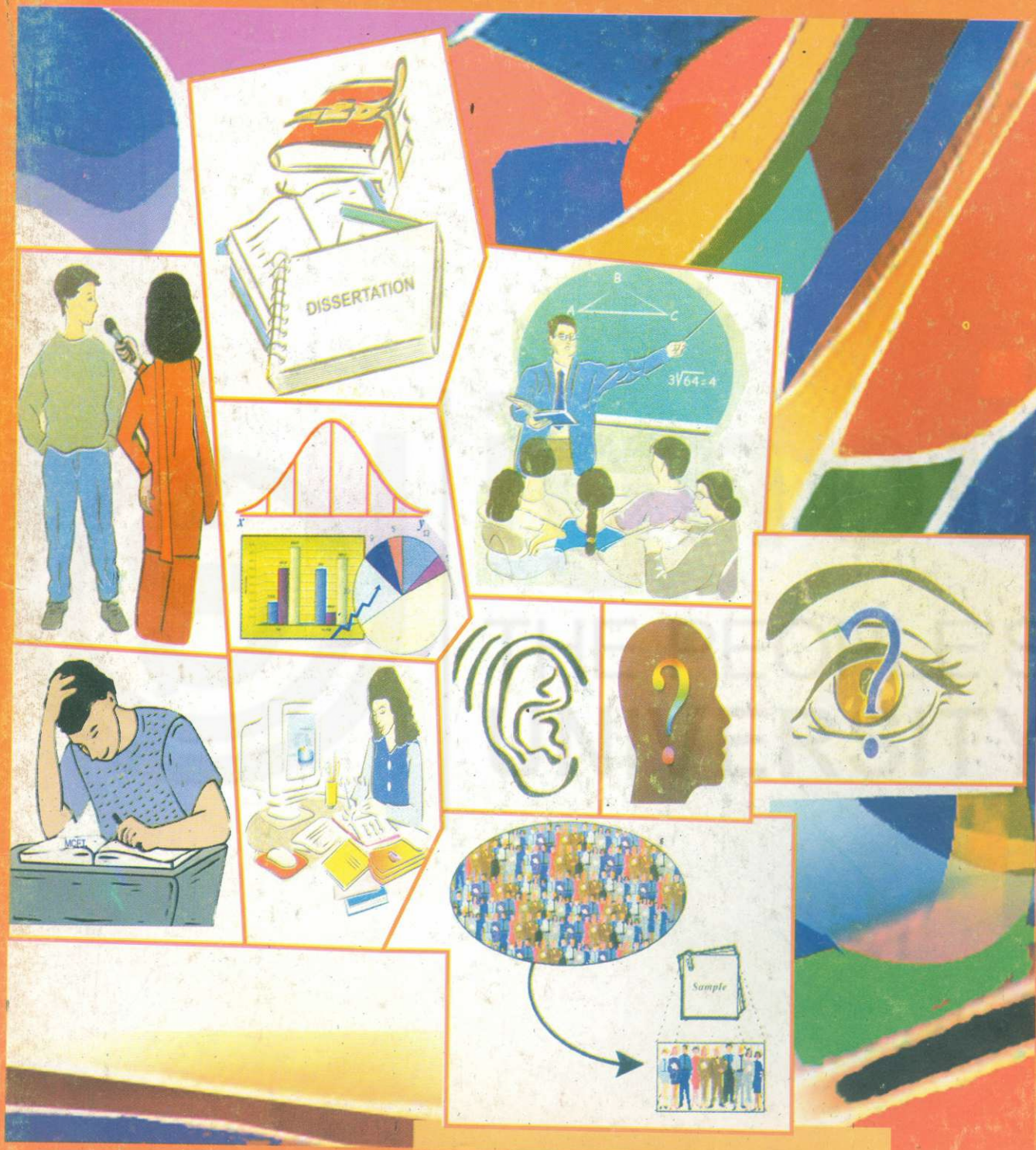


MCFT-005
Counselling and Family Therapy:
Research Methods and Statistics



**METHODS AND TECHNIQUES OF DATA
COLLECTION**

2

“शिक्षा मानव को बन्धनों से मुक्त करती है और आज के युग में तो यह लोकतंत्रा की भावना का आधार भी है। जन्म तथा अन्य कारणों से उत्पन्न जाति एवं वर्गगत विषमताओं को दूर करते हुए मनुष्य को इन सबसे ऊपर उठाती है।”

- इन्दिरा गांधी



“Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.”

- Indira Gandhi

Block

2**METHODS AND TECHNIQUES OF DATA
COLLECTION****UNIT 7****Sampling** 7**UNIT 8****Qualitative Methods** 27**UNIT 9****Quantitative Methods** 51**UNIT 10****Mixed Methods** 87**UNIT 11****Psychological Testing and Projective Techniques** 117**UNIT 12****Attitude Scales and Measurements** 138

EXPERT COMMITTEE

Prof. V.N. Rajasekharan Pillai (Chairperson)

Vice Chancellor

IGNOU, New Delhi

Prof. Reeta Sonawat
Dean & Head, Department of
Human Development, SNDT
Women's University, Mumbai

Prof. Mathew Verghese
Head, Family Psychiatry Centre
NIMHANS, Bangalore

Prof. Girishwar Misra
Department of Psychology
University of Delhi, New Delhi

Prof. Shagufa Kapadia
Head, Department of Human
Development and Family Studies
The M.S. University of Baroda
Vadodara

Prof. Manju Mehta
Department of Psychiatry
AIIMS, New Delhi

Prof. Ahalya Raghuram
Department of Mental Health
and Social Psychology,
NIMHANS, Bangalore

Dr. Rajesh Sagar
Associate Professor,
Deptt. of Psychiatry, AIIMS &
Secretary, Central Mental Health
Authority of India, Delhi

Prof. Rajni Dhingra
Head, Department of Human
Development
Jammu University, Jammu

Prof. T.B. Singh
Head, Department of Clinical
Psychology, IHBAS, New Delhi

Prof. Anisha Shah
Department of Mental Health and
Social Psychology, NIMHANS,
Bangalore

Prof. Sudha Chikkara
Department of Human
Development and Family Studies
CCS HAU, Hisar

Prof. Aruna Broota
Department of Psychology
University of Delhi
New Delhi

Prof. Minhotti Phukan
Head, Deptt. of HDFS
Assam Agricultural University
Assam

Mrs. Vandana Thapar
Deputy Director (Child
Development), NIPCCD
New Delhi

Dr. Indu Kaura
Secretary, Indian Association for
Family Therapy, New Delhi

Dr. Jayanti Dutta
Associate Professor of HDCS,
Lady Irwin College, New Delhi

Ms. Reena Nath
Practising Family Therapist
New Delhi

Dr. Rekha Sharma Sen
Associate Professor
(Child Development), SOCE
IGNOU, New Delhi

Prof. Vibha Joshi
Director, School of Education
IGNOU, New Delhi

Prof. C.R.K. Murthy
STRIDE
IGNOU, New Delhi

Mr. Sangmeshwar Rao
Producer, EMPC, IGNOU
New Delhi

Prof. Neerja Chadha
(Programme Coordinator)
Professor of Child Development
School of Continuing Education
IGNOU, New Delhi

Dr. Amiteshwar Ratra
(Convenor & Programme
Coordinator)
Research Officer, NCDS
IGNOU, New Delhi

Acknowledgment:

We acknowledge our thanks to Prof. Omprakash Mishra, Former PVC, IGNOU; Prof. C.G. Naidu, Former Director (I/c) P&DD and Head, Nodal Unit; Dr. Hemlata, Former Director (I/c) NCDS; and Dr. Arun Banik, Director, NCDS, for facilitating the development of the programme of study.

PROGRAMME COORDINATORS – M.Sc. (CFT) / PGDCFT

Dr. Amiteshwar Ratra
Research Officer
NCDS, IGNOU, New Delhi

Prof. Neerja Chadha
Professor of Child Development
SOCE, IGNOU, New Delhi

COURSE COORDINATORS

Dr. Amiteshwar Ratna
Research Officer,
NCDS, IGNOU, New Delhi

Prof. Neerja Chadha
Professor of Child Development
SOCE, IGNOU, New Delhi

COURSE WRITERS

Unit 7 & 8 Adapted from Courses MES-016 & MLIE-012 of IGNOU.

Unit 9 Adapted from Courses MES-315 & MLIE-012 of IGNOU.

Unit 10 Adapted from Course MLIE-012 of IGNOU.

Units 11 & 12 Prof. Parveen Kaur, Retired Professor and Head, Dept. of Human Development and Family Studies, CCS HAU, Hisar.

BLOCK EDITORS

Prof. Reeta Sonawar
Dean & Head,
Department of Human Development
SNDT Women's University, Mumbai

Prof. Neerja Chadha
Professor of Child Development
SOCE, IGNOU, New Delhi

Dr. Amiteshwar Ratna
Research Officer,
NCDS, IGNOU, New Delhi

Acknowledgment:

The Art work for the cover page is adapted from MES-016 of IGNOU.

Print Production

B.Natrajan
Dy.Registrar (P)
MPDD (IGNOU)

Jitender Sethi
Asstt.Registrar (P)
MPDD (IGNOU)

Hamant kumar Parida
Prof.Reader (P)
MPDD (IGNOU)

January, 2011

© Indira Gandhi National Open University, 2011

ISBN: 978-81-266-5218-1

All rights reserved. No part of this work may be reproduced in any form, by mimeograph or any other means, without permission in writing from the Indira Gandhi National Open University, New Delhi.

Further information on Indira Gandhi National Open University courses may be obtained from the University's office at Maidan Garhi, New Delhi- 110 068 or the official website of IGNOU at www.ignou.ac.in.

Printed and published on behalf of Indira Gandhi National Open University by Registrar, MPDD.

Laser Composed by: Rajshree Computers, V-166A, Bhagwati Vihar, (Near Sector-2, Dwarka), Uttam Nagar, New Delhi-110059

Printed At :- Print Pack (India), 215/21, Ambadker Gali, Moujpur Delhi - 53.

BLOCK INTRODUCTION

Once you are well acquainted with different types of research, you need to be well versed about research techniques. When a researcher is clear about the various elements of research design, she or he prepares a research plan or research proposal which includes various methods or techniques to collect data. We will discuss these methods and techniques in this Block, which consists of six units.

Unit 7 is devoted to sampling, various methods of sampling, criteria for selecting a sampling method and characteristics of a good sample. In the beginning we first discuss the meaning of population, which is any group of individuals having one or more characteristics in common. A sample is deduced from the population and thus is a small proportion of the population. There are two major methods of sampling. These are probability sampling and non-probability sampling. Different methods of probability sampling are simple random sampling, systematic sampling, stratified sampling, cluster sampling, and multi-stage sampling. Non-probability sampling includes incidental sampling, purposive sampling and quota sampling. In the end, the Unit outlines the characteristics of a good sample, and states different types of variables.

Unit 8 is on 'Qualitative Methods'. Unlike quantitative methods of research, qualitative methods focus on study of complex human and social problems in totality. This Unit identifies the characteristics of qualitative research and points out the reasons for conducting a qualitative study. This is followed by types of qualitative research. These are biographical study, phenomenological study, grounded theory study, ethnography, and case study. In each of these types, we discuss the main features and steps to be followed to carry out the study. All these methods have a common framework of ontological, epistemological, axiological, rhetorical and methodological perspectives. Common steps of carrying out qualitative studies and verification of trustworthiness of qualitative research have been touched upon.

Unit 9 is entitled "Quantitative Methods". In this we highlight the significance and use of tools and techniques of data collection. The Unit focusses on the questionnaire and experimental methods. We have explained the meaning of these tools, their characteristics and pointed out their advantages and disadvantages. The meaning of questionnaire, its construction are discussed in detail. The Unit also acquaints you with the pretesting of questionnaire and distribution of questionnaire. Advantages and disadvantages of questionnaire method have been elaborated upon in this Unit. The second part of the Unit deals with the experimental method. It includes parts of an experiment and steps in planning experimental research. It distinguishes between laboratory experiment and field experiment. At the end, it describes various experimental research designs along with the advantages, disadvantages and limitations of experimental method.

Unit 10 is entitled "Mixed Methods". In this Unit we have discussed three major techniques of data collection; these are observation method, interview method and documents. These methods are used in qualitative as well as quantitative research studies. The Unit begins with the definition of observation and discusses its purpose and characteristics. Further, planning and process of observation is described. Various types of observation such as participant-non participant, systematic-non systematic, structured-unstructured, natural-laboratory,

open-hidden, direct-indirect and covert-overt observation are also discussed in this Unit. Observation method has some advantages as well as disadvantages, which are explained in detail. We will study interview method, its types like structured interview, unstructured interview, focused interview, non-directive interviews, clinical interview etc. The unit acquaints you with the knowledge of interview process. Advantages and limitations of the same are also discussed. The use of documents in research is also outlined.

Unit 11 is on "Psychological Testing and Projective Techniques". The Unit begins with the uses of psychological tests and the beginning of the testing movement. It also explains the basic principles in psychological testing like objectivity, a representative population sample and the standardization. The Unit gives you knowledge on intelligence tests and personality tests. Further the personality tests include the explanation of personality inventory and projective methods.

Unit 12 is on "Attitude Scales and Measurement", it begins with the introduction of attitudes and its importance. The functions of attitudes like the adjustment function, the ego defensive function, the value compression and knowledge function are also explained in the beginning of this Unit. The Unit further describes the measurement of attitudes and how to access attitude. Further, the Unit deals with different types of tests. Thurstone method and Likert method of scale construction are also described in this Unit. At the end of Unit, the criteria for selection of items and statements for an attitude scale are described.

ignou
THE PEOPLE'S
UNIVERSITY

UNIT 7 SAMPLING

Structure

- 7.1 Introduction
- 7.2 Meaning of Population and Sample
- 7.3 Census *versus* Sample Survey
- 7.4 Methods/Designs of Sampling
 - 7.4.1 Probability Sampling
 - 7.4.2 Non-probability Sampling
 - 7.4.3 Criteria for Selecting Sampling Method
- 7.5 Probability Sampling
 - 7.5.1 Simple Random Sampling
 - 7.5.2 Systematic Sampling
 - 7.5.3 Stratified Random Sampling
 - 7.5.4 Cluster Sampling
 - 7.5.5 Multi-stage and Multi-phase Sampling
- 7.6 Non-probability Sampling
 - 7.6.1 Incidental Sampling
 - 7.6.2 Purposive Sampling
 - 7.6.3 Quota Sampling
- 7.7 Characteristics of a Good Sample
- 7.8 Types of Variables
- 7.9 Measurement of Qualitative Data
- 7.10 Let Us Sum Up
- 7.11 Glossary
- 7.12 Answers to Check Your Progress Exercises
- 7.13 Unit End Questions
- 7.14 Further Readings and References

7.1 INTRODUCTION

In previous Units, we have discussed the meaning and type of hypothesis. We also know by this time that testing the hypothesis is central to the research. In order to accomplish this it is imperative to collect requisite, recent and most relevant data. This helps us to decide from whom and how to collect these data.

The primary purpose of research is to discover principles that have universal application. But to study a whole population in order to arrive at generalizations would be impracticable if not impossible. Some populations are such that their characteristics cannot be measured, because before the measurement could be

completed, the populations would have changed. Imagine the difficulty of conducting an experiment with all fifth-grade Indian children [as subjects] on numerical ability. The study of this population would require the services of thousands of researchers, the expenditure of millions of rupees and thousands of class hours. In view of this it becomes imperative to collect the data from a smaller group of the population instead of collecting from the whole population. There are various ways to achieve this. We will discuss these in this Unit.

During the course of research you come across situations where you have to measure various characteristics. These characteristics could be of various types, viz., age, height or income level of visitors to a library; educational qualifications, social status or reading habits of a person; gender, religion, or area of interest of a library user. Note that all these characteristics are not similar from the point of measurement. While age, height or income can be measured in quantitative terms (in number of years, in centimeters, in rupees), religion or gender can be put to certain categories only. Another issue discussed in the Unit pertains to collection of data on the basis of sample survey. Very often it is not possible to survey all the units bearing the characteristic under study. The constraints could be inadequate funds, time limit, and manpower. In such situations we survey only a subset of the population, called sample. In this Unit, we shall discuss various concepts associated with sampling procedure.

Objectives

After studying this Unit, you will be able to:

- Define the terms 'population' and 'sample';
- Describe various probability sampling methods;
- Describe various non-probability sampling methods;
- State the characteristics of a good sample; and
- Distinguish between various types of variables.

7.2 MEANING OF POPULATION AND SAMPLE

A '*population*' is any group of individuals or units that have one or more characteristics in common which are of interest to the researcher, for a particular research. A population may include all the individuals of a particular type or a more restricted part of that group, for example a group of all the university teachers, or a group of male or female university teachers, or distance learners enrolled with IGNOU. For assessing the study habits of adolescent girls in a city, all the adolescent girls of that city who are studying in schools and colleges, make up the population for this study.

A '*sample*' is a small proportion of a population selected for the study. By observing the characteristics of the sample, one can make certain inferences about the characteristics of the population from which it is drawn.

The term *sampling* refers to the strategies which enable us to pick a subgroup from a larger group and then use the subgroup as a basis for making judgement about the larger group. In order to use such a subgroup to make decisions about the larger group, the subgroup has to resemble the larger group as closely as possible.

7.3 CENSUS VERSUS SAMPLE SURVEY

There are quite a few methods for collection of data that we will discuss in detail in this Block (questionnaire method, personal interview, participatory observation, etc.) An important issue is whether we should collect data on all units present or only a part of it. For example, suppose we wanted to know the reading habits of economics students of Sambalpur University and for that purpose we designed a questionnaire. We found that there are 800 economics students and it would not be possible to survey all the students due to time and money constraints. Thus, we decided to administer the questionnaire to 100 students only.

In formal statistical language we distinguish between 'population' and 'sample'. Since our objective is to study the reading habits of economics students in Sambalpur University, all 800 economic students qualify to be studied by us and thus constitute our population. If we decide not to collect data on all students but study only 100 students, these selected 100 students constitute our sample.

Thus, population is a collection of individuals or objects having the desired characteristics we are interested in a sample which is a part of the population. Obviously we can draw more than one sample from the same population. If you go to Sambalpur University on a different day and select 100 students your sample may be different from what another person had selected.

7.4 METHODS/DESIGNS OF SAMPLING

In the earlier section we studied the concept of sampling. Now we shall study different sampling methods. The sampling method was used in social sciences research as early as in 1754 by A.L. Bowley. Since then the method is increasingly used. The sampling methods are broadly classified into two types: (i) Probability sampling and (ii) Non-probability sampling.

7.4.1 Probability Sampling

Probability sampling is based on some statistical concepts such as the 'Law of Large Numbers', 'Central Limit Theorem' and the 'Normal Distribution' etc. In this type of sampling, the units of the population are not selected at the discretion of the researcher, but by means of certain procedures, which ensure that every unit of population has one fixed probability for being included in the sample. It is also called random sampling.

- The 'Law of Large Number', states that as the sample size becomes large, probability that the estimate differs from the parameter to a greater extent, becomes small. Or in other words a larger number provides a more precise measure of the parameter under consideration. However, one precaution must be taken. While increasing the size of the sample, care should be taken to maintain the representiveness of the sample, because a large sample does not automatically guarantee representativeness.
- As per the second concept, sampling distribution approaches normal distribution provided – more the irregular distribution in the population, larger is the sample and sample is selected to avoid biases.

7.4.2 Non-probability Sampling

The non-probability sampling is based on the judgements of the investigator as the most important element of control. The guiding principles in non-probability methods are – availability of the subjects, the personal judgement of the investigator, and convenience in carrying out the research.

7.4.3 Criteria for Selecting Sampling Method

- i) Because there are various sampling methods it becomes crucial to select appropriate sampling method. Young has suggested three criteria to be considered while selecting a sampling method:
 - A measurable or known probability sampling technique should be used to control the risk of errors in the sample estimate.
 - Simple, straightforward and workable methods, adapted to available facilities and personnel, should be used.
 - Achieving optimum balance between expenditure incurred and maximum of reliable information should be the guiding principle.
- ii) The decision whether a probability sampling or a non-probability sampling is to be applied rests on the constraints which are not very different from those stated earlier. These are – objectives of the study, type of study and availability of the resources for the study.

If the objective of the research is to apply the results of the study to a small local group then sampling may not be given as much consideration as in a study the results of which are to be applied to a larger group. In experimental research internal validity is of more concern than the external validity.

- Action research generally does not require sampling from a larger group. Most of the times sampling is not very essential in historical research also. Whereas survey studies generally have a more rigorous sampling.
 - The availability of time, funds, manpower and equipment required is another important consideration in deciding about the size of the sample and the technique of sampling.
- iii) If one is interested in obtaining an estimate of the sampling error, one may resort to probability sampling rather than to a non-probability one.

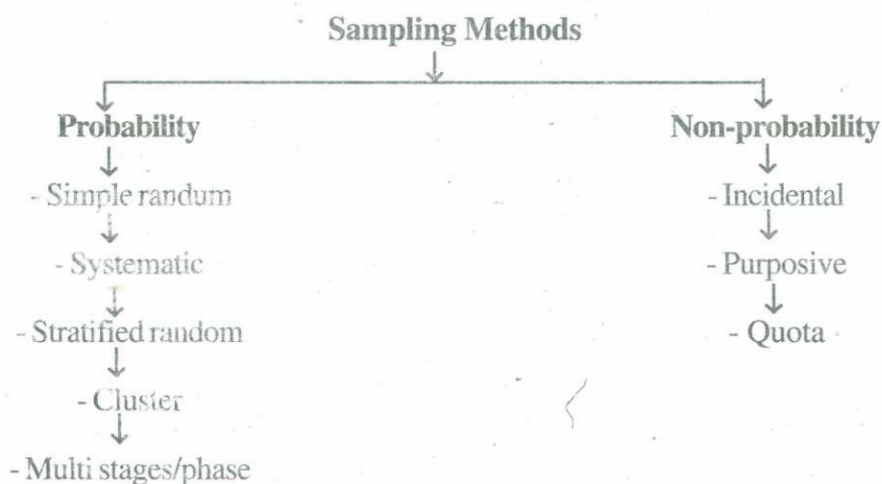


Fig. 7.1: Types of sampling methods

Check Your Progress Exercise 1

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. State the meaning of the following terms:

Population, Probability sampling, Non-probability sampling.

.....

.....

.....

.....

7.5 PROBABILITY SAMPLING

We know the meaning of and requirement for probability sampling. Now we will take a brief account of different methods of probability sampling.

7.5.1 Simple Random Sampling

Theoretically, this is a method of selecting 'n' units from N units in such a way that everyone in the population of N units, has an equal chance of being selected. This can be done through the following steps:

- Defining population by specifying its various limits,
- Preparing the sampling frame, and
- Incorporating the names or serial numbers of individual units in the sampling frame (every unit is to be listed, order does not make any difference).

It is important to note that random sample is not necessarily an identical representation of the population. After this, to get the required 'n' units, different techniques are available. Let us get acquainted with these techniques one by one.

i) Lottery Method

After naming or numbering every unit in the population, they are well mixed. The required numbers of units are then drawn from all these well-mixed chits. The individuals/objects with these identification names or numbers are then picked up for inclusion in this sample.

However this technique has some objections. When the population is very large and includes such individuals/objects, which are of such nature that could not be mixed and further if 'well mixing' is not attained despite all efforts, the principle of randomness in the population may be violated.

ii) Random Table Method

In view of the above mentioned objections it is advised to use the random number tables instead of lottery method. The use of random numbers or manual lot drawing will be too cumbersome to recommend in case of large population. In such situation, computer generated random selection should be resorted to, in order to save time and labour.

Row Column	1	2	3	4	5	...	N
1	2315	7548	5901	8372	5993	...	6744
2	0554	5550	4310	5374	3508	...	1343
3	1487	1603	5032	4043	6223	...	0834
4	3897	6749	5094	0517	5853	...	1695
5	9731	2617	1899	7553	0870	...	0510
6	1174	2693	8144	3393	0862	...	6850
7	4336	1288	5911	0164	5623	...	4036
8	9380	6204	7833	2680	4491	...	2571
9	4954	0131	8108	4298	4187	...	9537
10	3676	8726	3337	9482	1569	...	3880
11	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...
13	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...
N	3914	5218	3587	4855	4881	...	5042

Tables of random numbers have been generated by computers producing a random sequence of digits; for example, random digit table by Rand Corporation and prepared by Kendall & Smith, by Fisher & Yates and by Tippett are frequently used.

The required number of units are selected from such a table in any convenient and systematic way. Now suppose we have to select 20 distance learners for interview from 80-distance learners registered at a study centre. We may start with any column and any row. Because we want 20 numbers that is two digit numbers, we have to select only the first two digits from each number. If we select the first column and start from first row then we will get following twenty two-digit numbers – 23, 05, 14, 38, 97, 11, 43,61. You will notice that numbers greater than 80 will have to be deleted from this list and for the remaining numbers selecting any other column and the row the procedure will have to be repeated, till we get required number that is 20. If any number is repeated in this list, it is to be substituted by selecting the next number. Until a sample of desired size is obtained, the selection procedure is to be continued.

Advantages

This method calls for no special expertise and training or even insight. It can be used mechanically by anybody.

Best results are achieved by adopting simple random sampling method. Still, it is not free from criticism.

Limitation

Practically, listing of all the units in the population may not be possible.

1. In case of population with infinite numbers, listing is out of the question.
2. It is difficult though not impossible, but it involves high cost.
3. In case of heterogeneous population, the selected random sample may not truly represent the characteristics of the population.

7.5.2 Systematic Sampling

A variation of the random process of sampling is the systematic sampling. It is the selection of the required number of elements of the population to include in the sample. It involves the following steps:

- Listing the population elements in some order, say alphabetically, merit wise etc.
- Determining the desired number to be selected from the population for example 10% of 1000 means 100 out of 1000.
- Starting with any number from among the numbers 1 to 10 (that is 1 to k , both inclusive), to select every 10th (or k^{th}) element from the list. If the number chosen from 1 to 10 is 4, then the selected numbers will be the 4th, 14th, 24th, elements making the sample with 100 elements.

As the elements are chosen from regular intervals, this technique is also known as sampling by regular intervals, sampling by fixed intervals or sampling by every k^{th} unit.

Advantages

1. It is more practical in that it involves less labour,
2. Because it is simpler to perform, it may reduce errors,
3. The procedure is speedy in comparison with simple random sampling, and
4. The systematic sample is spread more evenly over the population which makes this method more precise than stratified random sampling.

Limitations

1. Selection of every element other than the first selected randomly is linked with the first element. This makes the process different from the simple random method where selection of every element is independent of other one.

2. When the list of elements has a periodic arrangement, there is a risk that the sample interval may coincide with the periodic interval in the list. Suppose, A, B, C, D and E are the 5 schools selected and from each school 100 students are selected. The students from school A are placed starting from 1, from school B starting from 2, from school C starting from 3, from school D starting from 4 and from school E starting from 5 with an interval of 5. Thus the school A students will hold the numbers 1,6,11,16,21,..... 496. The school B students will hold the numbers 2,7,12,17,22,.....497. Now in systematic sampling procedure suppose we decide to select 5% of the total and randomly choose any number from 1 to 5 say '3'. Then starting from 3 we will have to select every 5th number. These numbers will be 3,8,13,18,.....498. Have you noticed that all these numbers belong to school C? Why has it happened so?

The answer is – because every school is repeated in the list with an interval of '5' and elements are selected with an interval of '5'.

3. Another limitation of the systematic sampling method is the trend of the listed population. This is explained below –

Suppose 100 students are listed in the decreasing order of academic merit. We want to draw a sample of 20 students from this using systematic sampling method. 20 out of 100 means the size of interval is '5'. We can draw many samples from this listed population. If we randomly pick up a number from amongst 1 to 5, say 3 then the sample will comprise the elements 3rd, 8th, 13th, 18th 98th instead, if we randomly pick '5' then the sample will comprise the 5th, 10th, 15th 100th elements. Is it not obvious that the two samples will not be comparable in terms of merit? The mean average of these two samples would be significantly different with respect to merit and other associated variables. Calculations made from such samples cannot pinpoint the sources of variability.

7.5.3 Stratified Random Sampling

One question that may arise in your mind is:

How to increase the precision of the sample?

By increasing the size of the sample, its precision can be increased.

But this is not the only way. Let us see which is the other one. It is the 'stratified random sampling'. The term 'stratified' is very much self-explanatory. It involves dividing the population into such sub-populations (strata) that each one of them is homogeneous within itself.

The steps to be followed in this method are as under –

- deciding upon one or more characteristics on the basis of which strata will be formed for example location of schools – rural, urban, suburban, urban-slums, metropolitan etc.
- dividing the population under consideration into strata on the basis of stratification characteristics or criteria.
- Listing the units in each stratum separately.

- Selecting requisite number of elements from each stratum using appropriate random selection technique.

Thus all the elements selected from all the strata compose the required sample.

Important points to be noted –

- i) The criteria for dividing the population into strata should be correlated with the variable being studied.
- ii) The criteria should be practical. It should not yield a unwieldy number of strata.
- iii) A good measure of the stratification criteria should be available; for example if reliable and valid tool of determining socio-economic status is not available, stratification on this basis would lead to confounding of the results.
- iv) Selection of the elements at random from each stratum in the same proportion as that of the actual size of the stratum in the population improves the representativeness of the sample and helps in achieving higher efficiency at a reduced cost.
- v) In some studies (like census) stratification is not possible before the data have been collected. After collecting the data stratification as per sex, age, educational level is effected. Or a simple random sample of the required size is selected and the classification into strata is observed.

Advantages

1. Stratified random sampling is very useful when a list of the elements in the population is not available.
2. It is the most applicable method of sampling when the population is heterogeneous.

7.5.4 Cluster Sampling

When listing of population or at least the total strength of the population is possible and available or in other words when the population is 'finite' we saw that the sampling methods applicable were – simple random, systematic or stratified random sampling:

But what to do when the population is 'Infinite'?

In such a case, the method applicable is called '*cluster sampling*'.

Cluster sampling is used when the population under study is relatively infinite, where the list of the elements is not available, the elements or units are geographically scattered or when sampling of individual elements is not required or is not convenient.

A *cluster* is an intact group as available in the field. It is not formed by the researcher for the purpose of data collection. For example, a school complex (a group of schools) is a cluster. Some such clusters are selected to make a sample. Here a sampling element or unit is a group or cluster.

In social survey, the cluster sampling is described as 'area sampling'.

This method involves following steps:-

- Deciding the nature of the cluster required.
- Identifying or locating such clusters to make the population.
- Selecting the clusters in required number at random.

Advantages

This method of sampling is economical, especially when the cost of measuring a unit is relatively small.

Limitations

When the sampling unit is to be an individual element or unit or number in the population, this method is not applicable.

7.5.5 Multi-stage and Multi-phase Sampling

In the multi-stage sampling, selection of different types of sampling units such as some districts in a state, some taluka places in those districts and then some schools, is involved at different sampling stages. On the other hand, in the multi-phase sampling, the researcher is concerned with the same type of sampling unit at each phase but some members are asked for more information than others, for example information regarding study habits of distance learners can be collected from 100 distance learners through a questionnaire and 20 out of them can be interviewed for more information.

The main distinction between the multi-stage and the multi-phase sampling is the use of unit of sampling at different levels.

Advantages

1. In both the methods burden on respondents is reduced.
2. Relative cost also gets reduced.
3. Two-phase sampling is useful in studying rare cases.
4. In two-phase sampling, resulting gain in precision is more due to possibility of getting more information in detail.

Check Your Progress Exercise 2

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. Match the pairs:

I) *Sampling Method*

Limitations

i) Simple random

a) Sampling unit is not an individual element

ii) Systematic

b) Not applicable to heterogeneous population

iii) Cluster

c) Listing the elements in sub-population necessary

iv) Stratified random

d) Periodic arrangement of elements

e) Periodic arrangement of elements

II) Sampling method	Special feature
i) Stratified random	a) Every unit in the population has equal chance of being selected.
ii) Simple random	b) Spread more evenly over the population.
iii) Systematic	c) Useful in case of heterogeneous population
iv) Cluster	d) Applicable in case in infinite population.
	e) Same type of sampling unit at each phase.
2. Distinguish between multi-stage and multi-phase sampling methods.	
.....	
.....	
.....	
.....	

7.6 NON-PROBABILITY SAMPLING

In sub-section 7.4.2, we have understood the meaning of non-probability sampling. It is reiterated here. Where the selection of the units in the sample is based on the researcher's judgement and not on equal or known probability, it is the *non-probability sampling method*. A non-probability sample is termed as '*non-random sample*' due to the very fact that it is selected through non-random method. The main feature of such a sample is the lack of control of the sampling error on account of which this method of sampling is referred to as '*uncontrolled sampling*' method. This description of the non-probability sampling should not be taken in negative sense. Many a times it is the demand of the situation to go for non-probability sampling method. Let us now study the different non-probability sampling methods one by one.

7.6.1 Incidental Sampling

Incidental sampling is also known as *accidental* or *convenience sampling*. When a readily or easily available group is selected as a sample, it is termed as an '*incidental sample*'. A teacher-educator for example may select the students from a school situated in the same campus which serves as a practicing school for the concerned college of education, to experimentally find the effectiveness of concept attainment model to teach a mathematical concept say, a quadrilateral.

Advantages

The administrative convenience of obtaining sample for the study, the ease of testing, saving in time, completeness of the data collected are some of the merits of this method.

Limitations

Since there is no well-defined population and no random sampling method is applied to select the sample, the standard error formula apply with a high degree of approximation. Hence no valid generalization can be drawn. Any attempt at generalization based on such data and conclusion thereof will be misleading.

7.6.2 Purposive Sampling

Another non-probability sampling method is 'purposive sampling'. In this method samples are expressly chosen because in the light of available information they resemble some larger group with respect to one or more characteristics. The controls or criteria for categorization in such samples are usually identified as representative areas such as a state, a district, a city etc or representative characteristics of individuals such as age, sex, socio-economic status etc. or representative types of groups such as elementary school teachers, secondary school teachers, college teachers, university teachers etc. These controls or criteria may be further sub-divided for example the group of college teachers can be divided into male and female teachers or teachers in science or arts or commerce colleges etc.

Have you noticed that upto this stage the controls are somewhat similar to stratification criteria? After deciding upon the category required for the research, the researcher has to select the sample.

Actual selection of the units for inclusion in the sample is done purposively and not randomly; for example in order to tackle the problem of indiscipline only the undisciplined students are selected as the sample excluding others, on the basis of past experience.

Advantages

1. This method of sampling is useful where a small sample is required.
2. It is focused on solving problems of particular groups.

Limitations

This method is applicable only for the selection of samples including typical/special cases such as 'best teacher award winners' from the population of teachers or 'meritorious past students of the school' from the population of the past students.

7.6.3 Quota Sampling

This is another method of non-probability sampling. It involves the selection of the sample units within each stratum, on the basis of the judgement of the researcher. What distinguishes it from probability sampling is that, once the strength of the sample (for example how many women teachers from among the college teachers) is decided which forms the 'quota', the choice of the actual units to fit into this framework is left to the researcher.

Quota sampling is thus a method of stratification sampling in which selection of sample units within the stratum is non-random.

These quotas are determined by the proportion of the groups, for example in order to study the attitude of school teachers towards environment education, first of all the school teachers will be stratified into men and women teachers, quotas for these strata will be fixed and will be selected (not randomly).

7.7 CHARACTERISTICS OF A GOOD SAMPLE

Some of the important characteristics of a good sample are given below:

1. It is free from error due to bias or due to deliberate selection of the units of the sample.
2. There is no substitution of originally selected unit by some other more convenient way.
3. It does not suffer from incomplete coverage of the units selected for study.
4. It includes such units, which are as far as possible independent.
5. It represents the population in the strict sense that it is miniature or replica in all respects of the population from which it has been drawn. This should at least apply to the characteristics directly under the investigation or those likely to affect these characteristics indirectly.
6. It is adequate or sufficient in size to allow confidence in the stability of its characteristics. An adequate sample is one that contains enough cases to ensure reliable results.

Check Your Progress Exercise 3

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. What do you understand by an incidental sample?

.....

.....

.....

.....

2. Compare and contrast the purposive and quota sampling methods.

.....

.....

.....

3. State any five characteristics of a good sample.

.....

.....

.....

7.8 TYPES OF VARIABLES

Let us begin with the concept of a variable. It is a characteristic of the sample or the population that we intend to measure. Thus age of the reader is a variable, so is gender, educational level or mother tongue. As we have mentioned earlier all variables are not similar.

Variables can be of two types: qualitative and quantitative. Qualitative variable is one that cannot be expressed in numerical terms. For example, marital status is a qualitative variable. Here we can have two categories: married and single. Of course, if you want a more detailed categorization you can further divide single into widow or widower, divorcee and never married. Similarly, gender (male or female), mother tongue (Hindi, Bengali, Oriya, Tamil, Urdu, etc.), subject categories (economics, history, physics, medicine, etc.), religion (Buddhism, Christianity, Hinduism, Islam, etc.) are examples of qualitative variables. Here we study an attribute or quality that cannot be quantified, but can be divided into various categories. Moreover, we cannot say that one category is higher or greater than another category. Such variables are also called nominal variables.

There is another type of qualitative variable where we can divide the observations into various categories and also say that one category is higher or greater than another category. An example could be the educational qualification of a visitor to a library. Here we can divide the visitors on the basis of their educational qualification into categories such as 'secondary', 'senior secondary', 'graduate' and 'post-graduate'. In this case, obviously, the category 'Senior Secondary' is higher than the category 'Secondary' in terms of number of years of schooling. In this case we arrange the categories in an ascending or descending order. This sort of variables are called *ordinal variables*.

In the case of nominal variables we cannot perform any mathematical operations (such as addition, subtraction, multiplication, division), or logical operations (greater than, less than) across categories. We can simply count the number of observations in each category. In the case of ordinal variables we can say that one category is greater than another category. But we cannot quantify the difference between categories. For example, we cannot express numerically the difference between two categories (say secondary and senior secondary). Also we cannot say that the difference between two categories (say secondary and senior secondary) is the same as the difference between two other categories (say graduate and post-graduate).

A quantitative variable can be expressed in numerical terms. Hence it is also called *numerical variable*. Examples of numerical variable could be age, income, weight, height, distance travelled, etc. This category of variables can be subjected to various mathematical and logical operations. Thus we can express the monthly income of a librarian in Rupees and also say by what percentage it exceeds the salary of a library assistant.

Numerical variables can be of two types: discrete and continuous. *Discrete variable* is one where the observations assume values in complete numbers. For example, the number of children in family can only be whole numbers; it cannot be fractions. On the other hand, *continuous variables* can assume any value in an interval. For example, weight of a person can be measured to any precision and thus can take any value in between two points.

Let us distinguish between variable and data. We obtain data by measuring a variable (qualitative or quantitative) on certain individuals or units. For example, suppose we measure the height of 50 employees in a MNC. Here height is the variable and we obtain 50 observations. These 50 numerical values that we obtain are our data. Thus we have discrete data or continuous data depending upon whether the variable is discrete or continuous.

Similarly there are primary data and secondary data. *Primary data* refers to data collected by the researcher by undertaking a field survey. On the other hand, *secondary data* refers to collection of data from published sources, for example, census, budget, handbooks, etc. Thus when you undertake a field survey, collect data, analyse the results and present it in some forum, it is primary data. But when we use that data for further analysis it becomes secondary data for us.

7.9 MEASUREMENT OF QUALITATIVE DATA

The measurement of quantitative data does not pose problems as these are expressed in numerical terms. Measurement of qualitative data, however, is a complex issue and needs to be discussed further. There are two types of variables that are usually measured: i) social behaviour and personality, and ii) cultural and social environment. The purpose is to study socioeconomic status and its impact on various issues, attitude towards a particular event or behaviour, participation in certain activity, etc.

In order to measure these types of issues no readymade scale of measurement is available. Secondly, there is a lot of ambiguity and inter-personal variability in the definition of these qualities. However, attempts have been made to construct 'attitude scales' to measure these qualities. These scales are in the form of equal-appearing intervals. Such scales are widely used in sociology, psychology, education and administration apart from other branches of study.

In designing such scales we should keep one thing in mind that it should be 'valid' and 'reliable'. In other words, i) it should measure what we intend to measure, and ii) it should yield the same consistent results when applied under the same conditions.

In designing attitude scales we form a number of statements and ask the respondents to react to these statements. The statements should be brief, unambiguous and relevant. It should be expressed in such a form that it could be endorsed or rejected in terms of definitely expressed attitude.

A widely used scale is 'Likert Scale' which is also referred to as 'technique of summated ratings'. The basic steps in construction of Likert scale are given below:

A series of propositions representing attitudes are compiled. The attitudes of persons towards these propositions could range from extremely negative to extremely positive.

The statements or propositions express values rather than facts. Each statement indicates the position of a person towards the issue concerned. For example, a statement could be 'there should be separate reading rooms for boys and girls in a library'. The response to such a statement could range from 'strongly agree' to 'strongly disagree' depending upon the attitude of the respondent towards the issue.

Each statement is so formulated that the response of persons can be given in any of the five terms such as i) *strongly approve*, ii) *approve*, iii) *undecided*, iv) *disapprove*, v) *strongly disapprove*. Many times expressions such as i) *strongly agree*, ii) *agree*, iii) *cannot say*, iv) *disagree*, v) *strongly disagree* are also used. Although a five-point continuum is common, there can be three-, four-, or six-point continuum also. For example, a seven-point continuum could be i) *always*, ii) *almost always*, iii) *frequently*, iv) *occasionally*, v) *rarely*, vi) *almost never*, vii) *never*.

Weights are assigned to each response for a statement. For example, in a five-point continuum the weights that we attach to each response could be 1,2,3,4, and 5. These weights indicate the intensity of the attitudes of a respondent.

When we have a number of statements, we can arrange the statements according to their relative intensity. Also groups of individuals can be arranged in a rank order on the basis of scale scores. Moreover, the scale scores can be used to predict any outside variable. We will discuss attitude scales in detail Unit 12.

Check Your Progress Exercise 4

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1) State the type of variable (nominal, ordinal and numerical) for the following:

- a) tribes in India
- b) height of children
- c) number of books
- d) accession number of books
- e) subject codes

2) With an example explain the use of Likert scale:

.....

.....

.....

.....

7.10 LET US SUM UP

In this Unit you got acquainted with the concept of population and sample. We elaborated the two types of sampling, namely, the probability and non-probability sampling.

We discussed in detail various probability sampling methods including random sampling, stratified random sampling, systematic sampling, cluster sampling, and multi stage or phase sampling.

You also got an explanation of the non-probability sampling methods including incidental sampling, purposive sampling and quota sampling.

Further, the Unit outlined the characteristics of a good sample.

In addition, we learnt that a variable is a characteristic that we are interested in analysing. It can be nominal, ordinal or numerical. Numerical variable can be discrete or continuous. While numerical variable is amenable to mathematical and logical operations nominal and ordinal variables are not. In certain cases it is difficult to measure ordinal variables because we do not have standard of measurement. In such cases we need to construct a measurement scale. We discussed one such scaling technique, that is summated rating.

7.11 GLOSSARY

Convenience sampling	: It refers to the method of obtaining a sample that is most conveniently available to the researcher.
Judgement Sampling	: In this sampling procedure the selection of sample is based on the researcher's judgement about some appropriate characteristics required of the sample units.
Multistage sampling	: The sample selection is done in a number of stages.
Parameter	: It is a measure of some characteristic of the population.
Quota sampling	: In this sampling procedure the samples are selected on the basis of some parameters such as age, gender, geographical region, education, income, religion, etc.
Sample	: It is a sub-set of the population. Therefore, it is a collection of some units from the population.
Sampling	: It is the process of selecting a sample from the population.
Sampling bias	: When the mean of the sampling distribution does not coincide with the parameter, it is said to be biased.
Sampling distribution	: It is the relative frequency distribution of infinity of determinations of the value of this statistic.
Sampling error	: It is the difference between the value of parameter and that of corresponding statistic or the difference between population value and sample value of a characteristic.
Sampling frame	: It is a complete, accurate, and up-to-date list of all the units in a population.

Statistic

Simple random sampling

: It is the sample value representing any trait or characteristic of the members of the sampling.

Snowball sampling

: This is the basic sampling procedure where all units in the population have an equal chance of being included in the sample.

Stratified random sampling

: It relies on referrals from initial sampling units to generate additional sampling units.

: In this sampling procedure the population is divided into groups called strata. Subsequently sub-samples are selected from each stratum using a random sampling method.

Systematic sampling

: In this procedure the units are selected from the population at uniform interval (in time, order or space).

7.12 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1. *Population* – A group of individuals or units having one or more characteristics in common which are of interest to the researcher for a particular research.

Probability sampling – Sampling based on some statistical concepts such as the 'Law of Large Numbers', 'Central Limit Theorem', and the 'Normal Distribution' is known as probability sampling.

Non-probability sampling – Sampling based on the judgements of the researcher as the most important element of control is known as non-probability sampling.

Check Your Progress Exercise 2

- | | | | |
|------|------------|----|------------|
| 1. I | i) - (b) | II | i) - (c) |
| | ii) - (e) | | ii) - (a) |
| | iii) - (a) | | iii) - (b) |
| | iv) - (c) | | iv) - (d) |
2. The main distinction between multi-stage and multi-phase sampling is the use of unit of sampling at different levels. In multi-stage, sampling is done at various levels such as national, state, district level. In multi-phase, sampling units are of the same type at each phase only a few of them are asked for more information than others.

Check Your Progress Exercise 3

1. When a readily or easily available group is selected as per the convenience of the researcher, it is termed as the 'incidental sample'.
2. i) *Similarity* – Purposive and quota sampling both include stratification.

- ii) *Difference* – In purposive sampling actual selection of the units from a stratum, to be included in the sample is done purposively rather than by random methods.

In quota sampling quota is usually determined by the proportion of the strata and quota within the strata is selected as per the availability and convenience and not randomly.

3. Following are the five characteristics of a good sample:

- i) Free from error due to bias or deliberate selection of some units.
- ii) Originally selected units are not substituted and incomplete coverage of units is not involved.
- iii) As far as possible independent units are included.
- iv) It is a smaller image of the population.
- v) It is adequate in size.

Check Your Progress Exercise 4

- 1) a) Nominal, b) Numerical, c) Numerical, d) Nominal, and e) Nominal
- 2) Example of the use of Likert Scale: Show your agreement with the following:
Early childhood experiences play an important role in further development of individual.
Strongly Agree; Agree; Undecided; Disagree; Strongly Disagree

7.13 UNIT END QUESTIONS

1. Get five Theses or Dissertations based on different research methods for example, case study, survey, research etc. Study the sampling methods adopted in these studies and prepare a chart including the following columns – Research method, Sampling method, Sample size, rationale for adopting the sampling method. What are the strengths of each methods?
2. How do you determine the sample size when different research methods are adopted?

7.14 FURTHER READINGS AND REFERENCES

Aggarwal, Y.P. (1988). *Better sampling*. New Delhi: Sterling Publisher Private Ltd.

Best, W. & Kahn, J. V. (1992). *Research in Education*, New Delhi. Prentice Hall of India Pvt. Ltd.

Bhardwaj, R.S. (1999). *Business Statistics*. New Delhi: Excel Books.

Dalen, V. D. & Meyer, W. J. (1962). *Understanding Educational Research: An Introduction*. New York: McGraw Hill Book Company Inc.

IGNOU Study Material (2005). *EEC-13: Elementary Statistical Methods and Survey Techniques*, Block 6.

Kerlinger, F. N. (1993). *Foundation of Behavioural Research : Educational and Psychological Enquiry*. New York : Holt, Rinehart and Winston.

Koul, L. (1997). *Methodology of Educational Research*. New Delhi : Vikas Publishing House Pvt. Ltd.

Kothari, C.R. (1985). *Research Methodology: Methods and Techniques*. New Delhi:Wiley Eastern.

Upasani, K.N. (1987). *Conducting Educational Research*. Examination Reforms Unit, S.N.D.T. Women's University. Pune : Kalpana Mudranalya.

Vockell, E. L. (1983). *Educational Research*. New York : MacMillan Publishing Co. Inc. .

Young, P.V. (1988). *Scientific Social Surveys and Research*. New Delhi: Prentice Hall of India.



UNIT 8 QUALITATIVE METHODS

Structure

- 8.1 Introduction
- 8.2 Definition of Qualitative Research
- 8.3 Characteristics of Qualitative Research
- 8.4 Reasons for Conducting Qualitative Research
- 8.5 Types of Qualitative Study
 - 8.5.1 Biographical Study
 - 8.5.2 Phenomenological Study
 - 8.5.3 Grounded Theory Study
 - 8.5.4 Ethnography
 - 8.5.5 Case Study
- 8.6 Context of Qualitative Methods
- 8.7 Common Steps of Conducting Qualitative Studies
- 8.8 Verification of Trustworthiness of Qualitative Research
- 8.9 Let Us Sum Up
- 8.10 Glossary
- 8.11 Answers to Check Your Progress Exercises
- 8.12 Unit End Questions
- 8.13 Further Readings and References

8.1 INTRODUCTION

As you know, events concerning Counselling and Family Therapy are very complex in nature. They involve mostly sociological and behavioural manifestations of human relations in specific contexts. The methods adopted to explore the meaning and processes of these phenomena are basically qualitative in nature. Most of the information in counselling and family therapy is in the form of verbal and other symbolic behaviour. The verbal data gathered through questionnaires, observation or interview are mostly qualitative in nature. These data provide depth and detail which emerge through direct quotation and careful description of phenomena.

Unlike scientific explanations to counselling and family therapy phenomena qualitative research concentrates on understanding the process of dynamic situations and intervenes with the reality in its natural setting. The procedures adopted are of humanistic nature. Of late, major attention has been paid by counselling and family therapy researchers to qualitative methods. Having their origin in the typical nature of inquiries in sociology, anthropology, political science and psychology, qualitative methods have been given refined shape through current literature. In this Unit, you will be exposed to the nature of qualitative research, its types, context and steps involved in conducting qualitative research.

Objectives

After studying this Unit, you will be able to:

- Define qualitative research;
- Explain main features of different types of qualitative inquiry viz, biography, phenomenology, grounded theory approach, ethnography and case study;
- Describe basic procedural details of such methods; and
- Design qualitative research in the context of any counselling and family therapy problem.

8.2 DEFINITION OF QUALITATIVE RESEARCH

As you know, the emergence of qualitative methods of research is of recent origin. Social scientists, anthropologists and sociologists have given a shape to the concept of qualitative research mostly during the end of twentieth century. The procedural clarity is still in the process of refinement. Clarity of the definitions of qualitative research is as follows:

1. In the initial stage of conceptual analysis of qualitative research there was a trend of defining qualitative research as an opposite pole of scientific (quantitative) inquiry. Quantitative research deals with a few variables and many cases whereas qualitative research is carried out with a few cases and many variables.
2. The above definition focuses on the scope of qualitative methods of inquiry. However, from the point of view of methodological and process dimensions the following two definitions may clarify your understanding of qualitative research. Cresswell (1998) defined qualitative research in a similar tone. To him “qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex holistic picture, analyses words, reports detailed views of informants and conducts the study in a natural setting”.
3. Denzin and Lincoln (1994) say “Qualitative research is multi-method focus, involving an interpretive, naturalistic approach to its subject matter..... Qualitative research involves the studied use and collection of a variety of empirical materials – case study, personal experience and visual texts – that describe routine and problematic and meaning in individuals’ lives”.

You may trace at least four clear meanings from the above definitions.

One, qualitative research focuses on the study of complex human and social problems in totality, unlike scientific method of concentrating on study of fragmented variables or situations or events.

Two, qualitative research places the main emphasis on the researcher who narrates and interprets phenomena in terms of meanings derived from people’s experiences, events etc. Hence, human and subjective approach is highlighted.

Three, the studies are conducted in a natural setting that is, to observe the events without making any manipulations or controls on variables studied.

Four, it involves a variety of data gathering techniques and approaches of qualitative nature viz., case study, interviews, dialogues, observations, personal experience, life story, visual data like photography etc. These data are gathered from varieties of sources.

8.3 CHARACTERISTICS OF QUALITATIVE RESEARCH

The following are the characteristics of qualitative research:

i) Multiple Realities

First, qualitative research assumes that there exist multiple realities in social and psychological situations. These realities exist in concrete forms. They are perceived by people differently and thus become different mental constructs for different people. In other words, realities are taken to be what people perceive them to be at a particular point of time. Since social and psychological situations keep on changing from time to time, the realities too keep on changing. Furthermore, since the realities are context specific, they cannot be tangible in a generalized form.

ii) Meanings and Interpretations

Qualitative research emphasis on study of meanings given to or interpretations made about objects, events and processes concerning psychological situations. To them changes in terms of social and behavioural phenomena cannot be identified with the concept of physical movements which can be identified by external observation alone. Rather the understanding of human behaviour or a social phenomenon involves understanding of how men/women are, what they are doing or participating in an activity.

iii) Generation of Knowledge

Qualitative inquiry insists on generation of knowledge resulting from the interaction between the inquirer and the respondents. The respondents answer the questions put by the inquirer in terms of their perception or meanings they attach to their actions. Moreover, interactions take place between the inquirer and her or his respondents to achieve maximum levels of responsiveness and insights concerning the problem under investigation.

iv) Generalization

As stated above, the researchers do not believe in the process of generalization as propounded by scientists. They argue that in the process of making a generalization a lot of meaningful information existing in individual units is undermined; hence generalized knowledge does not represent real knowledge. For them, the process of knowledge generation must take into account the differences or real evidence existing in different specific situations.

v) Human Relations

In the case of human relations, several intrinsic factors, events and processes keep on influencing each other constantly. Therefore, it is not possible to identify one to one cause and effect relationships at this level of naturalistic studies. The causality in social sciences cannot be demonstrated in the 'hard' sense as it is done in the case of physical sciences. Rather, only patterns of plausible influences can be inferred from social and behavioural studies.

vi) Value Systems

Qualitative researchers do not believe in value-free inquiry. The influence of value systems is recognized in the identification of problems, selection of samples, use of tools, data collection, the conditions in which data are gathered, and the possible interaction that takes place between the inquirer and the respondents.

8.4 REASONS FOR CONDUCTING QUALITATIVE RESEARCH

As a research student you may be curious to explore in what circumstances one opts for qualitative methods of inquiry in comparison to quantitative methods of inquiry. Some of the situations which prompt a researcher to opt for the qualitative method are:

- i) As you know, there are different kinds of research questions about the phenomena under investigation, such as “What happens?”; “How does it take place” or “Why did it take place?” or “What are the cases of certain-effects?” The first two types of questions involving What (The present context and status) and ‘How’ (the process) are dealt with very well through quantitative methods. Unlike quantitative inquiry, where you may intend to explain casual relationships (‘Why’ question) through comparison of groups or to establish associations between different variables, the qualitative method focuses on exploring the intricacies involved in process dimensions of an event in totality. For example, if you are interested in understanding the curricular practices of best quality universities, the qualitative method will suit you best.
- ii) Qualitative method is also preferred in the context of initial level of theoretical research. In social sciences, particularly in counselling and family therapy, theories are not available to explain many completed events. The variables concerning the events are not easily identifiable. In such cases the qualitative method is used to identify significant variables associated with the event. For instance, formal education practices taking place in a tribal setup *vis-a-vis* human and social development need to be tackled through qualitative method since different variables involved in the situation need to be explored. Identification of different variables and trends lead towards refinement and theoretical explanation.
- iii) There are certain research problems which need holistic treatment. In other words, many variables need to be studied in depth in the context of one case or unit. For instance, designing a grass root level plan for pre-school educational development of a village would require application of a qualitative method of inquiry where multifaceted data need to be gathered through various sources for intervention and development which treat the uniqueness of the concerned village.
- iv) Unlike experimental studies where a researcher intends to explain a cause and effect relationship in a controlled laboratory setting, the qualitative method is preferred to conduct the study without disturbing neutrality in setting. For instance, curricular practices of best quality schools need to be explored in natural settings through adopting qualitative methods like participant observations, visual documents, verification of project works, interviewing students, teachers and parents, etc.

- v) One of the major limitations of qualitative inquiry is associated with the study of limited variables. Moreover, those variables need to be amenable to measurement. However, if your research problem is of such type where variable are not easily amenable to measurement and extensive data situations, you will have to opt for qualitative inquiry.
- vi) The nature of certain problems is such that your role as a researcher plays a vital subjective role than objective and impersonal role. For instance, in the process of exploring meaning of certain behavioural exposures with its motives your role is to be valued with a lot of significance since you will have to describe the event from the participant's point of view. Moreover, in such a process you can explore the reality, being a part of it as well as interacting with situations. You will have to depict the situations as an active learner and not by passing judgement as an expert. Such kind of studies demand application of qualitative methods in comparison to quantitative methods.

Check Your Progress Exercise 1

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. Differentiate between quantitative studies and qualitative studies.

.....

.....

.....

.....

2. What are the basic factors of qualitative studies?

.....

.....

.....

.....

.....

3. Why should you choose the qualitative method in counselling and family therapy?

.....

.....

.....

.....

8.5 TYPES OF QUALITATIVE STUDY

Many varieties of traditions of qualitative studies exist in social sciences. They have been categorized by Creswell (1998) in the context of their forms, terminologies and focus as under:

- Biographical study
- Phenomenological study
- Grounded theory study
- Ethnography
- Case study

8.5.1 Biographical Study

Main features

Biographical study is the study of an individual and her or his experiences as narrated to the researcher or found in different sources. You can come across biographical writings in different fields in literature, history, anthropology, sociology, education, psychology etc. Biographies are presented with different perspectives like literary, historical, anthropological, sociological, educational, psychological as well as of interdisciplinary nature. The focus of biography remains on telling and inscribing the stories of others. It explores history of life for example accounts of major achievements of life.

There are different connotations linked with biographical study viz., individual biographies, autobiography, life history, and oral history. In all these cases the researchers must take care of objectivity in expression with little research interpretation. It must be written in a scholarly way with a strong historical background of the subject and chronological organization. The account must be presented artistically from the perspective of presenting details in a lively and interesting manner.

Steps of Biographical Studies

Different steps involved in writing biography are:

- i) The first step is to identify the experiences in an individual's life to be arranged chronologically in different stages of life.
- ii) The researcher gathers concrete contextual materials through interviews. She or he gathers stories.
- iii) The stories are organized around different themes. The themes indicate major events of individual's life.
- iv) The researcher explores the meaning of these stories.
- v) She or he also looks for larger structures to explain cultural issues etc.

8.5.2 Phenomenological Study

Main features

Phenomenological study's focus remains on describing the meaning of live experiences for several individuals about a concept or the phenomenon. It is said

that through phenomenological approach the researcher explores the structures of consciousness in human experiences. Here experiences contain both the outward appearance and inward consciousness based on memory image and meaning.

Steps of Phenomenological Studies

The procedural details of phenomenological studies are listed as under:

- i) At first the researcher must recognize her or his own pre-conceived ideas about the phenomena to understand it through the voices of several experienced persons.
- ii) Second, she or he person writes research questions that explore the meaning of that experience for individuals.
- iii) Third, the researcher collects data from individuals who have experienced the phenomenon under investigation. Usually the data are gathered through long interviews of 5 to 25 experienced persons.
- iv) Data are analysed in the form of statements and units. Then the units are transformed into clusters of meanings. Finally such analysis is linked with general description of experiences incorporating what was experienced and how it was experience.

8.5.3 Grounded Theory Study

Main Features

This kind of study aims at discovering or generating a theory. Here, *theory* means an abstract analytical scheme of phenomenon. In other words, a theory is understood as a plausible relationship, as any concept or sets of concepts. In this case, theory is discovered in the context of a particular situation. This situation is one in which individuals interact, take actions, or engage in a process in response to a phenomenon. The researcher intends to explore how people act and react to a phenomenon. The process involved in data collection can be through continuous visits to the field, interviews with participants, in-depth observations of activities etc. The researcher develops and interrelates categories of information and writes theoretical propositions or hypotheses.

Through the grounded theory method, a theory is generated in the context of a phenomenon being studied. Hence, the researcher goes beyond one step ahead of understanding the complexities of processes involved in a situation. She or he tries to help others to comprehend such complexities with the help of a theoretical framework developed by her or him. Such a theory is evolved towards the end of the study. As stated above, the theoretical framework may be depicted in the form of a narrative statement, a series of hypotheses or propositions or in the form of a visual picture.

For example, the researcher studies the complexities involved in the teaching learning processes where the sole responsibilities of such processes are shared by learners under the guidance of a teacher. The researcher would like to build a theory in this context through application of the grounded theory method, and shares different steps involved in this method.

Steps of Grounded Theory Study

- i) In the context of a particular situation, the researcher makes several visits to the field, makes in-depth observations and conducts interviews. The

data collection process continues till the researcher comprehends the totality in a situation. However, the major focus remains on in-depth interviews.

- ii) With the help of data available, the researcher makes categories of information. A unit of information composed of events, happenings, and instances is presented in the form of one category.
- iii) Often it happens that during the data collection process the researcher analyses the data and gradually categories are formed on specific instances or happenings. Hence the data collection process and data analysis are integrated on many categories.
- iv) After data analysis, the researcher may like to go back to the field to gather more information, analyse the data and so forth. Hence, this zigzag process continues till a saturated state is identified for arriving at a theoretical framework.
- v) Towards the end of the study, the researcher presents an elaborate theoretical framework to understand the complexity of an event.

8.5.4 Ethnography

Main features

Ethnography can be understood as a description and interpretation of a cultural or social group or system. Here the focus of the study remains on examining the patterns of behaviour of a group, its customs and ways of life. This method involves prolonged observation of events where the researcher becomes a part and parcel of the day-to-day lives of the people. One to one interviews with the members of group corroborated with participant observation can form the base of such a method. The researcher makes use of ethnography to study the meanings of behaviour, language and interactions of the culture sharing group. For instance, educational processes of particular tribe or a rural village can be studied applying ethnography where cultural and behavioural interactions involved in education processes can be studied in totality. As an outcome, the researcher comes out with a report almost in a book form.

8.5.5 Case Study

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.

Counselling and family therapy uses a 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 or problems and enable the researcher in planning new solutions or remodeling the earlier ones.

Characteristics

Case study as a method of research focuses on indepth study of a unit or case in totality. The case may be an individual, programme, an event, an institution, an activity, etc. The case study method was originally used in medicine to examine the patient's previous development, her or his health and physical state from the beginning and many other factors in the past, besides making a careful study of the patient's present condition and symptoms. Freud used the case study method to assist his subjects in solving their personality problems. The published detailed accounts of his interviews with patients and his interpretations of their thoughts, dreams and actions provide excellent examples of case studies. The investigation of a case is of exploratory nature. It involves detailed, in-depth data collection employing multiple sources of information concerning all pertinent aspects of a case. It is also interpreted that a case may be a unique and bounded system. This means the case under investigation is bound by time and place. The uniqueness of a case refers to the typical characteristics of a case. The researcher tries to explore in detail about what events occur, and how they occur. Multiple sources include observations, interviews, audio-visual materials, documents, records, etc. A case is to be studied in a given context, that is study of a case is conducted within its setting. The setting may be a physical setting, social, historical or economic setting, etc. As a whole, the case study helps a researcher to understand the complexities of an event or events with contextuality and develops insight about with the nature and process dimensions of the events studied.

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;
- It preserves wholeness of the units that is 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.

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;
- It helps discovering deviant units;
- It is intensive in nature; and
- It is very comprehensive.

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.

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 are over-emphasised and 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 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; and
- Temptation to ignore the basic principles of research design is often seen.

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 a research study.

- 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 clues 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'. 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; and
- 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 maybe 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.

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 successfully.

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, her or 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 her or has to use various sources and techniques in case study method.

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 (that is conduct follow-up case studies in the same problem area).

Steps of Case Study

Case study is conducted by adopting the following steps:

- i) First, the researcher identifies the uniqueness of the case to be studied or a number of cases to be studied. Whether a normal case is to be studied or an unusual and typical case is to be studied is decided at this stage.
- ii) Keeping in view different contexts and perspectives of the problem, the researcher delimits what is to be studied within the scope of investigation.
- iii) Once the dimensions of a unit are identified for investigation, the researcher locates different mechanisms of gathering different varieties of evidences from different sources. After identification of the case and content, the present status of the case is determined through direct observation or record. Here the researcher goes far beyond casual observation or superficial description. For example, to make a case study of a delinquent child, the first thing the researcher has to do is to survey the present status of the child by making an assessment of her or his physique, cognitive and non-cognitive factors. The mechanisms to be chosen may be observation, interviews, document surveys, audiovisual recordings, projective and non-projective tests, etc. The observation can be participant in nature as employed in ethnography. It can be direct observations. Data may be gathered through various sources like gathering evidences from participants, functionaries and stake holders of a programme, institutional records and documents, observation of events taking place etc.
- iv) Data gathered through multiple sources are subject to qualitative analysis. It can be a holistic analysis of the entire case or analysis of a specific aspect of a case.
- v) Data analysis involves descriptive procedures. The themes or issues are identified. Interpretations are made about the case in its given contexts. It also involves narration of events chronologically and giving an account of events in totality. The detailed perspectives of significant events concerning a case are highlighted through such narrations.
- vi) In case of study of number of cases the analysis is done in two phases. First is analysis of data concerning the themes of each case separately that is, within-case analysis which follows the first is doing a thematic analysis across the case. This is called *cross-case analysis*.
- vii) In the final step the researcher reports about the experiences and findings of the case.

For example, in a study first the researcher gathers evidence through participant observations and interviews. She or he certain trends and puts them into different cluster themes. Then she or he tries to place these themes in different groups and makes more abstract categories at the last stage of inquiry. Hence, with the help of an inductive approach the researcher's initial level ideas and questions are refined in due course of investigation.

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 her or his 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.

A Summative View of Different Qualitative Approaches

Different research methods have their uniqueness with regard to the focus of studies. As stated above, **Biography** is used to explore the life of an individual where as **Phenomenological inquiry** is used to understand the essence of experiences of persons about a phenomena. **Grounded theory** approach is adopted to develop a theory grounded in data from the field. **Ethnography** aims at describing and interpreting a cultural and social group. **Case study** is used to develop an in-depth analysis of a single case or multiple cases. However, all these methods adopt qualitative techniques of data collection such as interviews, observation, study of documents, relevant records, etc and incorporate descriptive and narrative approaches of data analysis.

Check Your Progress Exercise 2

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. Give one example of each of the following:

- i) Biography :
- ii) Phenomenological study :
- iii) Ethnography :
- iv) Case study :
- v) Grounded theory approach :

2. What are the common features of different kinds of qualitative studies?

.....

8.6 CONTEXT OF QUALITATIVE METHODS

All the kinds of qualitative methods have a common framework of ontological, epistemological, axiological, rhetorical and methodological perspectives.

- i) From the point of view of assumptions regarding nature of reality, the qualitative inquiry values subjective and multiple social realities. It presumes that reality cannot have existence being separated from the perceiver or researcher. Rather, reality is constructed by individuals involved in research situations. Unlike assumptions of single reality as emphasized by scientific inquiry the concept of multiple realities is emphasized in the qualitative paradigm of the researcher. Through qualitative inquiry, multiple realities are narrated by representing diverse perspectives on the phenomenon. Hence diversified constructed realities are the focus of qualitative model of inquiry.
- ii) In qualitative methods the role of researcher is visualized as inseparable from the problem under study. The qualitative researcher interacts with the situation she or he studies. The researcher becomes a part and parcel of situations studied, and almost tries to find the meaning by being very close to the reality. Hence, the gap between observer and observed is minimized. The researcher shifts her or his status from objective and external observer to insider.
- iii) From an axiological point of view, qualitative research emphasizes on value loaded inquiry. Since the researcher is the sole instrument of investigation it is natural that her or his values and biases influence the process of inquiry. Hence, field studies conducted by qualitative researchers reflect their values and biases in presentation of data and interpretation.
- iv) The language of qualitative research is artistic and literary in nature. Unlike scientific reporting where an impersonal third person presentation is emphasized, the qualitative studies are reported in informal style using the personal voice. Qualitative terms are presented in narrative form rather than presenting a definition along with its explanations. Instead of using the terms like internal validity, external validity, generalizability, the qualitative terms like credibility, transferability, dependability and conformability are used in reporting of the studies.
- v) The qualitative research paradigm emphasizes an inductive logical approach. The researcher studies a given situation. The research identifies categories from data gathered through interaction with the situation rather than confirming predecided categories through gathering evidence.

8.7 COMMON STEPS OF CONDUCTING QUALITATIVE STUDIES

The steps in conducting qualitative studies are (i) identifying problems and research questions, (ii) designing sources of data, sample and data gathering techniques, (iii) conducting field study or collecting data and (iv) data analysis and reporting.

i) Identifying Problems and Research Questions

At the first stage the researcher identifies a problem to be investigated. It emerges from a thorough analysis and review of literature and the experience of the researcher and experts on several issues and problems. The major process of

research, at this stage, is identified with building the central question of the study and subsequently linking it with a number of sub-questions.

While identifying a central question the researcher puts in open-ended and non-directional queries. The queries focus on the “What” and “How” aspects of the phenomena under investigation. The exploratory questions highlighting the “process” aspects or “meaning” aspects are considered as the main theme of the investigation.

Following the central question, a small number of sub-questions are identified at the first stage of research. There can be a number of sub-questions, keeping in view the scope and focus of the study.

For instance, in the context of a phenomenological study of understanding professional ethics of counsellor, the researcher may ask sub-questions like:

1. What do professional ethics mean to an experienced counsellor?
2. What do the counsellors do to upgrade professional ethics?
3. Describe one person with high professional ethics.

These kind of questions become the guiding force for the next steps of research.

ii) Design of the Study

At this stage the researcher develops an open sketch of sampling, tools and techniques to be adopted, sources of data etc.

Unlike a scientific investigation where the design is built prior to conduct of the study, the qualitative researcher develops an open and flexible approach. At this stage of inquiry, the following considerations are kept in mind by the researcher.

a) Sampling

Purposive sampling techniques are used for identification of informants' responses of the study. For instance, in the case of a phenomenological study the researcher identifies all participants who experience the phenomena being studied. Moreover, the researcher examines the individuals who can contribute significantly to develop a theory in the context of a grounded theory. In the case of a case study, the researcher likes to gather evidence from diverse situations which display multiple facets of the case. Hence, she or he picks up a heterogeneous group of respondents who are stake holders of the system. As a whole, it can be said that keeping in view the nature of questions involved in the study, the researcher identifies the appropriate sample. The sample size may vary from problem to problem.

b) Forms of data

The researcher must be clear about what kinds of data are to be gathered for investigation. Mainly, they can be categorized under the following four heads:

1. evidences about the surroundings, situations, activities, events and performances, etc. through observations;
2. evidences or experiences as explored through interviews;
3. evidence on developments; performances, demography, rate of participating, nature of progress recorded or noticed in various kinds of documents, publications, write ups etc; and

4. physical trace of evidence, behavioural dynamics, expression, feelings, emotional outbursts, etc. to be trapped by audio-visual data gathering devices.

The investigator must keep an open mind while employing various data gathering devices keeping in view the nature of data that emerge during the data collection process or field work.

iii) Data Collection Process

As stated earlier, mainly four kind of data gathering devices are adopted by qualitative researcher viz., observation, interviews, document analysis and audio-visual gadgets. The researcher must be competent enough to deal with these different qualitative techniques of data collection.

a) Interviewing

The researcher adopts informal interviews keeping in view the sub-questions related to the issues and themes involved in the study. Identifying sample respondents to be interviewed purposefully is the first step. Whether a researcher goes for one-on-one or in-depth interview or focus group interview is to be kept in mind. For smoothening the process of the interview, the researcher may make use of an interview protocol or format with open-ended questions and ample space between the questions to write responses or the interviewers' comments. The researcher may opt for using audio cassette recorders or a telephonic device for interviews.

b) Observing

The qualitative method mainly makes use of participant observation technique where the researcher gets an opportunity to witness the events being a complete insider. While ethnography insists on this kind of observation, in the case of study the researcher may opt for direct observation. In employing the observation technique the researcher must be careful about identifying the site to be observed, identifying who or what to observe and how long, the observation protocol to be used, the role of the observer that is participant or outsider are to be thought about during the data collection stage.

Moreover, the recording of observations that is, portraits of the informant, physical setting, particular events and activities, researcher's reactions must be kept in mind while adopting observation techniques.

c) Documentation

While adopting this technique the researcher must examine which materials are relevant to the study. She or he will also have to explore the means of how to trap evidences or having accessibility to relevant documents. As in case of historical studies, the researcher will have to be careful about authenticity of documents and the validity of information presentable therein.

d) Visual Devices

As a field worker the qualitative researcher must be acquainted with using various kinds of audio-visual recording practices. While using them he or she must be careful about the sensitivity of situations, ethical aspects, uniformity, etc.

All these devices are used to gather evidences in natural setting with a view to studying the emerging total picture of the situation.

iv) Analysis of data and reporting

Data collection and data analysis go on side by side in qualitative studies. Different techniques of data analysis include:

- a) Review of data and representing data by case, by subject and by themes in the form of description, diagrams, tables and graphs.
- b) Initial codification and categorization and further minimizing categories.
- c) Frequent appearance of codes, development of categories, development of analytical frame work for theorization.

Let us consider each of these in greater details:

- a) In this approach the researcher makes a thorough review of information as noted in the observation formats or interview schedules, notes etc. She or he points out key points and writes reflective notes on the basis of an initial review. Sometimes it motivates the researcher to verify certain points through further interaction with the informants. The researcher translates the ideas of informants into metaphors.

Furthermore, the researcher presents descriptions in the form of tables, graphs, pictures, figures, diagrams etc. She or he represents the case by themes or by specific subject areas.

- b) The process of codification or categorization involves developing a short list of tentative codes that match a text segment. Elaborate lists of codes are arrived at in the initial stage. Then categorization of facts and themes takes place by identification of common codes. Furthermore, the categories are reduced to identify major themes and present them in narrative forms.
- c) Another data analysis technique indicates preliminary counts of data and determines how frequently each code appears in the total data. Then the researcher identifies categories and develops analytical frameworks with a view to generating theories. In the whole data analysis procedure, a spiral approach is followed to identify categories, reflecting, cross-questioning, reading, interpreting etc.

Check Your Progress Exercise 3

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. How does a researcher identify research questions?

.....

.....

.....

.....

2. What are the different sources of data used in qualitative studies?

.....

.....

.....

.....

3. How is participant observation different from general observation?

.....

.....

.....

.....

4. What are the different data analysis techniques used in qualitative studies?

.....

.....

.....

.....

8.8 VERIFICATION OF TRUSTWORTHINESS OF QUALITATIVE RESEARCH

Unlike standard procedures followed in establishing the objectivity and validity of quantitative research, you will come across many qualitative approaches to verify the trustworthiness of qualitative research. Generally, the following verification procedures are employed for studying trust worthiness of such kind of studies:

- i) **Prolonged engagement and persistent observation:** Researcher's prolonged interaction with informants and participatory observation wins the confidence of the informants. Hence, this procedure minimizes the possibility of vagueness of data. Prolonged engagement in the field helps the researcher to reflect on the genuineness and authenticity of data, on gathering relevant data and on making purposeful use of evidences.
- ii) **Rival explanations:** Once the researcher (after qualitative analysis) has described the patterns and their explanations, it is important to look for rival or competing themes and explanations both inductively and logically. Inductively, it implies looking for other ways of organizing the data that might lead to different results. Logically, it involves searching for other logical possibilities and then finding if those possibilities can be supported by the data. However, while considering rival hypotheses and competing explanations, the strategy to be employed by the researcher is not attempting to disprove alternatives, but to look for data that support alternative explanations. In this strategy, the researcher should give due weightage to supporting evidence look for the best 'fit' between data and analysis.

- iii) **Triangulation:** It is another significant technique of verification where the researcher makes use of multiple and different sources, methods and theories in order to provide corroborating evidence. In other words, through triangulation, evidences are corroborated from different sources to throw light on a theme or perspective. It involves comparing and cross checking consistency of data derived by different means at different times using qualitative methods. It means (i) comparing observational data with interview data; (ii) comparing observational data with questionnaire data; (iii) what participants of a programme say in public with what they say in private; (iv) checking for consistency in the opinion of the participants about a programme over a period of time; and (v) comparing the opinion of the participants of a programme with others who are associated with the programme in one capacity or the other. The triangulation of data sources within qualitative methods will seldom lead to a singly totally consistent picture. But such triangulation is helpful to study and understand when and why there are differences.
- iv) **Peer view or debriefing:** The methodology followed in the study with emphasis on subjective approach gets cross-examined by the peer researchers. The peers review the study, present their views in debriefing sessions. Such an operation helps the researcher introspect on the study in the context of peers reflection on the procedural dimensions and reporting.
- v) **Design checks:** The nature of research design and methodology also contribute to distortion in result. Sampling gives rise to three type of errors. The errors may be due to : (i) distortion in situations that were sampled for observation; (ii) distortion introduced by the time periods during which observations took place; (iii) distortion because of selectivity in the people who were sampled either for observation or interviews. Thus, the researcher must be careful to limit results of his study to those situations, time periods, people and contents for which data are applicable.
- vi) **Negative case analysis:** Unlike a quantitative study where the hypothesis is set prior to conduct of the study the, qualitative researcher keeps on refining the working hypotheses in due course of conducting the study. Hence content specificity is kept in mind for refining the initial hypotheses till the completion of the data collection process and its analysis. The search for negative cases and instances that do not fit within the identified pattern and their understanding is also competent in the verification and validation of results.
- vii) **Clarifying researcher's bias:** It is presumed that the researcher herself or himself recognizes her or his bias and subjectivity. Hence in view of making it transparent the researcher comments on past experiences, prejudices, and orientations that influenced the interpretation and approach to study.
- viii) **Member checks:** Through this technique the entire study's report with its prime data base, analysis and interpretations is presented before the participant respondents who can judge the accuracy and credibility of the account. They are asked to provide critical observations on the research work.

- ix) **Rich and thick descriptive presentation:** The researcher describes in detail the participants or setting under study. Hence, the readers get a clear picture of the setting. They get a chance to examine the findings that can be applicable or transferred to other similar settings.
- x) **External audits:** Through this process the expert consultant who is purely external and independent to the study examines both the process and the product of the account, thus assessing its accuracy.

The above indicators are employed to examine the authenticity and credibility of qualitative studies through involvement of human experiences in the process. What is more significant is that the researcher must maintain transparency throughout the study so that the scope of verifying its trustworthiness becomes wider and accessible.

8.9 LET US SUM UP

In the foregoing sections, you were shown that main features of qualitative studies are needed mainly with the purpose of understanding process dynamics of a phenomenon in contextual frameworks. Such understanding may lead towards theorizations. Different kinds of qualitative methods are used in different contexts, such as biographies, ethnography, grounded theory, phenomenology and case study. However, these methods follow common approaches like interviews, observations, study of documents and narrative techniques of data analysis. These methods adopt subjective human and participant experience-based techniques in contrast to that of generic methods of inquiry. However, as a researcher, you will have to be mature enough to adopt various checks and balances for trustworthiness of findings of such studies.

8.10 GLOSSARY

- Case design** : A plan of action or a blueprint.
- Case study** : Intensive investigation of a particular unit.
- Case work** : Developmental and adjunct mental procedure that follows diagnosis.
- Trait** : Distinguishing feature.

8.11 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1. Quantitative studies are mainly of explanatory nature focusing on the 'why' components. Qualitative studies focus on 'how' and 'what' components with a view to understanding in process dynamics in specific situations.
2. Basic factors of qualitative studies are natural setting, researcher's involvement, visual and verbal images, process dynamics, inductive logic and participant perspectives.
3. The qualitative method is suitable to study complex human and social problems in totality, to observe the phenomena without making any manipulations or controls on variable, to study and explore the nature of subjective quality.

1.
 - i) The contribution of an innovative counsellor.
 - ii) Existing curriculum transaction in a school.
 - iii) Parents involvement in school management.
 - iv) Study of an extended family.
 - v) Professionalism in counselling.
2. All qualitative studies use qualitative data collection techniques like interviews, observations, document analysis, photographic techniques, and descriptive and narrative approaches of data analysis.

Check Your Progress Exercises 3

1. Researcher can identify research questions by experiencing first-hand exposures and study of literature.
2. Sources of data used in qualitative research are empirical evidences as revealed through interviews and observations, demography, documents, physical trace of evidences, visual and verbal images.
3. A participant observer plays the role of being part and parcel of locality. General observer is alien to the reality.
4. Data analysis techniques used in qualitative studies are reviews, descriptions, codification and categorizations.

8.12 UNIT END QUESTIONS

1. Identify and state different problems or topics in the area of counselling and family therapy belonging to each of the categories of qualitative research:
 - a) Biography
 - b) Ethnography
 - c) Phenomenology
 - d) Grounded theory
 - e) Case study
2. Chalk out the strategy for conducting any of these studies.
3. Differentiate between the strategies adopted in conducting quantitative studies and those in qualitative studies.
4. What are the limitations of qualitative research?
5. How can we judge trustworthiness of qualitative research?
6. What should be the role of a researcher in conducting qualitative research?

8.13 FURTHER READINGS AND REFERENCES

- Best, J. W. (1992). *Research in Education*. 8th Indian Reprint, New Delhi: Prentice-Hall India.
- Borg, W.R. & Gall, M.D. (1986). *Educational Research: An Introduction*. Fourth Edition, New York: Longman.
- Budhwar, P. & Budhwar, L. (2003). *Research Methods Businness Studies: Issures and Perspectives*. New Delhi: Global Business Press. Pp. 39-50
- Busha, H. & Harter, P. (1980). *Research Methods in Librarianship: Techniques and Interpertation*. New York: Academic Press. Pp. 151-54.
- Bhardwaj, R.S. (1999). *Business Statistics*. New Delhi: Excel Books.
- Creswell, J.W. (1998). *Qualitative Inquiry and Research Design*. New Delhi: Sage Publications.
- Denzin, N.K. & Lincoln, Y.S. (Eds.) (1994). *Handbook of Qualitative Research*. California: Sage Publications Inc.
- Dorr-Bremme, D.W. (1985). Naturalistic-Evaluation. In Torsten Hussain and T.N. Postlewaite (Eds.), *The International Encyclopedia of Education*. Oxford: Pergamon Press.
- Erickson, F. (1986). Qualitative Methods of Research on Testing. In Merlin C. Withock (Ed.), *Handbook of Research on Teaching*. 3rd Edition. London: Collier MacMillan.
- Galtung, J. (1970). *Theory and Methods of Social Research*. London: George Allen Unwin Ltd.
- Guba, E.G. & Lincoln, Y.S. (1987). Naturalistic Inquiry. In Michael J. Dunkin (Ed.), *The International Encyclopedia of Teaching and Teacher Education*. Oxford: Pergamon Press.
- Gopal, M.H. (1994). *An Introduction to Research Procedure in Social Sciences*. Bombay: Asia Publishing House, Pp. 184-92.
- IGNOU Study Material (2005). *EEC-13: Elementary Statistical Methods and Survey Techniques*, Block 6.
- Koul, L. (1997). *Methodology of Educational Research*. New Delhi: Vikas Publishing House Pvt. Ltd., pp. 187-206.
- Krishan, K. (1992). *Research Methods in Library and Information Sciences*. New Delhi: Har-Anand Publications.
- Kothari, C.R. (1985). *Research Methodology: Methods and Techniques*. New Delhi: Wiley Eastern.
- Lunderg, A. (1942). *Social Research*. London: Longmans.
- Patton, M. Q. (1982). *Qualitative Evaluation Methods*. London: Sage Publications.
- Yin, R.K. (1994). *Case Study Research: Design and Method*. California: Thousand Oaks.
- Young, P.V. (1996). *Scientific Social; Surveys and Research*. New Delhi: Prentice Hall of India.

UNIT 9 QUANTITATIVE METHODS

Structure

- 9.1 Introduction
- 9.2 Definition of Quantitative Methods
- 9.3 Distinction between Qualitative and Quantitative Research Methods
- 9.4 Questionnaire Method: Definition
- 9.5 Questionnaire Construction
 - 9.5.1 Types of Questionnaires
 - 9.5.2 Types of Questions
 - 9.5.3 Use of Scales
 - 9.5.4 Precautions
- 9.6 Pre-testing of Questionnaire
- 9.7 Distribution of Questionnaire
- 9.8 Response Rate
- 9.9 Advantages and Limitations of Questionnaire Method
- 9.10 Experimental Method
- 9.11 Parts of an Experiment
- 9.12 Steps in Planning Experimental Research
- 9.13 Laboratory Experiment and Field Experiment
- 9.14 Experimental Research Design
- 9.15 Advantages, Disadvantages and Limitations of Experimental Method
- 9.16 Let Us Sum Up
- 9.17 Glossary
- 9.18 Answers to Check Your Progress Exercises
- 9.19 Unit End Questions
- 9.20 Further Readings and References

9.1 INTRODUCTION

In the field of social science, survey research is heavily used in exploring user information needs and user patterns. In order to strengthen the information resources and services in the counselling cells, researchers conduct surveys. These surveys attempt to gather data for investigations and to know the characteristics of clients, their needs etc.

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 the product or service by getting the users' response. In this Unit, we will gain familiarity with the advantages and limitations of the questionnaire method. Further, in this Unit, we will learn the technique of preparing a questionnaire, run on and emerging trends in this area. In this Unit, we will also get acquainted with the experimental method of research in detail. We will study experimental research design, steps in planning an experimental research and its advantages and limitations.

Objectives

After studying this Unit, you will be able to:

- Define quantitative methods in research;
- Appreciate how to plan these methods for collecting the data;
- Identify between qualitative and quantitative research methods;
- Describe the use, advantages and disadvantages of questionnaire; and
- Learn how to conduct experiment.

9.2 DEFINITION OF QUANTITATIVE METHODS

Quantitative methods are used when data has to be generated on a large sample and statistical treatment of the data is done. Use of quantitative methods of data collection in social science research is common. According to Wikipedia, quantitative research refers to the systematic investigation of quantitative properties and phenomena and their relationships. The objective of quantitative research is to develop and employ mathematical models, theories and/or hypotheses pertaining to phenomena. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships (Wikipedia, 2010).

9.3 DISTINCTION BETWEEN QUALITATIVE AND QUANTITATIVE RESEARCH METHODS

Both qualitative and quantitative research methods are used for data collection. Which type of the method has to be used for data collection is based on the research problem and its hypotheses. Each of these research approaches should be used when found as the most appropriate research tool for a given research problem/hypothesis. Table 9.1 summarises differences between qualitative research methods and quantitative research methods.

Table 9.1 : Qualitative Versus Quantitative Research Methods

Criteria	Qualitative Method	Quantitative Method
Meaning & Concept	● It is a detailed and comprehensive description. ● It is complete and in-depth description. ● Researcher may only know roughly in advance what she or he is looking for.	● It aims to classify features, count them and construct statistical models to explain what is observed. ● Researcher knows clearly in advance what she or he is looking for.
Applications	● It involves analysis of data such as words (eg. from interviews), pictures (e.g. video), or objects (e.g. an artifact). ● It is useful in early phases of research.	● It involves analysis of numerical data. ● It is useful in later phases of research.
Design of Research Study	● The design of the research study emerges as the study unfolds. ● It seeks to explore phenomena.	● The design of the research study is already decided before data is collected. ● It seeks to confirm hypothesis about phenomena.
Flexibility in research design	● It is flexible as some aspects of the study can be changed during the study like as per the need, the question can be reframed, deleted /added during the in-depth or focus interview. ● Participant's response influences how and which question researchers ask next. ● Data collected and formulation of research question adjusted and evolved as per the insights gathered in the study.	● It is stable from beginning to end, No aspect can be changed during the study. ● Participant's response does not influence the flow of the questions. ● Data collected is subject to statistical assumptions and conditions.
Objectives of Research Methods	● To describe variation ● To describe and explain relationships ● To describe individual experiences ● To describe group norms.	● To quantify variation. ● To predict casual relationships. ● To describe characteristics of a population. ● To quantify group norms.

Instruments for Data Collection	● Researcher is the principle data gathering instrument. ● In this, semi-structured methods like in-depth interview, focus interview, participant observation, etc. are used. ● It uses open-ended questions. ● Testing tools are more flexible, iterative style of eliciting and categorizing responses to questions.	● Researcher uses tools or tests to collect data. ● In this, highly structured methods like questionnaire, survey, structured observation, experiment, etc. are used. ● It uses close-ended questions. ● Testing instruments/tools/ tests used are more in rigid style of eliciting and categorizing responses to questions.
Data Format	● It is in the form of images, words, texts, pictures, objects, verbal records	● It is in the form of numbers, categories and statistics.
Data Obtained Through	● It could be from audiotapes, video tapes or field notes.	● It is from assigning numerical value to responses.
Objectivity	● It is subjective in nature. ● It is based on researcher(s)/ individual interpretation of the data-event, culture, people, family or individual. ● Here, researcher gets subjects immersed in the subject matter.	● It is objective in nature. ● It seeks precise statistical measurement. ● Here, researcher remains objective and deals with the subjects matter objectively.

Source : James Neill. (2007). *Qualitative versus quantitative research : Key points in a classic debate*. Wilderdom.com/research/QualitativeVersusQuantitativeResearch.html.
(Adapted from)
Mack, N.; Woodsong, C.; MacQueen, K.M.; Guest, G.&Namey, E.(2005). *Qualitative research method: A data collector's field guide. Module 1: Qualitative Research Methods Overview*. North Carolina: Family Health International. (pp 3).

9.4 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 she or he requires answers. The list of questions grouped in some order is either given personally, or sent or mailed to the target population.

In simple words, a *questionnaire* is a set of written questions for respondents to answer. These answers become the 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 as "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.

9.5 QUESTIONNAIRE CONSTRUCTION

While preparing a questionnaire, caution must be taken in selection of questions and variables so that the researcher can receive accurate answers that she or he 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 the hypothesis can be tested. It is essential for the researcher to have a clear understanding of the problem under study. Hence, she or he needs to review the related literature before finalizing 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.

An example of covering letter is given in Box 9.1

Box 9.1: An example of a covering letter of a questionnaire

For Private Circulation Only

Questionnaire

Impact of the Pre-marital counselling on the couples in Kerala

Dear Respondent,

I am conducting a research on the impact of Pre-marital counselling on the couples. In this connection I have designed a questionnaire to get the responses of couples. 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. Williams (1997) is of the opinion that the 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 a 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) Pre-testing 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 response;
- 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 the objective of the research undertaken is and what type of questions are 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 ones as opened ended questions may 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.

Check Your Progress Exercise 1

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. Explain why length of a questionnaire determines its response rate.

.....

.....

.....

.....

.....

2. Why is covering letter necessary in a mailed questionnaire?

.....

.....

.....

.....

.....

9.5.1 Types of Questionnaires

McKornam (1996) categorized 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 of 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 a wider geographical area. The biggest disadvantage of the 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 questionnaires 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 third category, that is *personal contact questionnaire* the researcher and the respondents come together and the questionnaire is filled in the presence of the former. It enables them to interact and clarify areas that may need clarification.

9.5.2 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 that is open-ended and close-ended question.

Open-Ended Question

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 Question

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

.....

.....

.....

.....

.....

Advantages of Open-Ended Questions

- Unanticipated answers can be obtained from the respondents.
- Researchers 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.
- 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 have to be 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 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 answer 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, limit her or his 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 standardization.....

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 etc.

Database Power point
Searching

Any other please specify.....

Advantages of Close-Ended Questions

- Cost effective.
- Answers of the respondents can be compared.

- Easy for respondents to answer.
- 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 desirable 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 question will be adopted will depend on various factors. For quantitative data 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 categorize 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 finalizing a question in the questionnaire. These are:

- 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, pre-testing the questionnaire is essential. Pre-testing 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 her or him comfortable in answering or responding. The questionnaire should start with general but relevant questions and then move to the specific ones. It helps to set a logical flow in the questionnaire. Same type of questions may be put together in a group or section. For example, Question nos. 1 to 9 deal with the help of counselling services. This type of instruction helps the respondents to understand the grouping of questions. If the 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 organized in a 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 counselling services or sources, the next question should be about the importance of counselling services or sources, and this should be followed by the question on need of counselling 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. A logical and proper organization 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 ensure completion of questionnaire. Questions whether mailed or distributed personally, should have an 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 she or he is very an important component in the research project; her or his participation in the research is very much appreciated.

Researcher has to decide the format of the questions. Only those questions are to be preferred, which require answers in 'yes' or 'no' or marking right (✓) or wrong (×). 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 answer to the subsequent questions. For example, if a respondent's 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 questions commonly use boxes, brackets, tick mark or cross to facilitate quick responses. However, the researcher needs to use only one type to maintain uniformity and consistency.

Examples of Question Format

Horizontal type

What is the need of pre-marital of counselling services (Tick mark (✓) the answer)

High _____ Moderate _____ Low _____

Vertical type

What is the need of pre-marital counselling services? (Tick mark (✓) the answer)

High _____

Moderate _____

Low _____

Example of Matrix Question Format

How frequently do you like to spend your leisure time in the following activities?
Tick mark (✓) the answer.

Activities	Frequently	Often	Sometime	Rarely	Never
Watching Television	()	()	()	()	()
Gardening	()	()	()	()	()
Reading Newspaper/ Magazine	()	()	()	()	()
Any other activity please specify _____	()	()	()	()	()

Given below are examples of some response category choices [the choices are adapted from Neuman (1997)]:

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

Check Your Progress Exercise 2

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. Differentiate between open-ended and close-ended questions.

.....

.....

.....

.....

.....

.....

9.5.3 Use of Scales

The questions should be designed in such a manner that the answers can 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 continuum that have numerals assigned to them. This is perhaps the most used measuring instrument as they are easy and quick to use. The time required for administering and measuring the 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 scales can be of several types. The most usual is simply a form of pre-coded question, for example, "Do you find the counselling services in your area adequate enough to meet the community demands?". Please tick mark (✓) the appropriate columns:

Excellent____ Very Adequate ____ Adequate____ Inadequate____ Poor____

The number of categories affect 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 conference/ seminars as useful sources of information? If yes, please indicate (tick mark ✓) 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 average of all the variables in different scales is calculated according to weighted index and 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 9.1, 9.2, 9.3, clarify the point.

Table 9.1: Three-Point Scale

Scale	Weights		
	3	2	1
Level of Difficulty	High	Moderate	Low

Table 9.2: 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 9.3 : 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 are involved." (Line, 1981). For example:

How, would you deal with marital discord? Mark 1, 2, 3 etc., indicating your preferences (1 stands for first preference and 2 for second, etc.).

Table 9.4: Rank Order Scale

Methods	Order of Preference
Consult the Doctor	
Consult the lawyer	
Consult the Counsellor	
Consult Relative or	
Surf Internet	
Search in related books	

Check Your Progress Exercise 3

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. What is a rating scale?

.....

.....

.....

.....

.....

9.5.4 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 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 be kept in mind while framing the questions otherwise it will lead to incomplete questions or questionnaires with poor responses.
- Questions leading to hypothetical situations 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,
- 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, it is difficult to obtain valid data,
- g) Willingness of the respondent must be ensured, otherwise the questionnaire will not be of any value,
- h) Care must be taken to do away with unneeded or irrelevant questions. This may discourage 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, and
- k) Questions that convey double meaning or pose two questions at once need to be eliminated or restated or reworded. These types of questions are called *double-barreled questions*.

9.6 PRE-TESTING OF QUESTIONNAIRE

Survey research questionnaires 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 related to clarification, understanding of technical or professional terminology, order of questions, etc. Paul Burton (1990) states, pre-testing therefore goes through a number of iterations, but this is a necessary part of questionnaire design. Pre-testing, also called *pilot survey*, is very much desirable to finalize the questionnaire. Krishan Kumar (1992) has also suggested that a second pre-test must be carried out with a revised questionnaire. He further observes that if some difficulties crop up, another pre-test might be required. Pre-test also indicates the time required to fill up the questionnaire. It is a practice to not include the pre-test sample in the actual population.

Check Your Progress Exercise 4

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. Why is pre-testing required before finalization of questionnaire?

.....

.....

.....

.....

.....

9.7 DISTRIBUTION OF QUESTIONNAIRE

Questionnaires can be either distributed personally or through mail, by e-mail or Internet. Each system has its own merits and demerits. We will discuss them in detail below:

In Person

Questionnaires can be distributed personally to the respondents. For example, if the researcher is surveying the need of counselling, then the questionnaires can be given at the time when client comes for counselling. 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 or pre-paid so that the respondents can return the filled questionnaire in time without hassle. Mailed questionnaire should also be accompanied by 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 consult. As it is not possible to contact each of the respondents some questionnaires may be left with the staff or with the department where they work or study with the prior permission of the counsellor or authorities.

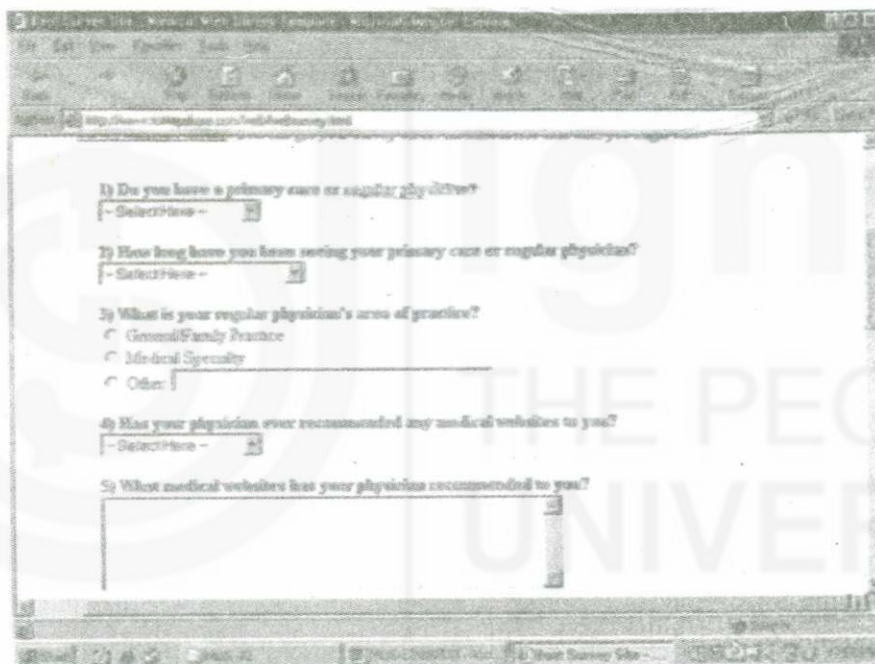
Though E-mail

Nowadays with the introduction 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 be extended or re-sent to the respondents any time at any place. E-mail based questionnaire is easy to construct, distribute and manage the results. Through this method an online survey can be made available to any one with internet connectivity.

The pre-requisite of this method is 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 the 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 questionnaires also have a time frame to complete or submit. This type of questionnaire also has a set of respondents. For example, if the survey is on the "Use of CBT by the Counsellors or Family Therapist of India in the field of Mental Health" only the counselling or family therapist 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 click of a mouse. 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.



1) Do you have a primary care or regular physician?
- Select from -

2) How long have you been seeing your primary care or regular physician?
- Select from -

3) What is your regular physician's area of practice?
☐ General/Family Practice
☐ Medical Specialty
☐ Other: _____

4) Has your physician ever recommended any medical websites to you?
- Select from -

5) What medical websites has your physician recommended to you?

Fig. 9.1: Snapshot of a Web Questionnaire

Designing of Web-based Questionnaire

It should be designed in such a way that it 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 answer.

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 a short span of time. It is easy, fast and inexpensive. The researcher is free from the hassle

of collecting properly filled questionnaires. For example, if a respondent fills a question wrongly, outside the defined range of answers or she or he misses some of the questions, the web-based questionnaire programme 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 that this type of questionnaire may not successfully attract a representative sample of the population of interest. The population is wide spread and it is not possible for the researcher to personally contact them. Due to a technical snag like server crash or browser freeze a lot of data may be lost. It is advisable to keep such questionnaires 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 the 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 overcome such situations it is necessary to test and retest the questionnaire. Alternatively the web programme should have a very soft and humble error message, which prompts the respondent to return and fill it.

Check Your Progress Exercise 5

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. State the advantages of web-based questionnaire.

.....

.....

.....

.....

9.8 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, and 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 them to return the completed questionnaire. If the questionnaire is short and simple it generates good response. The respondents should be motivated periodically to fill up the questionnaire. Timing of the

distribution is also important in getting responses. If teacher or students are given the questionnaire during vacations or weekends, it will generally yield a higher response.

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

9.9 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. Background 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 though pretest to revise the final questionnaire.
- Responses are easy to analyse and tabulate.
- Questionnaire method provides the respondents with a means 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 a time-consuming activity, which includes preparation, pretest, revision, distribution and sending reminders; adding to time and cost of data collection.
- Incomplete answers also cause problems during analysis stage.
- The researcher cannot observe the respondents' reaction at the time of filling up 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 or 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 which 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.

9.10 EXPERIMENTAL METHOD

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

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

These points emphasize 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 or 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 can 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 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 that arises is, can the astronomer bring the solar system in to the laboratory?

Though these kinds 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 was on the strong footings of scientific method.

9.11 PARTS OF AN EXPERIMENT

It is essential to know the parts of experiment to understand the process of experimental research in a better way. Some of the identified parts of an experiment are subject, experimental group, control group, treatment, independent variable, dependent variable, pre-test, post-test and random assignment.

Variable

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

Dependent variable

Independent variable

- *Independent Variable*

Independent variable is an experimental variable, which is manipulated in an experiment. It is also known as *casual variable*.

- *Dependent Variable*

Dependent variable is a subject variable associated with control group. It 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 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 subject matters pose the problems of identification of variables and their control. Therefore, to overcome this problem the concept of randomization is used. The randomization is nothing but assigning subject to experimental and control groups at random. Random assignment is a requirement of statistical tests of 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 case of social science, subjects are often people — clients, children, or 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).

Pre-test

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

Post-test

The measurement of dependent variable for experimental and control groups after the pre-test and introduction of treatment is called post-test.

9.12 STEPS IN PLANNING EXPERIMENTAL RESEARCH

Experimental research is to be planned carefully considering all the details so as to obtain the 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.

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 must be conducive to the phenomena to be studied;
- the phenomena must occur in the setting so that organizing 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 and 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;
- analyzing, 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 affected any change in the value of dependent variable. For the purpose of testing a null hypothesis, tests like t-test, 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 the random assignment of the subjects been employed throughout?

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

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

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

9.13 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.

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 variables 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.

Uses 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 generalized 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 a 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 randomization in many fields.
- Another weakness is the lack of precision. Precise measurement in realistic situation is not possible as in laboratory method.

Check Your Progress Exercise 6

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. Differentiate between the laboratory and field experiments

.....

.....

.....

.....

.....

.....

.....

.....

.....

9.14 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, that is the law of the single variable;
- Measurement programme;
- The experimental design concerns the technical and organizational 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 can give rise to a multitude of possible experimental designs;
- In experimental design, experts have categorized four distinct designs which are as follows;
 - Before-After or Pre-test-Post-test experimental design;
 - After-only or Post-test only experimental design;
 - Quasi Design or Ex-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. 9.1.). 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 pre-test, 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. 9.1: The Four-Cell Experimental Design

After-only or Post-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 recognized as a result of manipulating the variable in the experiment.

Quasi Design 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. Nevertheless, there are research situations which, although lacking both features of experimentation (that is randomization 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'. In this the experimenter does not achieve the change; she or he invariably chances upon the effect after it has already occurred.

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 generalize 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.

Check Your Progress Exercise 7

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. Enumerate the different experimental designs.

.....

.....

.....

.....

9.15 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.

Disadvantages

- 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).

Check Your Progress Exercise 8

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. State the advantages of experimental method.

.....

.....

.....

.....

.....

.....

9.16 LET US SUM UP

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.

The 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.

We have also 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 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 very basic for 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 involved.

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

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

9.17 GLOSSARY

Experimental hypothesis	: A prediction that the treatment will cause an effect.
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.
Questionnaire	: It is data gathering instrument in survey research. It is a list of written questions, which are to be answered by the target population.
Response rate	: The number of respondents who return the filled in questionnaire.
Rank order scale	: Respondents are asked to rank all items according to some specified order.
Randomization	: A tool used to establish internal variability.
Scaling technique	: A finite sample of concepts or items is ordered along a continuum. This may or may not be accompanied by qualitative measurement of the variable represented by continuum.
Structured observation	: It is organized and planned, and employs formal procedure. The units to be observed have to be carefully defined. The observer is supposed to know the situation and therefore needs to prepare specific plan for collection and recording of the data. It is subjected to high levels of control and differentiation.
Weighted index	: Weighted index derives by multiplying the percentage of respondents (weights) with the numerical value assigned to the scale in terms of percentage.
Variable	: The treatment variable.

9.18 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

- 1) What should be the length of the questionnaire has been debated for 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.

Check Your Progress Exercise 2

- 1) Open-ended questions are those questions where respondents give answers 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 procoded questions.

Check Your Progress Exercise 3

- 1) 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.

Check Your Progress Exercise 4

- 1) Pre-testing 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 pre-testing the researcher revises and circulates it to the target population.

Check Your Progress Exercise 5

- 1) 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.

Check Your Progress Exercise 6

- 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.

Check Your Progress Exercise 7

- 1) Following are the experimental designs :
 - i) Before-After or Pre-test-Post-test experimental design
 - ii) After-only or Post-test only experimental design
 - iii) Quasi Design or Ex-Post-facto experimental design; and
 - iv) Special design or Mixed design

Check Your Progress Exercise 8

- 1) Advantages of experimental method are given below:
 - Its power to determine casual relationship is much better than 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; and
 - This method yields generally exact measurement and it can be repeated.

9.19 UNIT END QUESTIONS

1. Define questionnaire and state its advantages and limitations.
2. What are the steps in planning an experiment?
3. What are the different experimental research designs? Explain with examples.

9.20 FURTHER READINGS AND REFERENCES

- Ahuja, R. (2001). *Research Methods*. Jaipur : Rawat. P. 239.
- Adams, G. R. & Schvaneveldt, J. D. (1985). *Understanding Research Methods*. New York : Logman. Pp. 197-229.
- Burton, P. (1990). Asking Questions: Questionnaire Design and Question Phrasing. In: Slater, Margaret, (Ed.), *Research Methods in Library and Information Studies*. London: The Library Association. Pp. 62 -76.
- Busha, C. H. & Harter, S. P. (1980). *Research Methods in Librarianship*. Orlando, Florida: Academic Press. Pp. 53-90.
- Bhandarkar, P.L. & Wilkinson (1998). *Methodology and Techniques of Social Research*. Mumbai: Himalaya.
- Fowler, F. J. (1987). *Survey Research Methods*. Vol. 1: *Applied Social Research Methods Texts*. New Delhi: Sage Publications. Pp.61-106.
- Goswami, I.M. (Ed.) (1995). *Research Methodology in Library Science*. New Delhi: Commonwealth.
- Goode, W. J. & Hatt, P. H. (1981). *Methods in Social Research*. Auckland: McGrawHill.
- Handarkar, P.L. & Wilkinson, T.S. (1998). *Methodology and Techniques of Social Science*. Mumbai: Himalaya.
- Khanna, J.K. (2001). *Handbook of Research in Library and Information Science*. New Delhi: Crest.
- Krishna Kumar (1992). *Research Methods in Library and Information Science*. New Delhi: Har-Anand.
- Krishna Swami,O.R. (1993). *Methodology of Research in Social Sciences*. Mumbai: Himalaya.
- Krishan Kumar (1992). *Research Methods in Library and Information Science*. New Delhi: Har Anand Publications in association with Vikas Publishing House. Pp.121 -173.
- Line, M. B. (1982). *Library Surveys : An Introduction to their Use, Planning, Procedure and Presentation of Surveys*. 2nd ed. Revised by Sue Stone. London: Clive Bingley.
- Line, M. B. (1981). Designing Secondary Services in Social Sciences: Reflections on a Research Project. *INSP EC*. 15, 84-94.

Mc Kernan, J. (1996). *Curriculum Action Research: A Handbook of Methods and Resources for the Reflective Practitioner*. 2nd ed. London: Kogan Page Limited. Pp. 123-140.

Mann, P.H. (1985). *Methods of Social Investigation*. Oxford: Blackwell.

Mann, T. (1987). *Guide to Research Methods*. New York: Oxford University Press.

Newman, W. L. (1997). *Social Research Methods: Qualitative and Quantitative Approaches*. 3rd ed. Boston: Allyn and Bacon. Pp. 227-269.

Powell, R. R. (1997). *Basic research Method for Librarians*. 3rded. Greenwich: Ablex.

Slater, M. (ed). (1990). *Research Methods in Library and Information Studies*. London: The Library Association.

Thakur, D. (1993). *Research Methodology in Social Sciences*. New Delhi: Deep and Deep.

Williamson, John B. (et al.). (1977). *The Research Craft: An introduction to Social sciences Methods*. Boston: Little Brown.

Williams, M. (1997). Social Survey: Design to Analyse: In: *Time May Social Reseqrch: Issues, Methods and Process*. 2nd ed. Buckingham, Philadelphia: Open University Press. Pp. 81-88.

THE PEOPLE'S
UNIVERSITY

UNIT 10 MIXED METHODS

Structure

- 10.1 Introduction
- 10.2 Meaning and Definition of Observation
 - 10.2.1 Purpose
 - 10.2.2 Characteristics
- 10.3 Planning and Process of Observation
- 10.4 Recording of Data
- 10.5 Types of Observation
 - 10.5.1 Participant – Non Participant
 - 10.5.2 Systematic – Non Systematic
 - 10.5.3 Structured – Unstructured
 - 10.5.4 Natural – Laboratory
 - 10.5.5 Open – Hidden
 - 10.5.6 Direct – Indirect
 - 10.5.7 Covert – Overt
- 10.6 Advantages and Disadvantages of Observation Method
- 10.7 Interview Method
- 10.8 Types of Interviews
 - 10.8.1 Structured Interview
 - 10.8.2 Unstructured Interview
 - 10.8.3 Focused Interview
 - 10.8.4 Non-directive Interview
 - 10.8.5 Clinical Interview
 - 10.8.6 Telephonic Interview
 - 10.8.7 Computer Assisted Telephone Interviewing (CATI) System
- 10.9 Interview Process
- 10.10 Advantages and Limitations of Interview Method
- 10.11 Documents
- 10.12 Let Us Sum Up
- 10.13 Glossary
- 10.14 Answers to Check Your Progress Exercises
- 10.15 Unit End Questions
- 10.16 Further Readings and References

10.1 INTRODUCTION

Data collection is a difficult and yet very important part in 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.

In a research, the question that arises is, how one can gain access to data required? One can access it through documents, or visiting places, like institutions, organizations, work places, or through questionnaires, observations and interviews. Before selecting the method, the researcher must know and finalize 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.

Mixed research design using both qualitative and quantitative research methods are now being increasingly planned to study the complex nature of human beings. In this Unit, we will discuss the three important research methods used differently but significantly in both qualitative and quantitative research designs, that is, observation, interview method and documents. The decision regarding which data collection technique has to be used, and in what way, depends on the research question – ‘what’, ‘why’, ‘how’, ‘how many’, ‘how often’, etc.

Objectives

After studying this Unit, you will be able to:

- Understand observation and interview methods;
- Know the types of observation and interview methods;
- Learn the procedure to conduct observation or interview;
- Discuss advantages and disadvantages of these methods; and
- Analyse and obtain data from documents.

10.2 MEANING AND DEFINITION OF OBSERVATION

Observation means watching carefully. We do see many things, situations in our routine life. There may not be any motive behind seeing them. What we see is mostly casual and without any purpose. But observation is different from casual seeing; it is to be done systematically with a definite purpose. In the process of observation, the observer uses all her or his sensory organs in an integrated manner. The observer obtains information about the world around her or him for a definite purpose. Observation 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. Most important is the need for impartial observation. The observer's experience is unique and peculiar to herself or himself. Naturally, the data collected may be less standardized. Still, this is one of the most useful methods of data collection in research, especially in social sciences.

The observation method of collecting data is one of the oldest, and this technique is used by both scientists and social scientists. The term observation sounds simple and gives an impression that the collection of data through this method is easy. But this is not true in scientific investigation. There is also a criticism that this method is unreliable but by approaching it scientifically, limitations can be overcome. This method of data collection is one of the oldest methods and it

can be treated as scientific only when the criteria such as objectivity, free from bias, reliability and systematization followed.

Every human being observes the things around her or him many times. Usually it is casual and unintentional. They observe it because it is in front of them. As seeing is not planned and focused observer may not be able to remember what has happened and even what is remembered will not be in detail. The observation takes place in a 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 or subjects including sciences and social sciences have been developed with the data collected through this method. The behavioural scientists and anthropologists devised or 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 purpose 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 definite plan or watching systematically a specific situation or phenomena with a definite purpose of collecting the data helps in recording accurate data.

10.2.1 Purpose

The purpose of observation is:

- 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 generalizations 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 and quantitative research used in both basic and applied research.

10.2.2 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 is to be drawn only on the items which are useful or relevant for the study.

- Observation is made on a selective basis that is, the researcher selects a relevant sample.
- Observation takes place in natural surroundings. In experimental studies, however it may take place in artificial setting.
- It helps the researcher to determine the reality by herself or himself .
- 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 or laboratory environment (except in an experimental study).
- It involves few or no controls on the surroundings (except in an experimental study).
- It could be observation of fewer items or subjects.
- It must serve the formulated research purpose.

Check Your Progress Exercise 1

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. Define observation method. Enumerate its purpose.

.....

.....

.....

.....

.....

.....

10.3 PLANNING AND PROCESS OF OBSERVATION

Observation involves human interaction and use of the 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 these limitations and collect factual data, there is a need for planning the observation.

The observer should examine the following questions well in advance to have an 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. Planning includes forecasting the situation and preparation of a step-by-step procedure. Each step has to be logically arranged to get factual data using 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 studying the 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 answers/data have to be collected from the observation. Specific types of questions to be included and the various 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; the 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 use, what will be the place of the researcher in the specific situation and how the process of observation can be initiated. While selecting a tool or technique the researcher should weigh its 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 a number of observers are being arranged for the purpose of observation. All of them may not be trained or 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 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. These 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 collection of 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.

Check Your Progress Exercise 2

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. Discuss the points you would keep in mind while planning an observation.

.....

.....

.....

.....

.....

10.4 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 because the observer totally relies upon the observations for amount and quality of information. She or he may collect the data single handedly. Therefore, she or he may need a background, such as knowledge of the subject, experience, adaptability, flexibility, ability to mix with others etc. Further, the observer should not mix her or his ideology with the 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. She or he has to prepare schedules similar to other 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 or expression or speech. It may be best to record the information but may not be possible to use the tool 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, the

observer may note down the key words and elaborate the same as early as possible so as 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: Someone may accept to do a work, but facial expression may show that she or 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 notes. Subsequently, the complete and full observation record may be prepared.

The observer may also have sheets of papers with coded categories for marking. A number of instruments, such as interactional chronograph, audio-introspectometer, interactional recorder, were devised by various scientists. We can see how tiny size cameras are being used for recording the pictures and voice of the people as a part of the investigation. Even the mobile phone cameras are being used for recording the pictures as well as conversation or communication. It could be possible to also use sound recordings and video recordings. These days TV channels are able to video graph a 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 has proven information without any interpolation. Any recording, however, must be done only with the permission of the participant of the study as well as the person guardian (if required).

10.5 TYPES OF OBSERVATION

10.5.1 Participant–Non Participant

The role of the observer or investigator needs to be defined. In *participant observation*, the investigator becomes a part of the setting or phenomenon. Then the investigator becomes a participant or member of the group and also investigates or observes the situation. She or 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 of observer and participant. She or he introduces herself or himself in a disguised manner. To enable the group to accept her or him as a member, the observer has to plan how to enter into the group and be accepted by the group. The observer involves herself or himself in the setting or 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. can be learnt by the researcher, which can be used to converse in the native language and can help in free flow of the information from the group. However, to know what the subject is really doing, the observation is better as compared to questioning the members of the group. Even the data collected from conversation can be validated through observation; that is, the statement made by the member 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

get 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 can be possible that the period of observation is long term that is to be continued for months. Therefore, the range of material collected can be good and qualitative but also 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 science 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 labour, study of tribal culture and workers in an industry in natural conditions. This method can also be used for research in the field of counselling and family therapy.

A greater degree of participation by the researcher may also result in developing close relationship with the group. Further, she or 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 or data collected. It may be worth noting that participation becomes more difficult when one wants to get information from 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, and psychologists; wherein the observer becomes a 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 she or he gets accustomed to the behaviour. It may have an effect on maintaining the objectivity of data.
- Unforeseen factors might interfere with the observational work.
- The ego, anger, prestige of the observer may impact the data as well as create problems for 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. She or he might be influenced by 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. It is not possible for all the data to be recorded.
- This method cannot be used for the 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 from the group and does not participate or intervene in their activities. Here she or he observes their behaviour. There is also a possibility that the behaviour of the subject may get changed. In this type of observation, the observer is ever present but never participating. In this case, both the observer and the subjects feel uncomfortable. Further, there is no standard set of relationship 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, as the observer can not be a participant observer, it is difficult to maintain the quality of information.

Many investigators opt for quasi-participant observation method, where in both the above methods are used. It involves the merits of both the types and excludes their defects. Non-participant as well as quasi-participant observation techniques have a lot of potential for research in the area of counselling and family therapy.

Check Your Progress Exercise 3

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. What is the role of investigator in participant observation?

.....

.....

.....

.....

.....

.....

10.5.2 Systematic–Non Systematic

In *systematic observation*, stated procedures are used for observation and recording of the data has to be done following certain rules or a logical approach. This data should be possibly replicable.

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

10.5.3 Structured–Unstructured

Structured observation is organized and planned which employs formal procedures. The units to be observed have to be carefully defined. It is also necessary to define the information to be recorded, select the data and standardize the conditions of observation; the observer is supposed to know the situation and therefore needs to prepare a specific plan for collection and recording the data. In this type, the categories of observation have to be developed. It is subject to high levels of control and differentiation, and tends to be used more in quantitative studies.

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 a longer time and may not be able to structure her or his programme. Further, she or he will depend on the natural situation, which is not in her or

his control and difficult to structure. However, the researcher should decide the relationship between her or him and the group; the period of observation; type of behaviour to be observed, etc. This method is particularly suitable for qualitative studies.

For an observer, it is essential to know that 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 categorized as:

10.5.4 Natural-Laboratory

Natural observation is made in natural settings, where as own on *laboratory observation* is made in the laboratory.

10.5.5 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 form the people under observation.

10.5.6 Direct-Indirect

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

Indirect observation is 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.

10.5.7 Covert-Overt

In *covert observation*, the subject or group being observed is 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 or criminals, while she or he knows that she or he is being observed. He will be polite and may not use abusive language.

Check Your Progress Exercise 4

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. Differentiate between structured and unstructured observation.

.....

.....

.....

.....

10.6 ADVANTAGES AND DISADVANTAGES OF OBSERVATION METHOD

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

- It is direct and helps to study behaviour as it appears or occurs. 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 an 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, for example studies about children, tribals, etc.
- It helps to study the whole event and therefore, may provide the opportunity to study all aspects.
- It is easy to observe in disguise rather than disguised questioning.
- It helps to collect information 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 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, that is 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 wherein number of respondents from different places can be studied.

- 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.

10.7 INTERVIEW METHOD

You must have witnessed many programmes on TV, which are basically interview based. These programmes usually invite celebrities, film personalities, politicians, industrialists, etc. to get information on their lifestyles and worklife or they may be asked questions pertaining to some social theme or current political event. Interviewing individuals for 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 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 as 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) was of the view that "Interviewing is 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. Usually it is seen that for data collection, the interview method includes only open-ended questions.

Interviewing as a method of data collection is not 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.

10.8 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 involve 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 the research topic, purpose of research and population under study.

10.8.1 Structured Interview

During structured interview, the interviewer asks pre-drafted questions. Here, she or he 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. This interview is also called '*guided*' or '*patterned*' interview. The structured questions provide a base of information that allows comparisons between various interviewees.

An interview schedule is prepared in advance. It contains open ended as well as close ended questions. The question schedule may be given to the interviewee in advance so that she or he 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 or 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 she or he should remain unbiased. The interviewer can be biased in the case of unstructured interview. The interviewer is supposed to give only clarifications as and when required. 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 providing counselling services?
 Yes.....
 No.....
- 2) Are you aware of the concept of behaviour modification?
 Yes.....
 No.....
- 3) Do you communicate with other counsellors to seek information for your case?
 Yes.....
 No.....

Check Your Progress Exercise 5

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. Explain the role of interview in research.

.....

.....

.....

.....

.....

.....

.....

10.8.2 Unstructured Interview

The interview in which an interviewer is exercising autonomy and asking questions that come to her or his mind on a particular research problem under investigation, is called *unstructured interview*. This type of interview can be conducted on a 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 come 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 a personal viewpoint of the respondents on a given topic.

The interviewer should keep interview guide or schedule with her or him at the time of the interview. It helps her or him 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 she or he can exercise full freedom to change or reword 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 respondents' side, they are given opportunities to give their views and opinions freely on the questions asked. An effort can be made during interview to encourage them to speak freely. The flexibility helps in 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 the same questions you may get different responses. This type of interview calls for sufficient knowledge of the background, good interviewing skills, command on language and ability to convince the respondent to answer. This type of interview demands specialized training to be imparted to the interviewer or 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."

In-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 and attitude towards the subject of study. Both types of depth interviews can generate data, which may be useful in understanding the behaviourist attitudes of people under study.

Examples

- 1) How do you update your session report?

.....

.....

.....

.....

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

Yes

No

- i) If yes, give reasons.

.....

.....

.....

.....

- ii) If no, give reasons

.....

.....

.....

10.8.3 Focused Interview

Focused interview is conducted basically to get focused, 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. The information is gathered from the respondent's area of experiences, effects, participation, etc. Here the interviewer is not only informed properly about the area of research but also she or he is knowledgeable and skilled to get required information from the experiences and also the background of the respondent which has a direct bearing on the topic under the study. The selection of respondents is done on the basis of their knowledge and experiences in relation to the areas of study.

10.8.4 Non-directive Interview

Interviewer in this type of interview acts like a catalyst. She or he prompts the respondents to give information on the topic under investigation. Like in focused interview, here the questioning is very less. But the area(s) to be covered remains under the control of the interviewer. She or he is supposed to give a 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.

10.8.5 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 and the 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, analyzing, and concluding some areas. The area under investigation, its objectives and scope, are the main determinants of selection of questions and area to be covered in the clinical interview.

10.8.6 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 a cheaper method of obtaining information. Extra staff that is 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 into a disaster for the researcher.

Check Your Progress Exercise 6

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. What do you understand by clinical interview?

.....

.....

.....

.....

.....

10.8.7 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 using minimum 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 the sake of your information only. They are CAPI (Computer Assisted Personal Interviewing), CATI (Computer Assisted Telephone Interviewing), ACASI (Audio Computer Assisted Self Interviewing), Win Cati System, Win Cati Mixed Mode and Sensus Web, and many more.

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 the 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 generates 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 in case any question is missed out.
- 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 as a 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 focused group and the interviewer acts as moderator or facilitator.

Check Your Progress Exercise 7

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. What are the infrastructure requirements for CATI system?

.....

.....

.....

.....

.....

.....

.....

.....

10.9 INTERVIEW PROCESS

In the foregoing Sections you have learnt about the interview 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 waiting time. Field staff is required when number of interviewees is more. One principal interviewer or research assistant is not sufficient for the large number of respondents. Training of field staff or 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 notes down or records the answers. Interview schedule is prepared in advance. People (researcher/interviewer) who are going to take this assignment need practical training to conduct the interview smoothly. However, we cannot ignore that the identity of the respondent is known to the researcher. The problem of low response rate is not faced in this method. 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 she or he 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 and the 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 should contain sufficient space to enter the answers.
- The sequence of questions should be finalized before conducting the interview session. It is preferable to put questions in logical order.
- Relevant questions should be drafted on the basis of the area of research.

Pilot Test of the Schedule: Before the actual interview process starts it is advisable to pre-test the interview questions. A group of interviewees should be selected for pilot study. This group should not be included in the final study. Interviewer should request the selected respondents to give their suggestions or 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 or interviewer has to manage multiple tasks at one time. For example, she or he is putting questions to the respondent, listening to the answers carefully, giving clarification, sometimes explanation and directions to clear the doubts of the respondents and recording the answers manually, or with the help of any electronic device (that is tape recorder). The interviewer is also keeping tab on time, the questions

to be covered in the session, etc. It is a skilled job. The interviewer should be trained to undertake such a job. Experience shows that this skill can be improved over time.

How an interviewer is conducting herself or himself in the interview session is very important. Her or his 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 the respondent waiting. She or he should be punctual, polite and courteous. Before starting the actual interview session she or he 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. She or he 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 by prompting the respondent to answer and then recording the answers properly.

Guidelines for conducting interviews

- Interviewer should plan in advance the venue, time, etc. of the interview session.
- She or he should have a friendly approach so that a proper understanding or rapport can be established between the interviewer and interviewee.
- She or he should have the ability to mobilize 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.
- She or he should be properly trained to have proper control of the interview session. She or he should be responsible for creating a friendly atmosphere of mutual trust and confidence.
- She or he should not show any surprise or disapproval to the answers of the respondent, but at the same time she or he should be supportive of the respondent's answers.
- She or he should have a friendly, courteous and unbiased approach.
- She or he 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 she or he may know that respondents' replies are not accurate.
- At the end of the interview session, the interviewer must show gratitude to the respondents for their cooperation. The respondents should get the feeling that they are actively participating in the research process and their views are valuable and important for the research.

In addition to the above, Adams (1985) suggested three factors, which make an interview successful. They are (i) having a thoroughly tested questionnaire or interview from which to work; (ii) being familiar and 'wise' in the interview process; and (iii) treating respondents with trust, respect and courtesy.

Recording the Interview: In structured interviews where mostly the questions are close 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 her or him 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 does not answer. In such situations it should be written 'not responded', etc. Some explanation should be recorded against the unanswered questions. Interviewer should also note the comments made by the respondent on the margin area of the questions. The explanations given by the interviewer should also be recorded separately that is question wise. These noting will prove highly useful at the time of data analysis.

In this method the interviewer should be extra careful. She or he should be questioning, listening, and recording the answers simultaneously. In case of highly structured interviews use of tape recorder is not required. It may prove helpful in 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 situations, 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 utilized 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 she or he 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 she or he 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.

Analysis of Data and Report Writing: Analyzing 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 later in this Course.

Check Your Progress Exercise 8

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. What are the different stages of interview method?

.....

.....

.....

.....

10.10 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 interactions, 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 participation rate is high.
- The interviewer may come across information, which is most spontaneous.
- Interviewer can remould the questions, change the language according to knowledge and 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.
- 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 the respondents the feeling of direct participation in the research process.

- Conducting interview is an art. A well trained interviewer can make the respondent answer even sensitive, emotional and sometimes complex questions with ease. Information gathered from this method can supplement other data collected in the research study.

Limitations

No method is fool proof. There are some inherent weaknesses and 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 or interpretations from the side of the researcher or interviewer. 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 accurate research results.
- If the interviewer or researcher is not skilled or trained in the art, she or he may not be able to conduct successful interview session with proper control.
- Proper training, selection and supervision of the interviewer are very essential to this method.
- Getting free, frank responses from the target population is not an easy task. Establishing proper rapport with the target group is a 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.

10.11 DOCUMENTS

Documents are records which normally come to the researcher 'ready-made'. They may describe a process of personal or group development, or the occurrence of an event in accordance with legal or administrative regulations attached to that event. These data are reviewed in terms of the research problem before they are actually used by the researcher. Since the data comes ready-made as the content of the document, they do not depend on a specific investigator or research team's accessibility to the field. The data obtained through observation, tests and questionnaires, and interviews are gathered for a specific purpose and are only drawn from universes in space and time where researchers are sent by the formulators of that design.

Types of Documents

Documents may be classified into three categories on a continuum. At one end of the continuum are the 'expressive documents' specifying the process of social interaction and at the other end are those like court records, official histories, recounting, etc. which rarely yield sufficient details of the interactive process. Another important type of document is journals. In this Section, we will discuss different types of documents.

Expressive Documents

Expressive documents include the following categories:

(a) personal letters; (b) life histories or case histories in the form of diaries, biographies and autobiographies; and (c) accounts of small- group processes.

- *Personal Letters*

Personal letters constitute the most frequently available type of expressive documents. The value of letters as an expressive document varies with the cultural background of the writers. Nonetheless, the writer communicates freely and fully her or his views and emotions in personal letters.

- *Life Histories/Case Histories*

Life or case histories in the form of diaries, biographies and autobiographies have been used extensively by historians. They have been identified as the "personal documents par excellence" by psychologists. However, they have not been used much in social or psychological research.

- *Accounts of Small-group processes*

Accounts of small-group processes are a third category of expressive documents. Since such accounts are hardly written spontaneously, they are not of much use in any large investigation.

The data obtained from expressive documents are recorded with the help of 'Document schedules'. In order to secure measurable data, the items included in this type of schedule are limited to those that can be uniformly secured from a large number of case histories and other records. For a study of the records of drop-outs among the distance learners enrolled with a particular study centre of IGNOU, items such as the age, the study centre, financial position of the family, academic performance during the period of enrollment are necessary. A scrutiny of a large number of records vis-à-vis the above items shall yield sizeable results and an adequate number or records can be ascertained.

Uses of Expressive Documents

- i. In certain socio-psychological cases, where the researcher needs to understand the "definition of the situation" of a particular group of participants, expressive documents constitute an invaluable source of scientific information.
- ii. Expressive documents are useful in giving the researchers a "feel" for the data and thus produce "hunches" with respect to the most fruitful way of conceptualizing a problem.
- iii. Expressive documents are useful in not only identifying the significant variables of a problem but also the hypotheses embodying these variables and the verification of the hypotheses.

Official records provide useful information about occurrence of an event in accordance with the legal administrative regulations attached to that event. Such data cover a very wide range comprising of extensive records of events, namely, births, deaths, marriages, divorces, institutional attendance in school, college, distance education centre etc., performance in psychological and educational test, crimes, court actions, prison records, registration, voting, social security payments and benefits, illness or hospital data, production or business records, memberships, census data etc.

Official records include legislative, judicial, and executive documents prepared by central or state governments, municipalities, or other local bodies, such as laws, charters, court proceedings and decisions, the data preserved by missionaries and other religious organizations such as financial records and records of the meetings of governing bodies; the information compiled by central or state educational departments, special commissions, professional organizations, school boards, universities, administrative authorities, reports of committees and commissions, administrative orders, educational surveys, annual reports, budget, pictorial records viz. photographs, movies, micro-films, drawings, paintings, coins and sculptures, remains or relics and the like.

The official records are useful in knowing and understanding past events and trends so as to gain a perspective on the present and the future. They aim at determining and presenting truthfully the important facts about life, character and achievements of great personalities. Records are helpful in studying the legal basis of educational institutions, status of tutors, and finances and in understanding the history of ideas, major philosophies and scientific thoughts.

Journals

Information about new ideas and developments often appear in journals long before they appear in books. In fact, they are the best sources for reports on recent researches in the area of counselling and family therapy. Journals provide updated treatment to current questions and issues in counselling and family therapy. They also publish articles of local interest that never appear in the book form. Journals are the best sources for determining contemporary status, present or past.

All those engaged in research in the area of counselling and family therapy should become acquainted with research and professional journals in dcounselling and family therapy and they should also learn to use the indexes to these journals. Knowledge about the editor of a periodical, the names of its contributors, and the associations or institutions publishing it serve as clues in judging the merit of the journal. Abstracts are also available which include brief summaries of the contents of the articles. They serve as one of the most useful reference guides to the researcher and keep her or him abreast the work that is being done in her or his own field and other related fields.

10.12 LET US SUM UP

Observation method is one of the most important and authentic methods used for data collection. The observer uses his or her sensory organs and observes the behaviour or attitude of the people or a group. The observer has to plan carefully and execute the plans to collect accurate information. The observer 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 compare 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 and 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, training should be given to the observer and while choosing the observer, one has to assess and evaluate his/her 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.

In this Unit, we have studied 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 is 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 or skilled and knowledgeable interviewer. Like other methods, this method also cannot generate 100 per cent accurate results. This Unit elaborates in detail 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 and confidential types of information can easily be gathered from the respondents.

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 about themselves, their experiences, their views, expressions, attitudes, etc. The purpose(s) for which interview method is used differs considerably. 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. In the end of the unit, documents have been discussed. Types of documents and their usefulness in counselling and family therapy has been discussed.

10.13 GLOSSARY

Covert observation	: In this type of observation the participants do not know that they are being observed
Close ended questions	: They are also known as structured questions. These questions have a number of answers. The respondent is asked to choose one from the given options.
Experimental hypothesis	: A prediction that the treatment will cause an effect.
Interviewer	: It is the person who is asking questions. She or he may be research assistant or a researcher herself or himself.
Interviewee	: It is the person who is being asked questions on a particular research problem under investigation. She or he may be called respondent or target population.
Interview schedule	: List of printed questions for seeking answers from the respondents.
Observation	: Planned, methodical watching with a view to record accurate and objective data regarding object, events or phenomena.
Overt observation	: In this type of observation the participants are aware that they are being observed.
Open ended question	: They are also called unstructured questions. In such questions respondents express their views freely.
Participant observation	: Observation where the observer is part of the observations. She or he participates in all activities of the group while observing them.
Personal interview	: It is face-to-face interaction between researcher and respondents.

10.14 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

- 1) Observation is defined as planned, systematic viewing of a phenomenon or event to record its occurrence in a scientific and unbiased manner. Its purpose is to collect valid data to analyze and draw inference regarding a situation to finally propose a theory.

Check Your Progress Exercise 2

- 1) 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; and how the desired relationship should be established.

Check Your Progress Exercise 3

- 1) In participant observation, the investigator becomes a part of the setting or phenomenon. Then the investigator become participant or member of the group and also investigates or observes the situation. She or 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; namely observer and participant.

Check Your Progress Exercise 4

- 1) 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.

Check Your Progress Exercise 5

- 1) Interview method is a very common tool of data collection in 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. Interview method is also used in quantitative studies.

Check Your Progress Exercise 6

- 1) 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 and life experiences of the respondents.

Check Your Progress Exercise 7

- 1) 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.

Check Your Progress Exercise 8

- 1) 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.

10.15 UNIT END QUESTIONS

1. What do you understand by interview method? Explain different types of interview method.
 2. What do you mean by observation method?
 3. Explain the types of observation method.
 4. List the advantages and limitations of interview method.
 5. Explain the role of documents in research.
-

10.16 FURTHER READINGS AND REFERENCES

Ahuja, R. (2001). *Research Methods*. Jaipur : Rawat. P. 239.

Adams, G. R. & Schvaneveldt, J. D. (1985). *Understanding Research Methods*. New York : Logman. Pp. 197-229.

Burton, P. (1990). Asking Questions: Questionnaire Design and Question Phrasing. In: Slater, Margaret, (Ed.), *Research Methods in Library and Information Studies*. London: The Library Association. Pp. 62 -76.

Busha, C. H. & Harter, S. P. (1980). *Research Methods in Librarianship*. Orlando, Florida: Academic Press. Pp. 53-90.

Bhandarkar, P.L. & Wilkinson (1998). *Methodology and Techniques of Social Research*. Mumbai: Himalaya.

Fowler, F. J. (1987). *Survey Research Methods. Vol. 1: Applied Social Research Methods Texts*. New Delhi: Sage Publications. Pp.61-106.

Goswami, I.M. (Ed.) (1995). *Research Methodology in Library Science*. New Delhi: Commonwealth.

Goode, W. J. & Hatt, P. H. (1981). *Methods in Social Research*. Auckland: McGrawHill.

Handarkar, P.L. & Wilkinson, T.S. (1998). *Methodology and Techniques of Social Science*. Mumbai: Himalaya.

Khanna, J.K. (2001). *Handbook of Research in Library and Information Science*. New Delhi: Crest.

Krishna Kumar (1992). *Research Methods in Library and Information Science*. New Delhi: Har-Anand.

Krishna Swami,O.R. (1993). *Methodology of Research in Social Sciences*. Mumbai: Himalaya.

Krishan Kumar (1992). *Research Methods in Library and Information Science*. New Delhi: Har Anand Publications in association with Vikas Publishing House. Pp.121 -173.

- Line, M. B. (1982). *Library Surveys : An Introduction to their Use, Planning, Procedure and Presentation of Surveys*. 2nd ed. Revised by Sue Stone. London: Clive Bingley.
- Line, M. B. (1981). Designing Secondary Services in Social Sciences: Reflections on a Research Project. *INSP EC*. 15, 84-94.
- Mc Kernan, J. (1996). *Curriculum Action Research: A Handbook of Methods and Resources for the Reflective Practioner*. 2nd ed. London: Kogan Page Limited. Pp. 123-140.
- Mann, P.H. (1985). *Methods of Social Investigation*. Oxford: Blackwell.
- Mann, T. (1987). *Guide to Research Methods*. New York: Oxford University Press.
- Newman, W. L. (1997). *Social Research Methods: Qualitative and Quantitative Approaches*. 3rd ed. Boston: Allyn and Bacon. Pp. 227-269.
- Powell, R. R.(1997). *Basic research Method for Librarians*. 3rded. Greenwich: Ablex.
- Slater, M. (ed). (1990). *Research Methods in Library and Information Studies*. London: The Library Association.
- Thakur; D. (1993). *Research Methodology in Social Sciences*. New Delhi: Deep and Deep.
- Williamson, John B. (et al.). (1977). *The Research Craft: Ah introduction to Social ciences Methods*. Boston: Little Brown.
- Williams, M. (1997). Social Survey: Design to Analyse: In: *Time May Social Reseqrch: Issues, Methods and Process*. 2nd ed. Buckingham, Philadelphia: Open University Press. Pp. 81-88.

UNIT 11 PSYCHOLOGICAL TESTING AND PROJECTIVE TECHNIQUES

Structure

- 11.1 Introduction
- 11.2 Uses of Psychological Tests
- 11.3 The Beginning of the Testing Movement
- 11.4 Basic Principles in Psychological Testing
 - 11.4.1 Objectivity
 - 11.4.2 A Representative Population Sample
 - 11.4.3 Standardization
- 11.5 Intelligence Tests
- 11.6 Personality Tests
 - 11.6.1 Personality Inventory
 - 11.6.2 Projective Methods
- 11.7 Let Us Sum Up
- 11.8 Glossary
- 11.9 Answers to Check Your Progress Exercises
- 11.10 Unit End Questions
- 11.11 Further Readings and References

11.1 INTRODUCTION

When we go for shopping and buy something we want to be sure that it is measured accurately and also that measuring instrument is appropriate. We do not trust those people who measure with stretched palm or stretched arm. We measure with scales, weighing machines or other scientifically prepared scales or instruments. So is the case with mental abilities. Mental abilities as psychological characteristics are very hard to measure because these have no physical characteristics. All is within human mind; and hence to be inferred through expressed behaviour. These expressed behaviour segments are either verbally expressed or physically performed. In both the cases we ought to have objective methods to measure and universal scales for interpretation of measurements. These psychological scales should be as perfect as or nearly as perfect as length measuring scales; that is where ever or whenever you measure the same length, result would be same. It means 6 inches will remain 6 inches all the time and everywhere. Such carefully prepared instruments for measuring mental properties are called psychological tests.

Objectives

After studying this Unit, you will be able to:

- Understand the uses of psychological tests and projective techniques;
- Know the beginning of the testing movements;
- Learn the basic principles in psychological testing; and
- Explain intelligence tests, personality tests and projective methods.

11.2 USES OF PSYCHOLOGICAL TESTS

Psychological tests have been devised and are used primarily for the determination and analysis of individual differences in general intelligence, specific aptitudes, educational achievement, vocational fitness and non-intellectual personality traits. Besides individual differences, these tests have also been used in studying the group.

Psychological tests, especially those of general intelligence and of specific aptitude have been used for educational classification, selection and planning from the first grade through the university. Tests are used to provide educational and vocational guidance. Educational guidance may involve consideration of whether to place a child in a special class for superior children or in one for children with mental retardation. Selection of subject streams is another area of help. With regard to vocational guidance, one is helped through testing to explore the areas of interest and abilities so that proper preparation can be done in the selection of appropriate and suitable vocation. For example, an individual could be interested in engineering but may not have the aptitude in that particular field. Tests, hence would aid in decision making of which course to take up. People in industries, business or various other professional fields prefer to select on the basis of the results of psychological tests.

In clinics, psychological tests are used primarily for individual diagnosis of factors associated with personal problems of learning behaviour, behavioural problems, attitudes or specific interpersonal relations.

Thus, psychological tests and testing of situations can significantly affect the lives of many persons. For instance, if a child is diagnosed with learning disability she or he would need a lot of support, wherein the family would need to modify the day to day functioning; for instance to take the child for remedial therapy or training. Also after the diagnosis, there may be certain conflicts within the family, as a result of which the need of counselling or family therapy would arise to resolve them and make the relations stronger.

11.3 THE BEGINNING OF THE TESTING MOVEMENT

Francis Galton (1822 – 1911) was the first scientist to undertake systematic and statistical investigation on individual differences or variations in human abilities. E.H. Weber (1795 – 1878), Alexander Bain (1818 – 1903), Wundt (1832 – 1920) were measuring individual differences in physiologically based human responses. Their studies were based on background of physics, chemistry, physiology etc.

In the first half of the 19th century interest in more accurate differentiation among individuals with regard to mental abilities was stimulated majorly by Jean Esquirol (1772 – 1840) and Edward Seguin (1812 – 1880). They were concerned with mental deficiency and mental disease. Esquirol did attempt unsuccessfully to distinguish and classify mentally deficient individuals on the basis of physical measurements for example size of skull. Esquirol also stressed upon language development and use. Seguin's methods emphasized the development of greater

sensory sensitivity and discrimination and of improved motor control and utilization. Francis Galton stressed upon measuring sensitivity to high tones, visual and auditory discrimination, reaction time and muscular strength. Galton assumes, apparently, that the simpler and measurable sensory capacities should be significantly correlated with intelligence. This led Alfred Binet to develop more appropriate test for measuring individual differences based on intelligence. Binet's work initiated a big movement in the field of mental testing – testing which is scientific.

The Binet–Simon Scale (1905)

Binet, through various observations had established that for intelligence testing we should study the following functions: memory, mental images, imagination, attention, comprehension, suggestibility, visual judgement, motor skills etc. In 1904, Binet along with his colleague Simon was required to develop an objective means of selecting those students of subnormal mentality, so that they could be given special attention. This test is based on the principle that we may identify differences in mental development in degree of brightness or dullness – with differences in the levels of development as represented by the average capacities of children of various ages.

They were focusing on general intelligence and determination of special aptitudes was a matter for later investigation. He revised his scale in 1911. Since 1911, large number of revisions and adaptations of this scale have been made in a number of countries. Later developments have been expansions, modifications and improved standardizations of the 1911 scale. Goddard, Terman and Merrill are main contributors in further revisions of the scale.

Group Tests and Performance Tests

The above mentioned tests were administered on each person individually. As a result, it was costly in time and money to test large numbers of persons one by one. This difficulty led to development of group tests. During World War I, for military use, group tests were developed known as Army Alpha and Army Beta, the former being verbal in content and the latter nonverbal. Later on, psychologists opened up numerous fields in which group tests might be used.

The verbal tests depend upon the use of language, ability to deal with words, numbers and abstract concepts. To provide means of testing individuals with language handicaps, the deaf and the blind, 'performance tests' were developed in which the subject manipulates items such as form boards, blocks, pictures and disassembled objects. Some use geometric forms, pictorial representations, printed cubes, substituting digits for symbols and the like (paper-pencil tests).

Aptitude Tests

Intelligence tests measure general mental ability whereas aptitude tests measure an individual's ability to perform a task of a limited or specific kind, for example, clerical, mechanical, mathematical, literacy, drawing or musical aptitudes. These tests were helpful in helping people for right educational or vocational choice and industries for right selection or recruitment. Aptitude tests have been developed to predict educability and performance in music and drawing in mechanical and clerical occupations, in engineering, in medicine and law and in other areas as well.

Occupational Interest Inventories

To supplement tests of aptitude or intelligence, several self-answering occupational preference questionnaires or inventories have been devised to provide information regarding a person's interests in a variety of activities. Interests are very relevant in vocational success.

Tests of Educational Achievement

These tests are not designed for predicting future success; rather, they are intended to measure the individual's actual learning in educational subject matter after a period of instruction. These tests provide objective measures of progress, as opposed to teacher's ratings that may be too subjective. These tests have also been proved to be highly valuable in finding out difficulties in learning or strong scholastic interests, or other special abilities.

Personality Tests

Galton (1879) and Pearson (1935) devised questionnaires and rating scales to evaluate and test non-intellectual traits of personality. Some used word association tests to find out deeper personality traits. Personality tests were being used for scientific and clinical studies either for finding out norms or for guidance in personal and social adjustment.

Projective Tests

During 1830s, American psychologists developed new technique known as projective tests of personality. This instrument is much more subtle than direct questioning. It presents ambiguous or unstructured stimulus situations, usually in the form of pictures, inkblots, or incomplete sentences. Some are thematic tests. The respondent has to describe the situation alongwith what happened prior to it and what is going to happen next. The whole plot of story is to be built by the respondent. The person has a greater opportunity to impose upon the test her or his own private and particular personality traits. In the process she or he also expresses indirectly, her or his hidden needs, repressed or suppressed desires. Two most common tests are Rorschach's Inkblot Test and Murray's Thematic Apperception Test (TAT). These tests have been extensively used in clinics, hospitals, business and industries for personnel selection; in researches, cultural anthropology and academics. The psychological principle involved is that in her or his stories the examinee will, probably unwillingly, give expression to his needs, values, attitudes, and feelings about persons, situations, and the world around her or him, as well as to the pressures she or he is experiencing from sources outside of herself or himself.

11.4 BASIC PRINCIPLES IN PSYCHOLOGICAL TESTING

It is clear now, that "a psychological test is a standardized instrument designed to measure objectively one or more aspects of a total personality by means of samples of verbal or non-verbal responses, or by means of other behaviours." The key words are standardized, objectively and samples.

11.4.1 Objectivity

The purpose of standardizing a test is to give it objectivity. It means devising an instrument that should be free from subjective (personal) judgements regarding

the ability, skill, knowledge, trait, potentiality or any other aspect. To make a test objective:

- i) There should be a uniform and specified set of instructions,
- ii) Scoring procedure should be uniform for all,
- iii) For interpretation, norms should be used, carefully prepared on a representative sample population,
- iv) The activities or traits to be tested should have been selected on the basis of analysis of the operations or behaviours, upon the views of a number of experts and upon information available from previous research, and
- v) The complete procedure of standardization should be followed in true spirits.

Objectivity in administering as well as in scoring is a must.

11.4.2 A Representative Population Sample

No test can be used on all population; rather, every test is designed for use with a specific population or group. Some are for children, others for adults; some may be for urban English speaking, others for rural. The author of a test must decide at the outset with which group, with what segment of the population, her or his instrument is to be used. Then she or he must standardize her or his test on a population sample, selecting adequate number using appropriate sampling technique. Stratified sampling is more common.

Sampling of traits and functions is also important. Essentially, the builder must define the aspects she or he proposes to measure. Then she or he must develop a series of test items related to it; for example, in making a test of general intelligence, there could be following parts: vocabulary, verbal comprehension, arithmetical problems, reasoning, analogies etc. First we must define intelligence based on our theory then decide constituent parts. Many tests have used the following sub tests: practical reasoning, defining words, perceiving similarities and differences, arithmetical reasoning, general information, supplying missing parts to pictures, arranging a series of pictures in logical sequence, simple memory etc.

A test of musical intelligence includes the following seven aspects: chord analysis, pitch change, memory, rhythmic accent, harmony, intensity and phrasing. A clerical aptitude test measures 6 features – spelling, computation, checking, word meaning, copying and reasoning.

11.4.3 Standardization

The fundamental purpose of standardizing a psychological test is to establish its reliability and its validity at as high a level as possible.

Reliability : Whenever something is measured, there is possibility of chance error. The lesser the chance error, the higher is the trustworthiness. A good test is one, if same group is tested more than once, gives same or similar results every time. Thus, the reliability of a test is its ability to yield consistent results from one set of measures to another; if so, the test is free from internal defects, there is stability in the test. However, the reliability is not on all-or-none principle; it is a matter of degree which is measured through reliability coefficients. There are two main techniques of finding out reliability; these are test-retest and split-half reliability.

- i) **The test-retest reliability:** For finding the test-retest reliability or consistency of the test, the same test or its equivalent form is administered on the sample of the same respondents twice with a considerable gap between the two testings. The correlation coefficient is obtained between the scores of both testings. Researchers may use more than two testing scores for the purpose.
- ii) **Split-half reliability:** Another technique is called split-half reliability. Here the test is administered only once and not twice. All individual scores are divided into two halves testing odd numbers for one and even numbered item scores for the second half. Then correlation coefficient is obtained between the two sets of scores. Higher the estimate of correlation coefficient, better it speaks of internal consistency or split-half reliability of the test.

Factors affecting reliability estimates: The age range, the score range, the time interval between testings, the effects of practice and learning are likely to affect the reliability estimates.

Validity: When we develop a test, we must be sure that our test measures what it purports to measure. For example, if we are studying the family environment of an individual, the dimensions of the family environment need to be selected and clearly defined for the purpose of measuring the specific aspect of the environment. Dimensions like cohesions, conflicts, independence, control, etc. could be selected to suit the criteria of making the test valid. It can be done by comparing the test with some accepted criteria regarded by experts as the best evidence. Selection of satisfactory validation criteria and demonstration of an appropriate degree of validity are fundamental in psychological and educational testing. The first essential quality of a valid test is that it should be highly reliable.

Types of validity: There are various types of validity used in psychological testing.

1. **Operational and predictive validity:** 'Operational' simply means that something pertains to an operation or a procedure. Whatever major concepts, constructs, propositions or theories are being used in the study should be given their meaning. *Operational validity* means that the tasks required by the test are adequate for the measurement and evaluation of certain defined psychological activities.

Predictive validity means forecasting behaviour performance on the basis of test scores. It is the extent to which it is efficient in forecasting and differentiating behaviour or performance in a specified manner under actual working and living conditions.

2. **Face validity:** It refers to test's appearance for its being capable of measuring what author intends to measure. That is, the content of test items seems to be relevant to its stated purpose. This, however, too, is an operational conception of validity, based upon subjective judgments. Authors of personality tests have used face validity.
3. **Content validity:** This form of validity is estimated by evaluating the relevance of the test items. It is appropriately applied only to tests of proficiency or educational achievement. Validity of content should not depend upon the subjective judgment of only one specialist. It should be based upon

the field. Further, it should be subject to statistical analysis for finding the diagnostic power of each item.

4. **Factorial validity:** This method utilizes factor analysis techniques to find out the factors independent of each other, though constituting the main ability. Through factorial process we identify a list of functional unifies (also called 'primary mental abilities') within a test and the weight contributed by each of these to total performance on the test. Such pure tests would then be used singly or as subtests in a comprehensive measuring instrument. The correlational index is the main statistical device used.
5. **Construct validity:** A *construct* is a concept formally proposed with definition and limits explicitly related to empirical data. This validity refers to the extent to which the test measures the psychological processes as defined by the author of the test. Construct validity depends upon the degree to which the test items sample the range or class of activities or traits. Construct validity can also be demonstrated by finding sustained correlations with other tests that have already been established.
6. **Concurrent validity:** It is used to indicate the process of validating the new test by correlating it, or otherwise comparing it for agreement, with some present source of information. This source of information might have been obtained shortly before or very shortly after the new test was given.
7. **Cross-validation:** The term refers to the process of validating a test by using a population sample other than the one on which the test was originally standardized. At times the original validity data may be too high or low because of some chance factors that produce a higher or lower correlation than expected. In fact, by doing so we are testing validity again and again. When a test is put to use in a variety of situations and by many different persons, it is constantly being cross-validated. If it does not give high value, its use should be stopped.

Norms

While preparing any test, the most important step, without which tests are useless, is preparing norms for interpretation of the test scores, *i.e.* what that obtained score means, what does it show, where does our respondent or testee stand in the group whether she or he is average, low or high. With the help of norms we can locate the respondents standing / position or relative rank in the group. In fact, to facilitate interpretations, good psychological tests should provide tables of age norms, or grade norms, or percentile ranks, or standard scores.

A *norm* is the average or typical score (mean or median) on a particular test made by a specified population (say, group of 10 year old children).

Types of norms

- **Percentile or Decile ranks:** These are obtained by applying simple statistics. *Percentile rank* on a test shows what percentage of cases or scores lie below it. A percentile rank of 20 means that only twenty percent members of the group to which she or he belongs lie below her or him and a percentile rank of 70 means that she or he belongs to upper 30 percent persons and 70 percent fall below her or him. Thus, higher the rank, better is the position of the individual. Percentile ranks give measurement in terms of relative ranks and not in the quantitative units.

The *Decile rank* is the same in principle as the percentile; but instead of 100, it designates the one tenth part of the group ($N/10$). Decile ranks signify a range of scores between one to ten. If a testee has a decile rank of 1, she or he is in the lowest 10 percent of the group.

When the number of scores in a distribution is small, percentiles are not used rather decile ranking method may be used.

- **The standard scores:** The meaning of standard score is that assuming normality of distribution, how far the obtained score is from the mean. It may be towards upper side, it may be towards lower side. Upper side score means higher than mean and lower side means less than the mean score. The mean is taken as the zero point, and standard scores are given as plus or minus. If the distributions of scores of two or more tests are approximately normal, standard scores derived from one distribution may be compared with those derived from the others.

If we know the proportion of cases between various points or scores, the standard scores can be converted into percentile ranks and vice-versa. In standard scores we have to assume normalcy of distribution where as percentile ranks can be used in distributions where you are not sure about normalcy.

- **T-score:** It is a variation of the standard score. It was suggested by McCall. When we use T-scores method, the mean is set at 50, instead of zero as used in standard scores. To obtain a T-score, the standard score is multiplied by 10 and then added to, or subtracted from, the mean T-score of 50. Thus, a standard score of +1.00 becomes a T-score of 60, while one of -1.00 becomes 40. The T-score is based upon a scale of 100 units, thus avoiding negative scores and, in most cases, fraction too.
- **Stanine:** Another variation of standard score technique is called the stanine. In this method the standard population is divided into nine groups, hence standard nine. Excepting the ranks of stanine 1 (lowest) and 9 (highest), each unit is equal to one half of a standard deviation. Use of stanine eliminates the + and - signs one hand and digits are in single.

Difference between Norms and Standards

Norms are average scores or values determined by actual measurement of a group of persons who are representative of a specified population. Norms are averages obtained under prevailing conditions which may be good or poor. The averages of performance on a particular task may be absolutely different for privileged and under-privileged children. A wide gap is found in rural and urban children. This indicates that opportunities make a difference and hence, norms will vary.

However, standard is different. A *standard* is the desired goal or objective, which may be above the obtained norm and can be achieved only under improved conditions of development. In schools we set certain standards or goals which are to be achieved by the students. It is the highest level of performance expected in the classroom. Thus, it is different from norms that is the average performance of a group. Psychological tests measure traits and functions as they exist under present conditions. Norms are, generally, revised from time to time. Old norms do not help much.

Check Your Progress Exercise 1

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. Match the following:

- | | |
|------------------------|---|
| i) Binet-Simon scale | a) Measure individual's ability to perform task |
| ii) Group Tests | b) Intelligence test |
| iii) Personality tests | c) Army Alpha and Army Beta |
| iv) Aptitude tests | d) To test non-intellectual traits of personality |

2. List the basic principles in psychological testing.

.....

.....

.....

.....

.....

.....

.....

11.5 INTELLIGENCE TESTS

Mental Age and Intelligence Quotient

Mental age: This concept was introduced by Alfred Binet. In this scale items are grouped according to age levels. For example, selected items passed by a specified percentage of 6-years-old children in the standardized sample are placed at 6 year level. Similarly, items passed by 8-year-old children are accepted for that age level. The age levels for which a child passes all items is called her or his basal year and weightage to all other items which a child passes above the basal year, is also given and added to the basal year. This sum is called his *mental age* (MA).

Intelligence Quotient (IQ): The ratio of an individual's mental age to her or his chronological age (CA) is called IQ. This can be found by dividing MA by CA. The ratio is further multiplied by 100 to remove the decimal. $(MA/CA \times 100)$. In individuals, IQ shows the rate of mental development or degree of brightness. If mental development keeps pace with one's life age, the IQ would be 100. In brighter children, it is 100+ and in sub-normal children it is below 100. With the use of IQ we can compare the intelligence of a child of a particular age with the child of any other age.

Binet's Scale

The movement of measuring intelligence through standardized tests started with Alfred Binet. His early work was dependent upon elementary sensory and motor processes. He used tests of tactual discrimination, reaction time, visual discrimination, reproducing letters and numbers from memory, and so on. Later on he opted for higher mental functions or processes which reflect combined mental operations. These higher functions enable us to distinguish individuals most significantly. In simpler sensory and motor processes individuals differ less significantly.

The 1905 Binet-Simon scale

It is a thirty item scale, arranged in order of increasing difficulty. A few-items are being cited here:-

1. Verbal knowledge of objects – parts of body or other common objects like cup, key, string (item no. 7).
2. Comparing of the lengths of two straight lines, pointing out the longer (10).
3. Repeating three digits immediately after hearing once (11).
4. Definition of familiar objects – house, horse, fork (14).
5. Sentence completion – supplying the correct words to complete a sentence (25).

This scale was not divided into age levels. It was crude and tentative but led Binet and Simon to classify idiots, imbeciles and morons in a more objective manner.

The 1908 Binet-Simon Scale

Their own subsequent investigations and those of other psychologists resulted in a new form of the test, known as 1908 scale in which the 59 items are grouped at the appropriate age levels, from 3 years to 13 years. For each year there are 5 to 7 items. For instance, for age 12, there are 5 items: -

1. Repeats seven digits,
2. Gives three rhymes to a word (in one minute),
3. Repeats a sentence of twenty-six syllables,
4. Answers problem questions, and
5. Interprets pictures (as contrasted with simple description).

In this scale there are two major features:

- (a) The use of the concept of mental age.
- (b) Tests grouped into age levels. A test (item) was placed at the year level where it was passed satisfactorily by two-thirds to three-fourths of a representative group of children of that age. The ideal standard was to place a test at a year level where it was passed by 75% of that age group. To find out mental age first the subject was credited with the age level at which he passes all items. This is called *basal year*. Additional credit was given

for tests passed at higher age-levels. The total of basal and additional values will show his mental age level. No credit was given for a fraction of a year.

The 1911 Revision of the Binet Scale

Binet himself introduced certain changes in the items of the scale. The method of scoring was also improved. It was so modified that fractions of a year could be used in determining the mental age. Binet's scales initiated many researches which further led to several adaptations and revisions.

The Stanford Revision of 1916

The Binet scale was revised at Stanford University. This scale now included 90 test items covering the age range from 3 years to 14 years. Besides, there were test items added at the "average adult" level and another at the "Superior adult" level.

This revision suggested classification of IQ as:

Above 140	Near genius or genius
120 – 140	Very superior intelligence
110 – 119	Superior intelligence
90 – 109	Normal or average
80 – 89	Dullness
70 – 79	Borderline deficiency
Below 70	Definite feeble-mindedness

Binet also stated that intelligence hardly increases after the ages 15 or 16 years. On the basis of this assumption, in the calculation of the IQ for a person who is 16 years of age, or older, the denominator in the formula ($IQ = M.A. / C.A.$) is always 16.

The 1937 and 1960 Revisions

These revisions were done at Stanford University. Some items of previous scales were retained, others modified. The 1937 revision does not differ in its essential and basic conceptions. In fact, the revision utilizes the assumptions, methods and principles of the age scale as conceived by Binet. However, it extends to the level of age 2 years, on one hand and three levels of "Superior adult", thus increasing its usefulness. From the age of 2 to age 5 years, this scale provides groups of test items at half year intervals. The fact is that the rate of mental growth is most rapid in the early years. This scale is mainly verbal in character, however, it does provide more performance and other nonverbal materials at the earlier age levels, especially through age 4 years. The scale was subjected to various validity and reliability studies. Both these measures were satisfactory.

The 1960 Revision

This revision is further improved version of the 1937 scales. One important innovation was also introduced. This is the deviation intelligence quotient. Another innovation was extending of IQ tables to include chronological ages 17 & 18 years. Basically, as Terman and Merrill pointed out, the deviation IQ of the 1960

scale is a standard score derived theoretically from a mean of 100 and a standard deviation of 16.

The Wechsler Scales

The Binet scale and its several revisions are largely verbal in content, although some non-verbal items are included, especially at the early age levels. In performance tests the use of language is eliminated. The test materials of nonverbal scale consist of concrete objects such as form boards, cubes, mazes, geometric figures, punctures etc. Performance tests were first devised as a supplement to or substitute for the Stanford Binet scale. Finding its large utility, it is being used in various tests by various researchers. The Wechsler scales combine verbal and nonverbal materials.

Form I (1939): The Wechsler-Bellevue Scale Range – This scale was developed for the age of 10 years through 60 though norms begin at 7.5 years, for obvious reasons.

This scale and later revision known as the Wechsler Adult Intelligence Scale (1955) are in part verbal and in part performance. Here we can obtain three scores and three intelligence quotients – verbal, performance and full scale IQs.

These scales consist of eleven subtests, six verbal and five nonverbal. The theory of intelligence underlying the tests was g-factor theory (g). This means there should be significant inter-correlations among the several subtests of the scale, and also that the scale as a whole should measure an individual's general intelligence.

The Adult Intelligence Scale (1955)

This is also known as the Wechsler Adult Intelligence Scale (WAIS). This test does not introduce anything new excepting a few changes in its improved content, extension of the standardization population sample, and improved directions for administering and scoring. Since it is for adults, the age range it covers is 16 to 64 years.

It has six verbal and five nonverbal or performance subtests:

1. Information test: This test includes simple questions like how many weeks in a year to socio, political and other areas of environment.
2. General comprehension test: This scale consists of problem situations in which the subject must comprehend what is involved in the situations. For example, "Why should people pay taxes?"
3. Arithmetical reasoning: This measures mental alertness. It does not require arithmetical skill or knowledge beyond the seventh-grade level.
4. Similarities test: This test includes sets of paired words and the subject is required to state in what way they are similar.
5. Memory span: It measures memory span for digits, forward and backward. The subject has to repeat digits heard once. It is immediate memory span and varies in length from three to nine digits.
6. Vocabulary test: There are forty words arranged in the order of increasing difficulty and subjects have to define or explain their meaning.

7. **Digit-Symbol test:** The subject is shown nine divided rectangles; in the upper half there is a digit and in the lower half there is a symbol. These numbers are to be substituted by symbols in the test. This requires the ability to associate quickly and with accuracy.
8. **Picture comprehension:** In this test, there are fifteen cards, each of which shows a picture that is incomplete. The testee is required to name the missing part.
9. **Block-design test:** These are similar cubes painted identically with different colours on different sides. Subjects make designs with them as shown in the picture. The first six designs utilize 4 blocks. The last four designs are more complex and utilize all nine cubes.
10. **Picture arrangement test:** There are eight series of pictures. Each series is presented to the subjects in a disarranged order and he has to arrange in a series which tells a story.
11. **Object assembly:** This subtest includes four figure form boards cut into several parts which the subject is required to assemble into the whole.

The split-half reliability for various subtests ranged from .65 to .97. The test-retest reliability was also high. As regards validity, various subtests were inter correlated. For some subtests it was low, for others moderate to high.

The Wechsler Intelligence Scale for Children (1949)

This scale for children from 5 through 15 years of age (WISC) is developed on the same principles and in the same form as the WAIS. It has verbal subtests, performance subtests, verbal IQ, performance IQ and a full-scale IQ. The scale was standardized on a sample of 100 boys and 100 girls at each of the eleven age levels. The selection of the 2200 children was based upon rural-urban residence, father's occupation and geographical area. The sampling was done proportionally. The manual of the test gives reliability and validity studies in detail.

Performance Scales

Depending upon the need and requirement some tests were individual performance and others were group performance tests. Some used language for instructions, some didn't need even that. A few representative scales are:-

1. **The Pintner-Paterson Scale** – This test has 15 subtests, all are performance based. It includes form-based, puzzles, picture completion and cube test. The age range is from 4 years to 15 years.
2. **The Cornell-Coxe Scale** – This also includes block design, picture completion, memory span etc.
3. **The Arthur Point Scale** – This also includes mazes, form boards, cube construction and various other performance tests.

There are also some tests for infants and preschool children. The Gessell's scales can be applied for ages from 4 to 60 months. At each level the inventory was divided into four categories of behaviour: (1) motor, (2) adaptive, (3) language, and (4) personal social.

There are many other such tests whose details can be checked in the books or testing laboratories.

Check Your Progress Exercise 2

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. List five items of Binet-Simon Scale (1908) for age 12 years.

.....

.....

.....

.....

2. Give three examples of performance scales.

.....

.....

.....

.....

11.6 PERSONALITY TESTS

Intelligence testing was the biggest area which attracted psychologists of America and Europe. As a result of their keen interest a number of tests were developed and standardized. After intelligence, it is the personality area where testing movement was initiated. It led to the development of various methods and techniques of personality assessment. Some were measuring its traits, others were for unconscious motives. Some focused attention on its social acceptability. Broadly speaking, these were of two types – one focusing on social aspect of personality and other on inner aspect (covert). In fact, personality itself has been defined as “a product of the dynamic and characteristic organization within the individual of psychological structures or systems, and their interaction with the environment”. The personality of an individual is his behaviour which includes actions, postures, words, attitudes, opinions on one hand and his feelings about himself on the other. Psychologists also try to find out the motives, habits, traits, feelings, values and attitudes to comprehensively understand the individual's personality.

There are various methods used by psychologists for studying various aspects of personality. To name them we can say these are:

Rating Scales

Sociometric methods

Psychodrama

Personality Inventory

Projective methods

11.6.1 Personality Inventory

Personality inventories are self rating questionnaires which deal with overt behaviour and also one's own feelings about herself, other persons and the environment. Personality inventories in fact, estimate the presence and strength of each specified trait through a number of items. In general, there are five types of personality inventories; those that:

- 1) assess specified traits like ascendance, conservatism, confidence
- 2) evaluate adjustment to several aspects of the environment (home, school, community)
- 3) classify into clinical groups (paranoid, psychopath)
- 4) screen persons into two or three groups
- 5) evaluate interests, values, and attitudes

Some representative inventories are:

1. **The Bell Adjustment Inventory** : This measures one's adjustment in home, health, social, emotional, and occupational aspects.
2. **The Bernreuter Personality Inventory** : It is a questionnaire that measures six traits: neurotic tendency, self-sufficiency, introversion-extroversion, dominance-submission, confidence and sociability.
3. **The California Test of Personality** : It has five scales: primary, elementary, intermediate, secondary and adult. The questions are to be answered in yes or no. It measures personal adjustment and social adjustment.

Personal Adjustment – This includes self-reliance, sense of personal worth, sense of personal freedom, feeling of belongingness, withdrawing tendencies and nervous symptoms.

Social Adjustment – This measures social standards, social skills, antisocial tendencies, family relations, school relations, occupation and community relations.

The Minnesota Multiphasic Personality Inventory (MMPI)

This is most elaborate and ambitious instrument in this field. The inventory consists of 550 statements which cover health, morale, and social attitudes, family and marital or religious attitudes, affect, delusions, phobias, masculinity-femininity etc. It also gives importance to hysteria, depression, hypochondriasis, paranoia, schizophrenia and psychesthesia – clinical aspects of personality.

Cattell's 16 P.F.

This is another very important test of personality which measures 16 personality factors.

There are many more but beyond the scope of this Unit. It is suggested that before selecting any inventory or test one should be careful about its adaptation to local culture and language. Secondly, local norms should be used for the interpretation of the scores. Simple comparisons between two groups or two sets of scores are easy but for interpretation, norms are essential, local preferably.

11.6.2 Projective Methods

Ratings or inventories are direct methods but to study the hidden aspect of personality, it is found more useful to use indirect methods. Such indirect methods are categorized as projective methods. Psychologically, projection is an unconscious process whereby an individual (1) attributes certain thoughts, attitudes, emotions, or characteristics to other persons, (2) attributes his own needs to others (3) draws incorrect inferences from an experience.

A projective test, then, is one that provides the subject with a stimulus situation, giving him an opportunity to impose upon it his own private needs, perceptions and interpretations. There are several forms of the projective method like pictures, inkblots, incomplete sentences, word-associations, and so on. The response to these tests reveal the individual's personality structure, feelings, values, motives, or complexes. Whatever interpretations he gives or whatever he creates, gives involuntary revelation to deep lying traits of personality which cannot be exposed through questionnaires. Questionnaires or inventories are structured and answers are given in limited and restricted categories where as projective tests are unstructured. Respondents have freedom to express. There is variety and flexibility in responses. These are neither right nor wrong, rather they are the subject's own spontaneous and creative interpretations. The important projective tests are Rorschach's Inkblot Test, Murray's Thematic Apperception Test, Children's Apperception Test etc., These are based on holistic concept of personality.

- **The Rorschach's Inkblot Test**

It is prepared very simply. Even you can do it. Just take a paper, drop a few drops of ink on it, fold it from centre, and just move your fingers on it, in a random manner, open the paper and you will find an interesting but strange figure. Rorschach, probably did the similar experiment but credit goes to him to develop it as a technique for use in personality diagnosis. This he used to study unconscious factors in perception and meaning and to reveal dynamic factors of behaviour and personality.

The Rorschach test is used from the nursery school level through adulthood. It consists of ten cards, on each of which is one bisymmetrical inkblot. Some are in black and white, and some are in colour. The cards are presented to the subject one at a time. Subject is asked to describe what does it look like? What could this be? What does it make you think of? The purpose is to elicit from the subject the fullest possible response to each card.

Scoring is based upon four major categories. These are given below:

Location	: Location or area which has been perceived as the basis of each response. This may be the entire inkblot, a large portion, a small portion or a minute detail.
-----------------	---

- Determinants** : The second category includes the determinants or characteristics of the inkblot as perceived by the subject. There may be form, shading, colour, perspective or motion.
- Content** : The third scoring category is content. Here the subject's responses are classified into the several more common groups, such as plants, animals, humans, landscapes, man-made objects, anatomy, sex and others.
- Originals and populars** : This measures popularity and originality. This means whether responses are commonly given (popular) or uncommon (original).

The major purpose of the test is to assess the subject's general adjustment, and to learn whether she or he is experiencing psychological difficulties.

Use of this test or scoring or interpretation needs rigorous training and experience. One should not use it without proper training under expert's guidance.

Other inkblot tests : Several other such tests came into existence. Even Rorschach Test was being applied in different ways. Some tried it on groups instead of individual testing which requires lot of time. The Holtzman Inkblot Technique is another variation. It has many advantages. These are two alternate forms, each of which has forty-five cards. Subject has to give only one response to each card.

• **Thematic Apperception Test (TAT)**

This test consists of thirty pictures plus one blank card. Some cards are used with men or women, others with both. Similarly, some on younger while others on mature persons. The maximum number of pictures used with any subject is twenty, usually administered in two sessions, ten each time.

The pictures are shown one at a time. The testee is told that this is a test of imagination. Subject has to make up stories to suit herself or himself, and there is no right or wrong response. She or he is further told that each card depicts a scene and she or he has to (1) tell what she or he thinks led upto the scene; how it came about; and (2) give an account of what is happening and the feelings of the characters in the picture; and (3) to tell what the outcome will be. There is no time limit, however roughly, say five minutes for each card. It is recommended that responses be recorded for later analysis.

Testing should be followed by an interview to learn the origins of the stories, seeking associations to places, names of persons, dates, specific and unusual information. This helps to clarify meaning of stories. Sometimes stories are not only the product of the person's inner personality traits but may be influenced by radio, television, comics etc.

There is basic difference between the TAT and the Rorschach test. Rorschach test deals with structure and organization of an individual's personality where as TAT brings out the content of one's personality, the drives, needs, sentiments, conflicts, complexes and fantasies. While interpreting ambiguous situations one

reveals aspects of her or his own personality, which she or he otherwise will not admit, or of which she or he is not aware.

Interpretation of stories is again a big job. This needs thorough understanding, insight, training and experience in the field. The scoring and interpretations are done keeping in mind the age, sex, occupation, social, economic and cultural status and values which are significant determinants of behaviour and personality development.

● Children's Apperception Test (CAT)

Although the original TAT is said to be applicable to children as young as 4 years of age, the Children's Apperception Test (CAT) was especially designed for use between the ages of 3 and 10 years (Bellak, 1993). The CAT cards substitute animals for people on the assumption that young children project more readily to pictures of animals than to pictures of humans. The various animals in the pictures are portrayed in typically human situations, in the characteristic anthropomorphic fashion of comic strips and children's books. The pictures are designed to evoke fantasies relating to problem of feeding and other oral activity, sibling rivalry, parent-child relations, aggression, toilet training, and other childhood experiences. For instance, if this test brings out any of these problems in the child with higher intensity, it immediately needs to be addressed with appropriate therapy for the child as well as the family members need to undergo counselling along with the child to strengthen the family bonds by reducing the persistence of these problems, as such issues may leave a life long impression on the child's mind and affect him/her in his/her relationships even during adulthood.

The authors of the CAT prepared a human modification of the test (CAT-H) for use with older children, especially those with a mental age beyond 10 years (Bellak & Hurvich, 1966). The authors maintain that either the human or animal form may be more effective, depending on the age and personality characteristics of the child.

● Sentence Completion

This technique has been taken up for research and clinical practice. These tests are open-ended and hence responses vary from one individual to other. The main idea is to give a starting opening word or a sentence stem through which the individual can complete the task with innumerable possibilities. For example: sentences like "My interest area is..., I think tomorrow holds..., When I look at myself in the mirror I see..., my family..." and so on and so forth. The stems are formulated according to the kind of response that needs to be extracted from the testee.

Rotter Incomplete Sentence Blank (RISB, Rotter and Rafferty, 1950) is a widely used sentence completion test where each completion is rated on a 7- point scale according to degree of adjustment and maladjustment indicated. Some recent additions include, disability examinations, managerial effectiveness, and assessment of various aspects of personality.

Check Your Progress Exercise 3

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. List various methods used by psychologists to study personality.

.....

.....

.....

.....

.....

.....

2. Name some of the personality inventories.

.....

.....

.....

.....

.....

.....

11.7 LET US SUM UP

In this Unit, we have studied some of the important methods and techniques to test human intelligence, personality and other traits. The Unit began with the introduction of psychological testing and explained the basic principles of a good psychological test. It includes objectivity, representative sample and standardization. The unit discussed the historical evolution of intelligence tests. The Unit also describes test like aptitude test, educational achievement test, occupation tests etc. The Unit acquainted you with the knowledge of personality test which includes personality inventories and projective methods like Rorschach Inkblot Thematic Apperception Test, Children Apperception Test, and sentence completion test.

11.8 GLOSSARY

Operational validity

: The tasks required by the test are adequate for the measurement of certain defined psychological activities.

Predictive validity

: Forecasting behaviour performance on the basis of test scores.

- iv) . Peronality Inventory
 - v) Projective methods.
- 2) Following are the examples of personality inventories:
- i) The Bell Adjustment Inventory;
 - ii) The Bernreuter Personality Inventory,
 - iii) The California Test of Personality, and
 - iv) MMPI.

11.10 UNIT END QUESTIONS

- 1. What do you mean by personality tests and projective techniques?
- 2. What are the basic principles in psychological testing?
- 3. Explain any three intellegence tests.
- 4. Explain any thee projective techniques.

11.11 FURTHER READINGS AND REFERENCES

Anastasi, A.& Urbina, S. (2003). *Psychological Testing*. 7th Ed. Singapore: Pearson Education Pvt. Ltd.

UNIT 12 ATTITUDE SCALES AND MEASUREMENTS

Structure

- 12.1 Introduction
- 12.2 Importance of Attitudes
- 12.3 Definition of Attitudes
- 12.4 Functions of Attitudes
- 12.5 Measurement of Attitudes
- 12.6 Types of Scales
- 12.7 Techniques of Developing Attitude Scale
 - 12.7.1 Thurstone's Method of Equal Appearing Intervals
 - 12.7.2 Likert Method of Scale Construction
 - 12.7.3 Thurstone's Method of Successive Internals
 - 12.7.4 Guttman's Scalogram Technique
 - 12.7.5 Bogardus Social Distance Scale
 - 12.7.6 Some Other Methods
- 12.8 Let Us Sum Up
- 12.9 Glossary
- 12.10 Answers to Check Your Progress Exercises
- 12.11 Unit End Questions
- 12.12 Further Readings and References

12.1 INTRODUCTION

In this Unit, we will study about attitudes and their importance in human life. Attitudes form a bigger part of one's personality and by studying attitudes it helps the persons and experts in various fields; for example, it helps policy makers to adopt the suitable method of implementation, or helps in predicting human behaviour. The Unit will explain the functions of attitudes that are the adjustment function, ego defensive functions, value comparison functions and knowledge functions. Further, we will study about the measurement of attitudes, which can be broadly classified under four categories broadly these are non-disguised structured, non-disguised non-structured, disguised non-structured and disguised structured tests. There are four types of scales in research that are nominal scale, ordinal scale, interval scale and ratio scale. We will study about these scales in this Unit. In the end of this Unit, we will learn to develop attitude scale through various methods like, the Thurstone's method of equal appearing intervals, the Likert method, Thurstone's method of successive intervals, the scalogram technique and other techniques such as rank order scale, method of paired comparisons, and indirect method.

Objectives

After studying this Unit, you will be able to:

- Understand attitude and its importance;
- Explain the functions of attitudes;
- Describe the various methods to assess attitudes; and
- Construct an attitude scale.

12.2 IMPORTANCE OF ATTITUDES

Psychologists, since long have been working on the mind body relation. Mind houses all sorts of thoughts and thought processes, whereas body is concerned with two types of processes, for example, the internal and the external. The internal body processes are functioning and involve internal flow of body systems. Mental and body functions are related. Our behaviour in simple words refers to bodily changes that our mental dispositions use to guide, direct and control human behaviour. The major controller of man's social behaviour is her or his attitude. Attitudes form a bigger part of one's personality. The study of attitudes serves several purposes. It enables us to understand the actions of man in society as well as predict and control human behaviour. A change of attitude is often advised as a solution to various personal and social problems as attitudes form a bigger part of personality. A change in attitude is required whenever there is a social or personal adjustment problem. Developing proper instruments to measure attitudes is the primary need of social scientists who are involved in maintaining social balance and harmony in countries where a lot of social diversity exists. In India, people of many states, castes, religions and communities live together; conflicts often occur when people hold different ideologies (religious, political and social), possess different quantities of goods, or belong to different social, cultural or economic groups. To ensure and maximize cultural integration and social harmony it is necessary to understand the attitudes, which may facilitate the formulation of programmes to bring a shift in attitudes. Understanding attitudes plays an important role in predicting behaviour. It is important to know what is going to happen in society or in one's life – good or bad. If bad then one must control and change. Studying attitudes in advance can make leaders, reformers, politicians and other persons understand the undercurrents of inter-group conflicts and ensure appropriate efforts to avert the conflicts and channelize human energy in a proper direction. They can also draw-up plans to develop new beliefs, values and attitudes favoring social integration. Attitudes developed at the early years of schooling are significant in the development of personality. Gradually they stabilize and then it becomes difficult to change attitudes. Attitudes affect behaviour in the home, in the class-room or on the playground. Each person's adjustment in the family, workplace or society is affected by their attitudes. Attitudes develop in school, home and society through identification, with teachers, parents or through interaction with peers, friends, co-workers or through mass-media, especially through T.V. and newspapers. Measurement of attitudes can be of great help in the vocational field also. Professionals involved in educational, vocational and personal guidance, have recognized the value of attitude measurement. Attitude measurement helps in assessing one's personality as well. Thus, assessment of attitudes has become relevant in the field of human personality, social behaviour, social change, counselling and guidance, vocational selection and many other vital areas of adjustment.

Thus, study of attitudes is important for understanding, prediction and control of human behaviour.

12.3 DEFINITION OF ATTITUDES

The term attitude has been used in psychology to indicate more than one meaning. Hence, there are various definitions. However, the more composite ones are those which include all the three aspects that are, cognitive, affective and behavioural. When we analyze the process of attitude we find that it has three components: *cognition* – the knowledge, *affective* – the feelings and *behavioural* – the tendency or intention to act. First we acquire knowledge through some direct or indirect experience, we then have positive or negative feelings which push us to act in favour or against a particular situation or object. *Attitude* can be thus defined as “a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual’s response to all objects and situations with which it is related”. In fact, it is set to respond and is determined by cognition and emotions attached to that particular object, situation or class of persons. Allport accepts the involvement of both mental and neural aspects of readiness to respond. Experiences play an important role in its formation. Direct experience or indirect experience acquired in the family, school, peer-group, society, media or any other situation or sources help in formulating and shaping opinions and attitudes. Its importance lies in emphasizing an influence upon behaviour as it directs and controls human behaviour. Further, attitudes are said to be dynamic, they exclude such readiness as may be called innate, which are bound rigidly and invariably with the stimulus, which lack flexibility, directionality and references to external or conceptual objects.

Thurstone elaborates that an *attitude* is a sum total of a man’s inclinations and feelings, prejudices or biases, preconceived notions, ideas, fears, threats and convictions about any specific topic.

Attitudes may also be understood as a complex of feelings, desires, fears, convictions, prejudices or other tendencies that have prompted a person to act (because of varied experience). Another thing to remember about attitudes is that attitudes refer to a more or less permanent and enduring state of readiness of mental organization which predisposes an individual to react in a characteristic way to any object or situation with which it is related. Reactions may be for or against a definite object. However, it can be emphasised that an attitude is not a behaviour but a tendency or predisposition to act. We shall regard attitudes as verbalized tendencies, dispositions or adjustments toward certain acts. They relate not to the past nor even primarily to the present, but as a rule, to the future.

12.4 FUNCTIONS OF ATTITUDES

Why do people have attitudes? In fact, attitudes perform various functions for the personality. These functions can be categorized into four types which are as follows:

- 1) **The adjustment function:** Attitudes help us adjust to our environment, by providing a certain amount of predictability. We generally classify objects into certain categories and develop positive or negative attitudes towards them. In presence of an object our attitudes are aroused and cause us to react

without wasting time. Moreover, our attitudes also help us to adjust to our environment by making it easier to get along with people who have similar attitudes. This facilitates social interaction. Thirdly, we express our attitudes verbally, and this expression of attitudes maximizes rewards in the external environment and minimizes punishments.

- 2) **Ego-defensive:** Ego-defensive functions are served by attitudes that allow the individual to protect herself or himself from acknowledging uncomplimentary basic truths about herself or himself and projecting them onto others. An individual rejects negative attitudes towards the self and develops positive attitudes towards the self.
- 3) **Value expression:** Value expression functions are involved when the expression of the attitudes gives pleasure to the person, because attitudes reveal some of the basic values we hold. It relieves us of tension of holding values inside.
- 4) **Knowledge functions:** Knowledge functions are based on the individual's need to give structure to her or his universe, to understand it and to predict events etc. No one wants to live in ambiguity.

Check Your Progress Exercise 1

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. Fill in the blanks:

- i) play an important role in formation of attitudes.
- ii) Attitudes are important for, and control of human behaviour.
- iii) Attitude is not a but a tendency or to act.

2. Enumerate the various categories of functions of attitudes.

.....

.....

.....

.....

.....

.....

.....

12.5 MEASUREMENT OF ATTITUDES

Had it been possible to measure attitude in a sentence, it would have been an easy task. But, since, attitudes seem like a total of positive and negative affect,

we must measure it in detail, asking various questions reflecting various degrees from one extreme to another, that is strongly favourable to strongly opposing. Measurement of attitudes and beliefs like measurement of all psychological variables, presents unique and frequently very difficult problems. The measurement procedure is a technical one and hence requires certain considerations which will be helpful:

- 1) The measurement should be indirect. Attitudes and beliefs should be measured only indirectly on the basis of inferences drawn from the individual's behaviour and immediate experience. In connection with the former, we can quantify relevant aspects of the individual's behaviour. With regards to the latter the individual herself or himself may, in terms of her or his immediate experiences, provide data. This is also called *introspective analysis*.
- 2) Though, attitudes and beliefs are stable and enduring in nature, still the immediate environment or any change in social, personal situation may have an effect. As the situation varies, an individual's reaction towards the object will also show variations. Hence, the psychological situation under which the beliefs and attitudes are being measured must be carefully controlled and standardized. It is important that the conditions under which the measurement was taken must carefully be stated for example, riots, war, death or divorce in family.
- 3) Sometimes, we require high precision while at times low precision will suffice. The essential requirement is that the particular dimension involved, shall be susceptible to a high enough degree of differentiation, with a high degree of reliability.
- 4) Reliability and validity of the instrument must also be established. *Reliability* means that when a measurement is repeated under the same conditions, the results will be the same. The validity can be established through predictability. The *validity* of a measuring instrument is the extent to which it measures what it purports to measure. There are various techniques for measuring reliability and validity.
- 5) The measurement of attitude must take account of content, clarity, specificity, strength, importance and verifiability. All these are psychologically significant and hence no investigation should neglect any of them.
- 6) Attitudes consist of three components, that are, cognitive, affective and behavioural. Hence, it can be measured through any of the three ways.

How to Assess?

It was in the second decade of the twentieth century that an interest was aroused in attitude measurement. Various attempts to measure social attitudes can be classified into categories on the basis of rationality and the technology adopted. Generally, we classify them into four:

- 1) **Non-disguised structured tests:** In this category we can put such tests the purpose of which is not concealed from the respondent but the response categories are already set. The respondent has to select any one of those. No opportunity is provided for free expression. The classical works of Thurstone and Likert which we will discuss in detail later in the Unit, are placed in this category. Such tests may be called *scales*, as responses for the statements of these scales indicate the position of a respondent on a

continuum of any particular trait, object or situation. Such scales can be used only in situations in which one may reasonably expect people to tell the truth. It provides a quick and convenient measure of attitudes obtained with ease even in larger groups. Like any other psychological test, the attitude scales are objective in nature and can also be standardized.

- 2) **Non-disguised non-structured tests:** This category includes free-response interviews and questionnaire approaches, the biographical and essay type studies. The interviews and open-ended questionnaires are good examples. Direct observation of behaviour is also included in this category. Observations are made scientific by using special observational technique.
- 3) **Disguised non-structured tests:** All such methods which carry an undisclosed purpose and the response categories are also not predetermined, are classified in this category. All the techniques known as projective techniques can be placed in this category for example, the Thematic Apperception Test (TAT), The Rorschach Inkblot Test, The Sentence Completion, and the cartoon tests. The respondent expresses her or his attitude without being conscious about it.
- 4) **Disguised structured tests:** Tests of attitude in this category approximate objective testing. Respondent participates in an objective task, in which correct answers are sought. Attitudes are reflected through systematic bias in the performance of an objective task. In fact information tests are used to measure attitude indirectly.

Non-structured direct questioning is subject to criticism. People may not like to make public declaration of their true feelings and attitudes. The method of direct observation of behaviour is also subject to questions like time consumed and the accuracy in observation. So is the case with disguised non-structured techniques as they are time-consuming and require individual attention. Moreover degree of attitudes cannot be measured in psychometric terms.

Ultimately researchers prefer non-disguised structured technique which is safe. It can scientifically be standardized and interpretation of results is also objective. Thus, it is free from the personal biases of the interpreter. Moreover, it is economical as it can be administered to large groups in a short time. Though, there has been some criticism regarding the prediction of behaviour through attitudes and the truthful expression of attitudes. However, these are more successful when used in situations where respondents are reasonably expected to express their convictions and opinions truthfully. Such methods generally include scales. Scales have another advantage of standardization and objectivity.

12.6 TYPES OF SCALES

Before we discuss the standardized procedure we must make a brief review of the different kinds of the scales that we have in measurement. There are basically four types of scales. The crudest scales are *nominal scales*. These involve only a categorization of some object in two or more classes. Ordering is not required. The classes may be men-women, good-bad, like-dislike, black-white etc. The next scale is *ordinal scale* where order is required for example, 'Yes', 'undecided' or 'No'. It tells about the order but not about the distance between ordered categories. For example, suppose you ask people to respond with the categories

(a) strongly agree, (b) agree, (c) undecided, (d) disagree, (e) strongly disagree. The distances between categories 'a' and 'b' may not be equal to distance between 'b' and 'c' and so on. Third one is *interval scale* where we know the distances between categories. The fourth one is *ratio scale* where there is true zero point also and intervals have equal distances. The distance between two nearby points may be double, triple or half of the distances between other two points as in case of height. But, not in case of attitudes — attitudes cannot be zero; attitudes must be positive or negative or how much positive or negative.

Check Your Progress Exercise 2

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers with those provided at the end of this Unit.

1. List the various categories under which the measurement of social attitude can be classified.

.....

.....

.....

.....

.....

2. What are four types of scales?

.....

.....

.....

.....

.....

12.7 TECHNIQUES OF DEVELOPING ATTITUDE SCALE

A number of techniques have been used for developing attitude scales. Thurstone's law of comparative judgement led to the development of three methods of attitude scaling, that are, paired comparisons, equal appearing intervals and successive intervals. Likert developed the summated rating method and Guttman's procedure is known as scalogram method.

12.7.1 Thurstone's Method of Equal Appearing Intervals

Thurstone and his co-workers have developed certain widely used methods of attitude scale construction. They have published a number of scales for the measurement of attitudes and opinions towards war, the church, capital punishment, evolution, birth control, censorship, and many other social objects. Thurstone's technique of equal-appearing intervals consists of the following steps:

- 1) The amassing of a very large number of simple statements about the object or the issue;
- 2) The judging of each of these items by a sizeable group of experts as to determine its proper diagnostic position on an attitude continuum between one extreme and the other and the rejection of those items for which there is insufficient agreement among the judges as to proper scale position;
- 3) The assignment of a scale score to each remaining item, computed as the median scale position for that item given by the group of judges; and
- 4) A final selection among the remaining items so that they will spread more or less evenly along the scale from one extreme to the other.

The original set of statements is collected from various sources. The main criteria in choosing them are that they should be phrased in simple, clear terms and they should refer directly to the issue. They should not create confusion in the minds of judges.

The group of judges must be large; say one hundred. The task of the judges should be to place each item in one of the 11 piles which appear to be equally spaced from one extreme of the scale to the other. Judges should not involve their personal opinions or attitudes. They have to judge the diagnostic capacity of the statements or items. Judges should be senior students, teachers or other experts of the field. There is never perfect agreement among the judges as to the placement of an item; however, the items showing highest agreement are selected for further steps. Drop those items where judges differ vastly, that is, some judges placed on one extreme showing (highly) positive attitude and others on other extreme showing (highly) negative attitude. Then calculate the median position ignoring the extreme ones.

This score would be the individual judges score which will describe the scale position of the statement along the continuum. If there is more number of items on one scale position, then select one with low dispersion, calculated statistically in terms of standard deviation or semi-interquartile range (SD or Q). All selected items should be spread over all the scale positions (piles) or parts of the continuum almost equally.

After the selection of the items of the scale, it may be tested for reliability and validity. For this purpose, selected items have to be administered on the unbiased randomly selected group of respondents. The respondent is asked to check each of the items (randomly presented) with which she or he agrees. Her or his attitude score is then obtained by calculating median of all the scale values of the items endorsed by her or him. Sometimes, inconsistencies do occur but generally the checked items cluster around a given point in the scale.

Thurstone type scales generally consist of 20-20 statements, almost equally spread over the continuum: for reliability test-retest or split half techniques or any other may also be used. In test-retest, same group is tested twice with a specified gap, and correlation is calculated between the scores of both the testings. In split half, scores on odd items and even-items are correlated. Higher the correlation coefficients, higher the reliability value. For validity, face validity or content validity, predictive validity, cross-validation, factorial validity, or any other may be used.

With satisfactory reliability and validity, scale is ready for final use. Some may prefer pilot study also. This helps in finding out difficulties, if any, in final administration of the scale. The scoring procedure would be same as mentioned earlier in case of judges scoring procedure.

12.7.2 Likert Method of Scale Construction

The method of summated rating, originally described by Likert, is widely used because of its wide applicability and the ease with which it can be used. In this method it is not required to determine the scale values of the statements and a large number of items can be landed easily. Items are selected or rejected on the basis of item analysis which provides objectivity to the selection of items (statements). The value of each statement is obtained by statistical procedures that employ the data from the sample of persons whose attitudes are under study. First of all a number of items (statements) related to the situation, object or topic are collected or if need be formulated on the basis of informal criteria suggested by many pioneer authors and scientists. These statements are then presented directly to a group of randomly selected respondents to express their own attitudes on statements in any one of the choices allowed, for example (1) strongly agree, (2) agree, (3) uncertain, (4) disagree and (5) strongly disagree. After collecting data, scoring is done. Highest score namely, score five is given to the positive statement on strong agreement and lowest score, one is given if the respondent strongly disagrees with the statement. The reverse procedure is adopted for the negative statements. After giving scores to each statement for all the respondents the total score is obtained for each respondent. The scores of respondents are then ordered on the basis of their total scores, that is highest scores on one end and the lowest on the other. Then the 25 or 27 percent of respondents with highest total scores and 25 or 27 percent with lowest total scores are separated as criteria groups to evaluate each statement. Responses of both these groups on each statement are then compared to determine statistically the discriminative values of each statement. A commonly used practice is to calculate the t-ratio between the scores of the upper and lower groups on each statement. The high t-ratio denotes high discriminative value of the statement. Items bearing high t-ratios are selected and others rejected. Investigators may begin with large number of items, finally, they can retain 25 to 40 only. Investigators also need to know the reliability and validity coefficients of the scale before finalizing the scale.

Many investigators have found high reliability with this method in comparison with Thurston's method of equal appearing intervals, for reliability split-half and test-retest techniques are used. Beside the higher reliability and validity coefficients, the method of summated rating offers many advantages which are not available in any other method. Scale construction is simple and less time consuming with this method. Judges are not required in this method.

Criteria of Selection of Items or Statements:

The following are the informal criteria for selecting attitude statements:

1. Avoid statements that refer to the past rather than to the present.
2. Avoid statements that are factual or capable of being interpreted as factual.
3. Avoid statements that may be interpreted in more than one way.

4. Avoid statements that are irrelevant to the psychological object under consideration.
5. Avoid statements that are likely to be endorsed by almost everyone or no one.
6. Select statements that are believed to cover the entire range of the affective scale of interest.
7. Keep the language of the statements simple, clear and direct.
8. Statements should be short, rarely exceeding 20 words.
9. Each statement should contain only one complete thought.
10. Avoid universals such as all, always, none, never.
11. Words such as only, just, merely....should be used with care and moderation in writing statements.
12. Whenever possible, statements should be in the form of simple sentences, rather than compound or complex sentences.
13. Avoid the use of words that may not be understood.
14. Avoid the use of double negatives.

In final selection it is suggested that half of the statements be positive and half negative. Secondly, should have high discriminative value and thirdly, should span the full attitude continuum.

While comparing the two methods of attitude scale construction, namely, Thurston's equal-appearing intervals and Likert's summated rating technique, scientists have found not much difference with regard to ease of construction and use, amount of information, reliability, validity and meaningfulness of scores. We require an original group of judges in one method and preliminary group of subjects in another. The scoring of neither method is particularly labourious. Both require statistical analysis. However, Likert's method gives more information where respondents have a choice of answering in one of the five categories where as Thurston's technique has only two choices. As regards reliability Likert's method has slight edge over Thurstone's method. However, as regards validity, there is no difference. Both methods have been widely used in experimental investigations of all sorts, and both methods have demonstrated their usefulness.

12.7.3 Thurstone's Method of Successive Intervals

This method first requires all the steps used by the judges in the method of equal appearing intervals. It involves an additional step, which employs the frequencies of assignment of the n statements to the 11 categories as the basis for estimating the distances between the 11 piles. The obtained scale values are on an interval scale, and the statements then may be given to respondents. They, then, are asked to check the three statements which most represent their attitudinal positions. The average value of the three selected statements is the individual's attitude score.

The basic assumption of Thurstone methods is that the values obtained from one sample of judges will be the same as the values obtained from another sample of judges. As long as the judges are not extremists on the particular attitude continuum, this assumption is generally safe.

12.7.4 Guttman's Scalogram Technique

The technique developed by Guttman is called the *scalogram technique*. Its procedure helps in checking the unidimensionality of a set of statements. As an example, if a person weighs 100 kilograms, we know at once that she or he is heavier than those who weigh 80 or 60 kilograms. Similarly, if we have Guttman scale, and we know that if a person endorsed a very favourable item, we need not check whether he endorses a less favourable one. Suppose a person weighs 100 kgs., and we ask her or him whether she or he weighs more than 120, 110, 80 kilograms. The answer will be no, no and yes respectively. Then we can place her or him in the interval between 110 and 80 without asking more questions. So is the case with this scale.

In Guttman's scale, items are arranged in such a way that when an individual obtains a higher rank (or score) than another, the individual who must rank just as or higher than the other individual on each of her or his answers. If we have five attitude statements that span the full attitude continuum and five individuals having attitudes ordered from the most positive to the most negative, we will obtain the responses as shown in the Table 12.1.

Table 12.1: Theoretical Perfect Response Pattern of Five Individuals to Five Attitude Statements

Statements	Very Favourable	Favourable	Indifferent	Unfavourable	Very Unfavourable
The individuals					
Very Pro	Yes	Yes	No	No	No
Just Pro	No	Yes	Yes	No	No
Indifferent	No	Yes	Yes	Yes	No
Somewhat Anti	No	No	Yes	Yes	No
Very Anti	No	No	No	Yes	Yes

The given table shows that a person having very positive attitude can endorse those statements which show very favourable or favourable responses and not other ones. Similarly, person having just favourable attitude will neither endorse statements having very favourable or unfavourable or very unfavourable. A person with indifferent attitude will endorse only middle category statements. Respondents with somewhat anti or very anti attitude will endorse items in the pattern just opposite of the first two categories mentioned.

In Guttman procedure, it is assumed that if one accepts an extremely favourable item, she or he will accept the less favourable items also. Further, she or he would reject the indifferent and unfavourable items. Thus, Guttman items are assumed to be cumulative (or monotonic). In Guttman's scale it is essential that all items are consistent.

The Guttman technique involves the analysis of the responses of approximately 100 individuals to a set of attitude statements. To eliminate statements with inconsistent judgement various trials are done. An inconsistent judgement occurs

when a favourable person, who has accepted several highly favourable statements, also accepts a statement that is assumed to be unfavourable. Finally, after elimination, there remain about six statements with very low (less than 10 percent) inconsistent answers. Thus, the method provides a means whereby the offending items can be eliminated and the scale purified until it meets the criterion of consistency. This is the final scale. Now it can be administered on the respondents who will respond by agreeing or disagreeing. This will enable us to place them unambiguously on the attitude continuum.

12.7.5 Bogardus Social Distance Scale

In all societies there are norms specifying the correct or appropriate behaviours for members when they encounter other people. People may like to maintain physical distances with people having different characteristics, for example caste, class, language, religion, values, faiths, beliefs, occupation, nationality, education, colour, sex, culture or personality traits. The level of avoidance may involve exclusion of persons from country, from neighbourhood, from friendship or the occupational group. This is the behavioural component of an attitude which involves the behavioural intensions of the subject towards the attitude object. The intentions are arranged in a rank order of 'Social Distance' and presented before subjects to respond. This one scale can be used for a number of attitude objects. The Bogardus scale employs the following items, listed in the increasing order of social distance:

I would admit:

- 1) To close kin by marriage
- 2) To my club as personal chum
- 3) To my street as neighbour
- 4) To employment in my occupation
- 5) To citizenship in my country
- 6) As a visitor only to my country
- 7) Would exclude from my country

It is possible with the social distance scale to compare different people's attitude towards the same nationality or to compare a single individual's attitude towards various nationalities. The seven social distances mentioned above can be used for Chinese, Germans, French, Americans, Britishers, Russians, etc. Similarly, it can be used for groups based on caste, religion, economic status, language or culture, though, belonging to the same nationality. It has been widely and successfully used for various such purposes in social psychological research and without drastic modifications. Some scientists use a group of judges to standardize the social distance scale. A large number of statements, such as those used by Bogardus, are presented to a group of judges. The judges indicate on an 11 point scale, how much social distance is implied by agreement with each of the statements. Judgement of all the judges are analyzed by a technique developed by Thurstone, and a single scale value is obtained for each statement. Then the required number of items is selected on the basis of scale values.

12.7.6 Some Other Methods

Besides these methods of attitude measurement, there are a few more which may be employed in special situations.

1. The Rank-order Scale: In this method items or objects are placed in an order of preferences, on account of liking-disliking, acceptance-rejection, agreement-disagreement or any other dimension or characteristics. To know your preferences or choices of colours, you may be given a set of different colours and asked to arrange them in the order of preference arranging most liked to least liked. This may be used in finding out the popularity status of member of a group. This may also be used in finding out the efficiency status of a foreman, for example. A workman might be asked to rank all his working associates in order of efficiency with the real purpose of determining only her or his opinion towards her or his foreman's efficiency.

The method is limited in use especially when there is a large number of stimuli say, 30 to 40. The second problem is that the psychological distance between two ranks would not be known. The distance between rank one and rank two may be different from the distance between rank two and rank three and so forth.

The method has been used with objects having physical characteristics or psychological characteristics. This has also been used with attitude statements. A set of selected statements or items are presented before the respondent and she or he is asked to arrange those statements in the order of her or his personal preference. If there is more number of respondents then the average of their responses is calculated to know the group value. The attitude or statements are prepared and selected carefully so that the whole range of attitude from least favoured to most favoured is covered.

2. The Method of Paired Comparisons: Related to the method of ranking, it is another technique in which the individual makes a series of judgements on the basis of favourableness, approval or agreement with the objects taken a pair at a time. As used by Thurstone in this method only two objects are presented before the respondent, at a time. Respondent has to select one out of the two. Thus, her or his preferences are found out. It is easy when there are only two objects and the distance or difference between the two is vast. The method has been used in finding out the preferences for nationalities also. One has to select the name of nationalities, write their names on separate sheet, put two together before the subject and ask her or him which of the two she or he prefers. She or he has to select one out of the two. All possible combinations are selected before the respondent who will select one out of the two, each time. Then the total number of preferences for each nationality is obtained which will result into the preference order, for example which nationality she or he likes the most to which nationality she or he dislikes the most. The biggest difficulty with this method is that it is difficult to use when there are large number of stimuli. Respondents find it tedious and boring. Disinterest may affect the results while using it with attitude statements. All possible pairs of statements are made and given to 100 individuals all of whom will judge which one of each pair is more favourable to an attitude object. Then frequencies are obtained for the number of times each statement is judged as more favourable than the others. Then the frequencies of the favourable judgements are used as indexes of the distance between two

statements on the psychological continuum. By using information concerning such judgements of which item is more favourable, we can obtain a set of numbers that represent the position of all statements on the psychological continuum. The frequencies are converted into probabilities and probabilities into z values (using the statistical table). Estimates then are averaged to obtain the mean "value" of the statement. The most negative statement is arbitrarily given the value .000; the remaining attitude statements then will have positive values; and the values will be on an interval scale. Now 10 to 15 statements are selected that have values with approximately equal intervals, spread over the continuum ranging from one end to the other.

These statements can be presented in a random order to the people we wish to study. They might then be asked to read the statements and to check the three statements that best express how they feel about the particular issue. Finally, the average of the scale values of these three statements can be computed. This number represents the attitude of the particular individual expressed in psychological units identical to those used by the judges.

3. The Indirect Method : Though it is highly desirable that the measurement of beliefs and attitudes be indirect, but methods differ on the degrees of indirectness. Some methods of measurement involve direct response and others less direct; some methods are more indirect. Such techniques where purpose of study is not revealed to respondent and she or he expresses her or his thoughts, values, attitudes, emotions, without being conscious about them, are called *indirect* or *projective methods*. Many a times respondents do not express true feelings due to their social unacceptability. Hence they are not willing to reveal the same in public. They might like to give a good impression. Secondly, these may be repressed, being unacceptable to the individual's values and standards and hence not readily or easily accessible to conscience. None of these influences are conducive to accurate measurement. In such situations, indirect methods are used. The important indirect methods are projective techniques consisting of Thematic Apperception Test (TAT), doll play, and sentence completion.

The Thematic Apperception Test (TAT) basically requires certain ambiguous pictures to which individuals respond. Their responses are then subjected to a thematic frequency count. Proshansky adapted the TAT as a projective technique for the measurement of attitudes towards labour. He selected from magazines and newspapers a number of pictures that depicted various social conflict situations involving labour and that were ambiguous. Subjects were shown the pictures briefly one at a time and after each exposure were instructed to give a detailed account of what the picture represented and also to make up a story about it.

In a rather different approach to the use of projective techniques, Dubin found that it was possible to make fairly good predictions of scores on attitude scales towards labour, government, and war on the basis of the individual's play construction with a set of toys, when instructed to represent "the world as you see it", and "the world as you would like to see it". This is Doll play technique which has been found helpful in measuring intergroup attitudes.

A sentence completion test is another indirect method where incomplete sentences are presented to respondents who are required to complete them. This method has been successfully used to measure racial attitudes. In this test, critical sentences such as "Skin colour....." "Some lynching.....", "Negro body

odour.....", etc. are interspersed with neutral items, such as "May be.....," "I feel.....". Subjects' use of words in completing such sentences reveal their inner world of attitudes, conflicts, values and many more.

It is expected that through such projective tests unconscious components of attitudes or secretly held attitudes can be measured more appropriately than by the conventional attitude questionnaire. To be useful as a mass testing instrument for attitude research, however, the projective technique must be developed and refined in two ways: (i) It must be simplified and standardized so that it can be applied economically and easily to people representative of all parts of the general population and in everyday, non-laboratory situations, and (ii) Its scoring must be objectified so that the attitudes of large numbers of people can be readily determined without the need of expert ratings of the projective responses by highly trained judges. However, these refinements appear difficult, yet these methods are highly useful in the small-scale clinical and laboratory measurement of attitudes.

Having acquainted with various methods and techniques of attitude measurement, researcher may choose the one which is most suitable and convenient according to the situations. You may consider time, money, availability and appropriateness of the instrument. Students will know actually when they do the practical work.

Check Your Progress Exercise 3

Note: a) Read the following question carefully and answer in the space provided below.

b) Check your answer with that provided at the end of this Unit.

1. List various methods of attitude scale construction.

.....

.....

.....

.....

.....

.....

.....

12.8 LET US SUM UP

- A family is one cohesive unit that is bound together by different individuals and their unique personalities, attitudes, opinions and ideas towards people and the world around them.
- In order to function effectively and establish homeostasis within the family, understanding individual outlooks is crucial.
- At this juncture, the attitude scales play an important role.
- Using attitude scales which are standardized and objective in nature with regards to their content and results, it is easier to explain the various factors that cause friction or destruct balance within the family, thus helping the family

to work on strengthening the bonds among each member by resolving their conflicts.

- Also children are most easily affected by the family conflicts like conflicts between a child's parents or between the grandparents and parents or with any other extended family member, which leaves a longer impression in the child's mind. Thus, the implementation of the attitude scales on these members can smoothen the relationships within the family and also take care of the child by resolving her or his ambiguities related to the family relationships and not affecting her or his mind.
- This can be followed by sessions on counselling or family therapy with each and every member of the family for building up a stronger base of relationships.
- Therefore, there is a need of integrating the attitude scales with family counselling and therapy to have a close understanding of a family structure for broadening it.

12.9 GLOSSARY

Affective	: The feelings.
Attitude	: A complex of feelings desires, fears functions prejudices or other tendencies that have prompted a person to act.
Behaviour	: The tendency or intention to act.
Cognition	: The knowledge.
Reliability	: When a measurement is repeated under a some conditions, the result will be the same.
Validity	: The extent to which a tool measures what it purports to measure.

12.10 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1.
 - i) Experiences
 - ii) understanding, prediction
 - iii) behaviour, predisposition
2. Following are four categories under which functions of attitudes can be classified:
 - i) The adjustment function,
 - ii) Ego-defensive,
 - iii) Value-expression, and
 - iv) Knowledge functions.

Check Your Progress Exercise 2

1. Following are the four categories under which the measurement of social attitude can be classified:
 - i) Non-disguised structured tests,
 - ii) Non-disguised non-structured tests,
 - iii) Disguised non-structured tests, and
 - iv) Disguised structured tests.
2. The four types of scales are given below:
 - i) Nominal scale
 - ii) Ordinal scale,
 - iii) Interval scale, and
 - iv) Ratio scale.

Check Your Progress Exercise 3

1. Following are the various methods of attitude scale construction:
 - i) The Thurstone's method of equal appearing intervals,
 - ii) Likert method,
 - iii) Thurstone's method of successive intervals,
 - iv) Scalogram technique, and
 - v) Bogardus social distance scale.

12.11 UNIT END QUESTIONS

1. How will you define attitude? How it is important?
2. What are the functions of attitudes.
3. Briefly describe various types of attitude scales.
4. Construct one attitude scale by using any method given in this Unit.

12.12 FURTHER READINGS AND REFERENCES

Edwards, A.L. (1969). *Techniques of Attitude Scale Construction*. Vakils: Feffer and Simons Private Ltd.

Fishbein, M. (1967). *Readings in Attitude Theory and Measurement*. New York: John Wiley & Sons.

Garrett, H.E. *Statistics in Psychology and Education*. Vakils: Feffer & Simons Pvt. Ltd.

Guilford, J.P. (1954). *Psychometric Methods*. New Delhi: McGraw Hill Book Com. Inc.

Shwa, M.E. & Wright, J.M. (1967). *Scales for the Measurement of Attitudes*. New Delhi: McGraw Hill Book Com.

Triandis, H.C. (1971). *Attitude and Attitude Change*. New York: John Willey & Sons. Inc.

Notes



