BLOCK 2

QUANTITATIVE AND QUALITATIVE RESEARCH METHODS

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UNIT 3 QUANTITATIVE RESEARCH METHOD*

Structure

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3.0 OBJECTIVES

After reading this unit, you will be able to

- describe the meaning and characteristics of quantitative research.
- discuss the characteristics, strengths and weaknesses of quantitative research.
- describe the methods of quantitative research.

3.1 INTRODUCTION

A researcher wanted to carry out a study on organisational citizenship behaviour and work motivation of employees in public and private sector banks in Chennai. Based on the objectives of the study the method that was used by the researcher was quantitative method, as that was found to be appropriate for the conducting the study. The study was carried out using standardised psychological tests (we will discuss psychological testing in unit 6). The data thus collected was statistically analysed to make interpretations and generalisations.

In the previous block, we discussed about psychological research and also focused on sampling and sampling techniques. The first unit is especially relevant as it introduced psychological research and thus serves as a foundation to the rest of the units in this course. In this unit, we will mainly discuss about the quantitative research. Research can be categorised in to quantitative and qualitative research. Quantitative research mainly focuses on numbers and there are various methods that can be discussed under this type of research.

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3.2 INTRODUCTION TO QUANTITATIVE RESEARCH

Quantitative research deals with objective measurements and includes statistical or numerical analysis of data collected through polls, questionnaires or surveys. The variables can be manipulated as well as controlled in quantitative research. Basically, the variables are manipulated to examine the cause- effect relationship, carry out comparative analysis or interventional analysis within a specified population.

Quantitative research deals with numbers. It focuses more on convergent reasoning than on divergent reasoning which means that the researcher tries to find out solutions to a research problem with help of standardised tools and not by creative ideas. It mainly focuses on quantifying relationships between variables.

3.3.1 Characteristics of Quantitative method

The characteristics of quantitative research are as follows:

1) **Clearly defined research questions:** Based on the research problem, the researcher frames clearly defined research questions and the answers to these questions are sought objectively.

2) **Representative sample:** The researcher selects a sample from a specified population from which data is aimed to be collected. These samples are representative of the population, so that the results achieved can be generalised to the population.

3) **Manipulation/ control of variables:** As mentioned before, the quantitative research deals with variables and as per the requirement, the researcher manipulates (for example, increases or decreases) and even controls the extraneous/controlled variables that can affect the research study.

4) **Structured and standardised tools used for data collection:** Quantitative research deals with numbers and the data is collected with the help of structured or standardised research instruments. The data is analysed with help of empirical evidences. The data are collected in form of numbers, and statistics, often arranged in tables, charts, figures, or other non-textual forms.

5) **It is reliable and valid:** Since the study is done under controlled observations involving scientific investigations, they can be replicated or repeated and provide similar results. The quantitative research is high on reliability. Further, as quantitative research involves the use of standard and structured instruments (which are variable specific), they are valid as well.

6) **Generalisability:** Since the quantitative research is done in a well- planned manner and are highly reliable as well as valid, the results obtained through the method can be generalised and can also be used to effectively predict results and infer causal relationships.

3.3.2 Strengths of Quantitative Method

It needs to be mentioned that, quantitative research provides a framework to the researcher to find out relationships or conduct comparative analysis. It also enables a researcher to control the environment in order to collect the required data. Some of the strengths of the quantitative research can be mentioned as follows:

- It provides an opportunity to collect data from a larger sample and helps in conducting broader study as well as generalisation of results to a larger population.
- It helps the researcher to attain reliable, valid, accurate and objective results.
- It provides an opportunity to replicate and design similar studies.
- It provides an opportunity to conduct experiment under controled environment and thus minimises error variance.
- It uses close ended and structured questions which provide responses free from personal biases.

3.2.3 Limitations of Quantitative Method

Some of the limitations of quantitative research are as follows:

- It lacks contextual details.
- The research is limited to statistical approach and so lacks the grounds for the process of discovery.
- The closed ended or structured questions might reflect a limited and incomplete information.
- Results might provide much narrower and sometimes superficial data set.
- The research does not involve interview or in-depth perception of individuals, so it does not provide complete insight of the real world.
- The research might not yield natural and original responses of individuals.

Check Your Progress I

1) List the characteristics of quantitative method.

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2) State any one strength and limitation of quantitative research.

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3.3 METHODS OF QUANTITATIVE RESEARCH

Let us now discuss various mathods of qualitative research

Experimental research

In an experimental research, the researcher can manipulate the predictor or independent variable(s) as per the requirement of the research, to examine the cause- effect relationship. The researcher conducts the experiment under controlled environment, where the sample is divided in to two groups out of which one group is treated as experimental group (the group on which experimentation or manipulation is done) and the other is placed as a control group (the group on which no manipulations or treatments are given).The research is carried out under a high level of control that ensures that most of the extraneous variables are dealt with. You should know here that the independent or predictor variables are those variables which can be manipulated to see its effect on the dependent variable(s). For example, if you vary the intensity of light and temperature to examine its effect on performance of individuals, light and temperature here are the predictor variables and the performance becomes the dependent variable. A predictor variables therefore, predicts its effect on dependent variable. Aronson et al (2016, page 34) defined experimental method as "the method in which the researcher randomly assigns participants to different conditions and ensures that these conditions are identical except for the independent variable(s) (the one thought to have a causal effect on people's responses)".

The main characteristics of experimental method are:

1) It involves a systematic procedure including definition of the problem, research design, data collection and interpretation.
2) There is manipulation of one or more independent variable (s) to study its effect on dependent variable (s).
3) The study is carried out under controlled conditions. Thus, there is not much interference of extraneous variable (s).
4) It has high internal validity [(it can be said that the changes in dependent variable (s) are as a result of independent variable(s) and not extraneous variable(s)].
5) It has lower external validity (as the study is carried out under controlled conditions, the results as such cannot be generalised to other situations). External validity is of two types, ecological validity and population validity. Ecological validity denotes whether generalisation of the results can be carried out to other situations and population validity denotes whether generalisation of the results (of the study carried out on a certain group of participants) can be carried out to the population.
6) Sample can be selected using randomisation.

Experiments are often carried out in laboratory set up that provides adequate control, these are referred to as laboratory experiments. The laboratory experiment uses a standardised procedure, in which the participants are randomly allotted to each independent variable group. An example of laboratory experiment conducted in psychological research is the Milgram's experiment on obedience. The

laboratory experiment is advantageous because it involves standardised procedure; it can be replicated; control of extraneous variables is possible and cause- effect relationship can be established. Though it is not aloof from disadvantages because it is conducted in artificial setting which may lessen the ecological validity as the participant might not behave as they would have behaved in real life setting. Further, there might be an influence of experimenter's bias. Demand characteristics may also act as confounding variable and affect the results.

Non-experimental research

As the name reflects, this research lacks the required conditions of experimental research. In non- experimental research, the researcher cannot manipulate the independent variable(s), also because independent variable(s) may have already occurred. For example, if we want to study the effect of abuse on mental health of children, in this case, the independent variable that is abuse has already occurred. The non- experimental research is high on external validity and can be generalised on a larger population. This method can also be used when the participants cannot be randomly assigned (for example, in a study to analyse whether a damage in mid brain affects the sleep of participants, participants cannot be randonly assigned due to the nature of the sample), though it can study causal relationships without manipulating the independent variables. It can also be used in exploratory researches (for example, a study to explore how efficiently child can be nurtured by single mothers).

Some of the characteristics of non-experimental research are:

1) The independent variable cannot be manipulated.
2) There is low control.
3) Randomisation cannot be used.
4) External validity is high.
5) Internal validity is low.

Field Experiments

The field experiments are conducted in natural settings within the environment of the participants (for example, classroom). The experimenter can manipulate independent variable(s), though control may not be high. An example of field experiment done in the field of psychology is Holfing's hospital study on obedience. The advantages of field experiment are that the behavior reflected by participants in real life setting is natural and spontaneous; the chances of demand characteristics affecting the results are low and it has higher ecological validity than the laboratory experiment. The disadvantage of this research is that, it has no control over extraneous variable(s) which might affect the results. Also as it is done in natural settings, it is difficult to replicate field experiments.

Characteristics of field experiments are as follows:

1) The researcher can manipulate the independent variable(s).
2) Control is not high as the experiment is carried out in a natural settings.
3) External validity is higher compared to experimental research.
4) Randomisation is not possible.

Field Studies: These researches are non - experimental in nature, as the researcher

does not manipulate any variable(s), and research is carried out in natural settings. The data can be collected through face-to-face interviews, surveys, or direct observation. The data collected is specific to a particular issue/problem. The researcher carefully plans the procedure of research and ensures that the data is accurate, valid, and collected efficiently. The data is analysed and interpreted accordingly. The advantages of field studies are that, they can be used in studies where manipulation of independent variable(s) is not possible. It is also useful in areas where manipulation of independent variables are not ethical. The disadvantages of this method are that, there are possibilities of ethical challenges (like, deception) involved in the study; there are more chances of sampling bias and there may be influence of extraneous variables in the study. Some of the characteristics of field studies are:

1) The researcher cannot manipulate the independent variable(s).
2) The study is carried out in naturalistic setting.
3) Internal validity is low.
4) External validity is high.
5) Randomisation is not possible.

Table 3.1 Differences between laboratory experiment, field experiment and field study.

Laboratory Experiment	Field Experiment	Field Studies
Experiments are conducted under controlled setting.	Experiments are not conducted under controlled setting.	Researches are conducted in natural settings.
Experimenter can manipulate independent variable(s) as well as control extraneous variable(s).	Experimenter can control independent variable(s) but has no control over extraneous variable(s).	Researcher can neither manipulate independent variable(s) nor control extraneous variable(s).
Ecological validity is lowest.	Ecological validity is comparatively higher.	Has very high ecological validity.
We can infer causal conditions, as their internal validity is high.	Depending on the level of control of extraneous variables they may have high internal validity and accordingly causal conditions can be inferred.	We cannot infer causal conditions as their internal validity is low.
The generalisiblity of the findings is limited.	The results can be generalized to the	The results can be generalized.

population under study.

Check Your Progress II

Fill in the blanks

1) The independent or predictor variables are those variables which can be manipulated to see its effect on the..... .

2) The non- experimental research is high on..... and can be generalised on a larger population.

3) The field experiments are conducted in.....within the environment of the participants.

4) Field studies have high ..... .

3. 4 LET US SUM UP

To summarise, in the present unit we mainly discussed about the quantitative research.

Research can be categorised in to quantitative and qualitative methods. The characteristics of quantitative research include clearly defined research questions, representative sample, manipulation/ control of variables, structured and standardised tools used for data collection. Also they are reliable and valid and generalisation is possible. The strengths and limitations of quantitative research were also discussed. Further, the unit also covered the methods of quantitative research including experimental research, non experimental research, laboratory experiments, field experiments and field studies. In an experimental research, the researcher can manipulate the predictor or independent variable(s) as per the requirement of the research to examine the cause- effect relationship. The researcher conducts the experiment within a controlled environment. In non-experimental research, the researcher cannot manipulate the independent variable(s).The non- experimental research is high on external validity and can be generalised on a larger population. The field experiments are conducted in natural setting within the environment of the participants. The experimenter can manipulate independent variable(s), but control is low. Field studies are non - experimental in nature, as the researcher cannot manipulate any variable(s), and study is carried out in a natural setting.

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3.6 KEY WORDS

Experimental research: In an experimental research, the researcher can manipulate the predictor or independent variable(s) as per the requirement of the research to examine the cause- effect relationship.

Field Experiments: The field experiments are conducted in natural settings within the environment of the participants. The experimenter can manipulate independent variable(s), but has no control on extraneous variable(s).

Field Studies: These researches are non - experimental in nature, as the researcher cannot manipulate any variable(s), and the study is carried out in natural settings.

Laboratory Experiments: Laboratory experiments are those experiments which are conducted within a laboratory setting.

Non-experimental research: In non- experimental research, the researcher cannot manipulate the independent variable(s).

3.7 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress I

1) List the characteristics of quantitative method

   Clearly defined research questions

   Representative sample

   Manipulation/ control of variables

   Structured and Standardised tools used for data collection

   It is reliable and valid

   Generalisation is possible

2) State any one strength and limitation of quantitative research

   Strength: It provides an opportunity to conduct experiments under controlled

environment and so minimises error variance.

Limitation: The research does not involve interview or in-depth perception of individuals, so it does not provide complete insight of the real world.

Check Your Progress II

Fill in the blanks

1) The independent or predictor variables are those variables which can be manipulated to see its effect on the dependent variable.
2) The non- experimental research is high on external validity and can be generalised on a larger population.
3) The field experiments are conducted in natural setting within the environment of the participants.
4) Field studies have high ecological validity.

3.8 UNIT END QUESTIONS

1) Discuss the characteristics of quantitative method.
2) Point out the advantages and disadvantages of quantitative method.
3) Explain experimental and non-experimental research.
4) Differentiate between laboratory experiment, field experiment and field studies.

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UNIT 4 QUALITATIVE RESEARCH METHOD*

Structure

4.0 Objectives

4.1 Introduction

4.2 Meaning of Qualitative Research

- 4.2.1 History and Philosophy of Qualitative Research
- 4.2.2 Characteristics of Qualitative Research
- 4.2.3 Difference between Quantitative and Qualitative Research

4.3 Methods of Qualitative Research

4.4 Mixed Methods Research

- 4.5.1 Characteristics of Mixed Methods Research
- 4.4.2 Uses of Mixed Methods Research
- 4.4.3 Limitations of Mixed Methods Research

4.5 Let Us Sum Up

4.6 References

4.7 Key Words

4.8 Answers to Check Your progress

4.9 Unit End Questions

4.0 OBJECTIVES

After reading this unit, you will be able to:

- define qualitative research;
- explain different methods of qualitative research;
- differentiate between qualitative and quantitative research;
- explain the concept and importance of mixed approach research.

4.1 INTRODUCTION

A researcher wanted to carry out a study on health related beliefs and practices of a certain community. Based on the objective(s) of the study he/ she decided to employ interview and observation in order to collect data. The data thus collected by him/ her was analysed in order to develop better and deeper understanding about the health related beliefs and practices of that particular community. The research method that is employed here by the researcher is qualitative research.

In the previous unit, we focused on quantitative research, that we described as involving numerals. We also discussed various methods of quantitative research. In the present unit we will discuss about qualitative research. Qualitative research is non-numeral in nature and includes event description, interview and evidences that are written or recorded. We will also focus on various methods of qualitative research. Further, mixed approach will also be focused on.

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4.2 MEANING OF QUALITATIVE RESEARCH

Qualitative research can be defined as a type of scientific research that tries to bridge the gap of incomplete information, systematically collect evidence, produce findings and thereby seek answer to a problem or question. It is widely used in collecting and understanding specific information about the behaviour, opinion, values and other social aspects of a particular community, culture or population. An example of a qualitative research can be studying the concept of spiritual development amongst college students. David (1995) had done such a study at a fairly conservative school. He actually tried to analyse whether there is uniformity or considerable diversity in people's understanding of spiritual development or not. Qualitative research helps in providing an in depth knowledge regarding human behaviour and tries to find out reasons behind decision making tendencies of humans. Qualitative research can thus effectively capture aspects of our human nature. Qualitative research is less interested in explaining phenomena than in understanding them and that is why it has relevance and implications in psychology.

Qualitative research, thus, helps in attaining an in depth knowledge about human nature, attitude, behaviour and experiences.

It has several implications in the discipline of psychology, as it:

i) Helps in textual description of experiences of people.

ii) Helps in identifying and explaining social norms, roles of gender, socio economic status and so on.

iii) Helps in understanding those behavioural phenomena which can not be quantified.

iv) Helps in collecting data under natural situations.

v) Helps in determining those factors which are meaningful and are important to the respondents under study. The open ended questions used in qualitative research provide a chance to unfold those facts which cannot be done with the help of close ended questions.

4.2.1 History and Philosophy of Qualitative Research

Qualitative research method seems to have its roots in the Disciplines of Anthropology and Sociology, as a method of investigation and survey. Although, there was no universally accepted format earlier, researchers were using it to understand about culture and group adjustment at various places. However, later the social anthropologists like Malinowski (1922); Mead (1935) and the sociologists like Park and Burgess in 1925 started more focused approaches which lead to the shaping of qualitative research. The method was being used to study about the individuals at different settings, street corners, slums and foreign places.

The time frame of 1960's led to the emergence of theories and approaches like the Grounded theory (Glaser and Strauss, 1967) and symbolic interactionist perspective (Becker et al, 1961). Later, several publications like edited volume by Filstead (1970); books on Ethnography by Spradley (1979,1980) contributed towards the development of qualitative methods of conducting research.

Subsequently, phenomenological approaches were also developed such as Phenomenological Psychology by Giorgi (1985) and Colaizzi (1978).

Later on, several studies and publications in the field originated. The Journal of Qualitative Sociology was published in 1978 and the International Journal of Qualitative Studies in Education was published in 1988. The Handbook of Qualitative Research was an edited book by Denzin and Lincoln in 1994. The term qualitative research was offen interchangeably used as naturalistic inquiry (Lincoln and Guba, 1985); field research (Burgess, 1984; Delamont, 1992); case study approaches (Stake 1995; Travers, 2001); interpretive/interpretative research (Bryman, 2001). However, irrespective of the terms being used, qualitative research basically focuses on the lived experience, interaction and language of human beings.

Historical sketch of qualitative research in the field of psychology: The use of qualitative research was traced by Giorgi (2009) in the work of Wilhelm Wundt, Alfred Binet, the Würzburg school, John Watson, the Gestalt school, Wilhelm Stern, Jean Piaget, and Frederic Bartlett. The qualitative psychological research was recognized in 1980s and began to appear in professional journals with regularity only in 1990s (Rennie, Watson, & Monteiro, 2002). According to Danziger (1983, 2001a, & 2001b), Wundt viewed his 10 volume Völkerpsychologie (1900–1920, 1916) translated as "social psychology," "folk psychology," or "cultural psychology"—involving qualitative research on language, expressive movement, imagination, art, mythology, religion, and morality—as equally important to laboratory research in the science of psychology. Case history, was a prevalent method being used to establish general knowledge. Freud as well used it in his research on psychopathology (Breuer & Freud, 1895).

In late 60's, Giorgi started using phenomenological assumptions and integrating qualitative procedures in traditional psychological experiments in order to gain more comprehensive knowledge of the psychology of learning (Giorgi, 1967). He also applied the phenomenological methods to psychological topics outside the laboratory as well (Giorgi, 1975). He further contributed by publishing the four-volume series of Duquesne Studies in Phenomenological Psychology (Giorgi et al., 1971, 1975, 1979, 1983). Further, several other eminent researchers also used the phenomenological analysis for psychology like, Clark Moustakas (1994), Max Van Manen (1990), and Jonathan Smith (Smith, Flowers, & Larkin, (2009). Barney Glaser and Anselm Strauss's in 1967 formulated the Grounded theory which played a role in sociology that was similar to Giorgi's in psychology.

From past few years the qualitative method is being integrated with other research methods. A section on qualitative inquiry has been included in APA's Division 5 and there is also publication of a new APA journal, Qualitative Psychology. There has also been an advent of the usage of "mixed methods" research designs (Creswell, Klassen, Piano Clark, & Clegg Smith, 2011) by psychologists where the qualitative method is being used along with quantitative method in researches. However, several types of qualitative methods like- neo-positivism, neo-pragmatism, ethnography, case study, phenomenology are still not being used so frequently that may be due to lack of awareness or proper training.

4.2.2 Characteristics of Qualitative Research

The following are the characteristics of qualitative research:

1) **Data leads to formation of theory:** In a qualitative research, the researcher collects data by going to the participants, interacting with them and interviewing them at in-depth level. The data therefore collected is rich in information and becomes a basis for the formation of theories. It can be said that the qualitative research has a primacy of data.

2) **Context bound research:** The qualitative research involves specific studies with reference to context, culture or society. Therefore, the research is more context sensitive. The researchers study the events or day to day life actions on daily basis and they need to take in to account all the happenings taking place in the particular situation. They have to exclude their personal biases and deeply involve themselves as participants of the event or situation. Thus, qualitative research is context specific.

3) **Involvement or immersion of researchers:** As mentioned earlier, the qualitative research leads to complete involvement of the researchers in the natural settings. They need to engage actively in the activities to understand the phenomena or processes. Even before the process of data collection, they need to become familiar with the culture/ society/ situation which they are going to study. They should not be influenced by their perceptions, biases and thoughts and need to involve deeply in to the research settings. Thus, the researchers deeply immerse themselves in the cultural settings in the qualitative method of research.

4) **Researcher participant relationship:**The researcher in a qualitative research needs to be non judgemental and he/ she should not make any pre-assumptions, since they need to collect the original responses from the participants. The relationship between the researcher and participants of the research should lead to gain of relevant information which is free from biases.

5) **Thick description:** Geertz (1973) mentioned that, immersion of the researchers in the (research) setting will help the researchers to use thick description. Since the data collected from the participants involve the responses, experiences, interpretations, phenomena and rituals they follow; the description of the events, processes, phenomena etc., the interview and discussion with the participants should be thoroughly mentioned by the researcher. The thick description includes the information about facts, and theoretical as well as analytical description. Thus, qualitative research involves thick description, which includes the clear description of the culture, context, process and steps of research which helps in construction of reality and analysis of research.

6) **Data collection and data analysis occur simultaneously:**The researcher immerses him/her self in the research settings to collect data through various ways like observation and interview and he/she keeps on analysing and interpreting the data simultaneously.

4.2.3 Difference Between Quantitative and Qualitative Research.

In the previous unit we discussed about quantitative method and in the present unit we discussed about qualitative research. Let us now focus on how different they are.

	Quantitative	Qualitative
Meaning	This is a research method that is employed in order to obtain numerical data and facts by using statistical techniques.	This a research method that is employed in order to comprehend the functioning of human beings, the way they feel and think.
Objective	Quantification of the data by assigning numerals so that results can be generalised to the population.	To obtain a qualitative comprehension of the event/ phenomenon. No numerals are assigned.
Nature	Convergent (conclusive), Includes deductive reasoning.	Divergent (explorative), Includes inductive reasoning.
Sample size	Often a large sample is taken.	Sample could be small and sometimes a single case/ unit/ event/ organisation is studied.
Collection of data	Structured	Mostly unstructured.
Tools used for data collection	Standardised and structured instruments are used.	Interviews, observation, open ended questions, field related notes etc. are used.
Type of data	Numerical	Non numerical, like words, images, behaviours and so on.
Analysis of Data	Statistical techniques used.	Use of statistical techniques not required. Themes used and categorisation of data in patterns is carried out.

Check Your Progress I

1) What is qualitative research?

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2) List the characteristics of qualitative research.

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4.3 METHODS OF QUALITATIVE RESEARCH

As the concept of qualitative research is now clear, we will discuss about its methods.

Case study

With the help of this method a case of an individual, group, event, institution or society is studied. It helps in providing an in-depth knowledge of the nature, process or phenomena of a specific case under study. Multiple methods of data collection are often used in case study research (example, interviews, observation, documents, and questionnaires). The final report of the case study provides a rich (that is, vivid and detailed) and holistic (that is, describes the whole and its parts) description of the case and its context. A case study method can be used to study a peculiar event or a person suffering from a rare disorder or disease, for example. It can also be used to study certain institutions. Since case study is in-depth it requires not only time but apt attention as well from the researcher. With the help of case study a lot of information can be gathered. Certain case studies are also longitudinal in nature where the study is carried out over a period of time. Some of the drawbacks of case study include, only few events/ individuals can be studied (the sample is small or constitutes only one participant) and as an outcome of this the results obtained cannot be generalised. Further, it is also time consuming method that requires certain expertise on the part of the researcher.

Ethnography

This approach mainly focuses on the study of a particular community. It is more of a kind of close field observation and basically tries to study a socio cultural phenomena. This method mainly involves study of participants in their naturalistic environment. Observation is widely used in ethnography and it is also less structured in nature. The researcher also plays an active role and more often than not participant observation is used. Various other methods like interview, using documental sources are also employed in ethnography besides observation. One of the main advantages of ethnography is that primary data is collected first hand and thus its validity is higher. Though its disadvantages include, lack of generalisation, inability to study cause and effect relationship, ineffective description of what is observed and some ethical issues (for instance, when deception is used by the researcher) may also crop up while using this method. Further, employing ethnography is also complex, as the researcher may find it difficult to decide what to study and why to study it. Further, when the problem and objectives of the study have been decided, the researcher may find it difficult to get a smooth entry in to that particular community/ group and form a positive rapport with the members of that community group. Exiting the community/ group can again pose a challenge due to deep relationship and bond that the researcher may develop with members of the community/group. Ethnography does demand expertise on part of the researcher and is a time consuming method.

Grounded theory

Grounded theory was proposed by Glaser and Strauss in 1967. This qualitative method focuses on 'discovering' and studies the relationship between an empirical investigation and theory. Thus, the data collection is carried out with an aim to promote development of theory from the data collected. Grounded, theory and

discovery are the three main concepts of grounded theory besides 'constant comparison'. Constant comparison denotes that data analysis in grounded theory is initiated the moment data is collected and a comparison is carried out between the units of data or between the data units and probable explanations. In grounded theory, the data collected is analysed systematically and interpreted in order to generate a report, that can then lead to development of a theory. The steps involved in grounded theory include memoring, sorting and writing.

Focus group

In this method of qualitative research, certain questions or issues are discussed by a group of participants. Focus groups can be structured or unstructured and the group could be heterogeneous or homogeneous in nature. It may involve experts (referred to as Delphi group) who discuss certain important issues (for instance, health educators could discuss about certain health related issues of a certain community) or could be individuals from certain community/ area discussing about certain issue (like women empowerment). The size of the group will depend on the objective(s) of the research (though an ideal size would be twelve and for Delphi groups it could be around four participants) and the participants may or may not know each other. One of the main advantages of this method is that a lot of information is gathered. Though, there are disadvantages as well, as there could issues related to encouraging the participants to contribute equally and actively. And though this method in a way gives more control to the participants, ethical issue of confidentiality cannot be maintained. Besides, there is also the problem of social desirability on part of the participants that can impact the outcome of the study. The researcher needs to play a role of coordinator in order to facilitate and promote effective discussion and also to avoid any conflict between the participants. He/ she also needs to develop suitable rapport with the participants and provide proper information and instructions. Audio and visual aids can also be used to record the whole discussion that can later be analysed.

Phenomenology

In this method, the behavioural phenomena is explained with the help of conscious experience of events, without using any theory, calculations or assumptions from other disciplines. The concept can be best understood with the help of one of the studies that was done in which patients were asked to describe about caring and non caring nurses in hospitals (Creswell, 1998).The patients explained those nurses to be caring who show their existential presence and not mere their physical presence. The existential presence of caring nurses referred to the positive response showed by them to the patient's request. The relaxation, comfort and security that the client expresses both physically and mentally are an immediate and direct result of the client's stated and unstated needs being heard and responded to by the nurse.

Content Analysis

As the name suggests here, the content is analysed. Krippendorf (2004, page 3) defined content analysis as "a systematic reading of texts and symbolic matter not necessarily from an author's or user's perspective". It can also be termed as technique that involves description of manifested content communication that is carried out in objective, systematic and quantitive manner (Berelson, 1952). Content analysis thus can be used in order to examine the varied issues ranging from social to cultural, values and events and so on from text, news,

advertisements and other such sources. It can also be used in order to study and gain meaningful insights from various texts and documents. It involves a systematic evaluation of the texts and documents where the qualitative data is converted in to quantitative data with the help of coding and thus valid interpretations can be made.

Discourse Analysis

Discourse analysis can be termed as a study that focuses on use of written and spoken language between individuals. Thus, it mainly involves analysis of interactions between individuals, texts, practices that are social in nature, face to face interactions, images, documents and so on. Though, discourse analysis will not only focus on the communication but also the context in which the communication takes place. The main steps in discourse analysis include identification of target, examination of significance and value of the data collected, analyses, summarisation and interpretations of data. Though relevant information can be gained with the help of this method, it lacks reliability and validity. Further, subjectivity may also creep in.

Check Your Progress II

Fill in the Blanks

1) Multiple methods of.....are often used in case study research (example, interviews, observation, documents, and questionnaires).

2) .....mainly involves study of participants in their naturalistic environment.

3) Grounded theory was proposed by..... in 1967.

4) Focus groups can be .....or unstructured and the group could be heterogeneous or homogeneous in nature.

5) In ....., the behavioural phenomena is explained with the help of conscious experience of events, without using any theory, calculations or assumptions from other disciplines.

4.4 MIXED METHODS RESEARCH

The trend of mixed approach method of research has recently gained much importance among research scholars. It refers to the integration of both quantitative and qualitative method in a single research. It provides a better understanding of viewpoints from the findings of both the research method.

4.4.1 Characteristics of Mixed Methods Research

The characteristics of mixed methods research are mentioned as follows:

- It involves a rigorous procedure of collecting and analysing data through quantitative as well as qualitative research.
- It is an integrated method which involves collection of data by both close-ended and open-ended questions.
- The method helps to understand a process, behavior or phenomena from various perspectives. For example, in order to understand the quality of service of an organization, the researcher needs to take the viewpoints of employees, clients, suppliers, owners and the end users.

- The method helps to provide an information rich data.

4.4.2 Uses of Mixed Methods Research

The uses of mixed methods researcher are:

1) **Validate findings:** It helps in collection of data through both the ways at the same time. This parallel assessment of information and analysis of both qualitative and quantitative data helps in validating the findings and in generalisation of the results. The method also helps cross check the validity of both the research findings by comparing the data with each other.

2) **Develop survey instruments:** The method involves collection of data by both the research methods, which may help in the development of appropriate quantitative instruments that provide accurate measures. Further, the findings might also help develop and test a psychometric instrument that improves on existing measures.

3) **Help in understanding community dynamics:** The approach involves community participants in many quantitative and qualitative phases of research to bring about change (Mertens, 2009). The multiple phases deals with a single phenomenon. Therefore, the method helps in understanding community dynamics and to analyse, address and implement the required changes.

4) **Reflects participants' point of view:** Mixed methods provide an opportunity to study participants and ensure that study findings are grounded in participants' experiences. They provide flexibility and more details or a complete story in comparison to any single method being used.

5) **Collects rich and comprehensive data:** Mixed methods helps in collecting information by integrating quantitative and qualitative data which also helps in minimising errors and biases in the research findings. Hence, the data collected through mixed method is rich and comprehensive.

4.4.3 Limitations of Mixed Methods Research

The limitation of the mixed methods research are as follows:

1) **Involves complex evaluations**. Mixed methods studies need careful planning and conduction of research. It needs to understand all the aspects of research and analyse data from both qualitative and quantitative perspectives. Further, integrating qualitative and quantitative data during analysis is also a challenging phase for many researchers.

2) **Requires multiple expertise or experts:** Since the data needs to be analysed from both the perspectives, the researcher needs to be well trained in both the research methods or he/she needs to involve experts from both the fields for better understanding and interpretation of the data.

3) **Requires increased resources and time:** The mixed methods require greater resources and time than those needed to conduct a single method of study.

Check Your Progress III

1) What is mixed methods research?

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2) State any one use of mixed methods research.

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3) List the limitations of mixed methods research.

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4.5 LET US SUM UP

Qualitative research can be defined as a type of scientific research that tries to bridge the gap of incomplete information, systematically collect evidence, produce findings and thereby seek answer to a problem or question. It is widely used in collecting and understanding specific information about the behaviour, opinion, values and other social aspects of a particular community, culture or population. Qualitative research, thus, helps in attaining an in depth knowledge of human nature, attitude, behaviour and experiences and has several implications in the discipline of psychology. Qualitative research method seems to have its roots in the disciplines of Anthropology and Sociology as a method of investigation survey. The use of qualitative research was traced by Giorgi (2009) in the work of Wilhelm Wundt, Alfred Binet, the Würzburg school, John Watson, the Gestalt school, Wilhelm Stern, Jean Piaget, and Frederic Bartlett.

After tracing the historical developments of qualitative research, the characteristics of qualitative research were also discussed. Further, difference between quantitative research and qualitative research was also highlighted. The unit then focused on the methods of qualitative research including, case study, ethnography, grounded theory, focus group and phenomenology, content analysis and discourse

analysis. In the last section of the unit mixed methods research was discussed with a focus on its characteristics, uses and limitations. Mixed methods research refers to the integration of both quantitative and qualitative methods in a single research and it provides a better understanding of viewpoints from the findings of both the research methods.

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4.7 KEY WORDS

Case study: The research method in which a case of an individual, group, event, institution or society is studied.

Ethnography: This approach mainly focuses on the study of a particular community. It is more of a kind of close field observation and basically tries to study a socio cultural phenomena.

Focus group: In this method of qualitative research, certain questions or issues are discussed by a group of participants.

Grounded theory: This qualitative method focuses on 'discovering' and studies the relationship between an empirical investigation and theory. Thus, the data collection is carried out with an aim to promote development of theory from the data collected.

Mixed methods research: It refers to the integrations of both quantitative and qualitative method in a single research.

Phenomenology: In this method, the behavioural phenomena is explained with the help of conscious experience of events, without using any theory, calculations or assumptions from other disciplines.

Qualitative research: A type of scientific research that tries to bridge the gap of incomplete information, systematically collect evidence, produce findings and thereby seeks answer to a problem or question.

4.8 ANSWERS TO CHECK YOUR PROGRESS

1) What is qualitative research?

   Qualitative research can be defined as a type of scientific research that tries to bridge the gap of incomplete information, systematically collect evidence, produce findings and thereby seek answer to a problem or question.

2) List the characteristics of qualitative research.

   The following are the characteristics of qualitative research:

   - Data leads to formation of theory
   - Context bound research
   - Involvement or immersion of researchers
   - Researcher participant relationship
   - Thick description
   - Data collection and data analysis occur simultaneously

Check Your Progress II

1) Multiple methods of data collection are often used in case study research (example, interviews, observation, documents, and questionnaires).

2) Ethnography mainly involves study of participants in their naturalistic environment.

3) Grounded theory was proposed by Glaser and Strauss in 1967.

4) Focus groups can be structured or unstructured and the group could be heterogeneous or homogeneous in nature.

5) In phenomenology, the behavioural phenomena is explained with the help of conscious experience of events, without using any theory, calculations or assumptions from other disciplines.

Check Your Progress III

1) What is mixed methods research?

   Mixed methods research refers to the integrating of both quantitative and qualitative method in a single research and it provide a better understanding of viewpoints from the findings of both the research method.

2) State any one use of mixed methods research.

   Mixed methods helps in collecting information by integrating quantitative and qualitative data which also helps in minimising errors and biases in the research findings. Hence, the data collected through mix approach method is rich and comprehensive

3) List the limitations of mixed methods research.
   - The limitation of the mixed methods are
   - It involves complex evaluations
   - It requires multiple expertise or experts
   - It requires increased resources and time

4.9 UNIT END QUESTIONS

1) Trace the history and philosophy of qualitative research.
2) Describe the different methods of qualitative research.
3) Discuss the characteristics of qualitative research.
4) Differentiate between qualitative research method and quantitative research.
5) Explain mixed methods research.

UNIT 5 OBSERVATION, INTERVIEW AND CASE STUDY METHOD*

Structure

5.0 Objectives

5.1 Introduction

5.2 Observation

- 5.2.1 Types of Observation
- 5.2.2 Advantages of Observation
- 5.2.3 Limitations of Observation

5.3 Interview

- 5.3.1 Types of Interview
- 5.3.2 Advantages of Interview
- 5.3.3 Limitations of Interview

5.4 Case Study

- 5.4.1 Characteristics of Case Study
- 5.4.2 Advantages of Case Study
- 5.4.3 Limitations of Case Study

5.5 Let Us Sum Up

5.6 References

5.7 Key Words

5.8 Answers to Check Your Progress

5.9 Unit End Questions

5.0 OBJECTIVES

After reading this unit, you will be able to,

- describe observation, it's types, advantages and limitations.
- discuss interview, it's types, advantages and limitations.
- explain case study, it's characteristics, advantages and limitations.

5.1 INTRODUCTION

Sahil was pursuing his post graduation in psychology and as a part of an assignment in developmental psychology, he wanted to understand the way toddlers interact and communicate with each other during play time. Instead of interviewing the parents/ guardians or teachers, he felt that observing the toddlers in their naturalistic set up would provide him with accurate and first hand information.

Sheela was a research associate and wanted to study the health related beliefs of fisher folks in her state. She choose interview method as she felt that this method will help her gather more information about the health related beliefs of the fisher folks.

* Prof. Suhas Shetgovekar, Faculty, Discipline of Psychology, SOSS, IGNOU, New Delhi

Suzan was a clinical psychologist and as a part of certain project she had to study the effect of Cognitive Behaviour Therapy on individuals with Depression. She used case study approach in order to study the participants as she felt that this method will provide her an opportunity to seek in-depth information.

As we can see in the above three examples, three different methods of data collection have been mentioned, namely, observation, interview and case study. All the three methods can be adequately used to collect in-depth information from the participants. As students of psychology, it is important that we understand these methods as that will help us make decisions about which methods to use when we carry out research.

In the present unit, thus, we will discuss these three methods and in the next unit, we will discuss about psychological tests, that are used by researchers to collect data from the participants.

5.2 OBSERVATION

We know that young children learn a lot through observation and as adults as well we indulge in observation. We observe people, events, phenomenon etc. and then make interpretations about the same. The observation that we will discuss in this section is similar, though, it is more systematic in nature and is carried out keeping in mind the objective(s) of a research.

Observation can be described as a process of data collection in which the units/ events/ phenomena/ individuals witnessed first hand. A researcher, for example, can observe employees at work, children interacting with each other, people belonging to certain community and so on. This is one of the prominent methods that is used to collect data in qualitative research. According to Kerlinger (1995), there are two modes with regard to observation. One is where we directly observe persons as they behave or events (for example, employees working in this work set up) and the other is where we seek information from persons about their or others' behaviour by asking questions (for example, parent can be asked about their child's behaviour at home).

Observation can be carried out either in a naturalistic set up or it can be carried out in a laboratory or a clinical set up. The benefits of naturalistic situation are in a way high as the behaviour of individuals in their natural set up can be studied. In such a case there is no manipulation or control of any variables. For example, individuals can be observed in shopping centres and malls or at a railway station. Even animals can be observed using naturalistic observation.

Though, when a researcher needs to manipulate an independent variable or needs to control effect of certain extraneous variable(s) then observation can be carried out in an artificial situation like a laboratory. This can also be done using one way mirror. To take an example, behaviour of children during play time can be studied in presence and absence of an adult.

Observer plays an immensely important role in observation as he/ she needs to observe and record events and details.

Various aids can be used to carry out observation, that includes the following:

Checklist: Very often based on the domain of observation, a checklist is created that can then be used while carrying out observation. This can be termed as a

tool for structured observation (discussed later in this section). Such a checklist could include demographic as well as behavioural items/ statements.

Ratings scales: Rating scales can also be used during observation. These scales are more specific compared to checklist. These scales include lesser dimensions and are also comparatively well defined. Thus, statement and items will be marked based on a rating scale.

Video recordings: Observations can also be video recorded so that they can be referred to later on. Such recordings will ensure that no information is missed out by the researcher/ observer. Though, prior permission needs to be taken from the participants with assurance of confidentiality. In which case spontaneity can get affected and social desirability may also occur on the part of the participants.

Besides the above, observers may also use one way mirror, where the observer can see the participants, but the participants cannot see the observer. Television cameras could also be used, where a camera is placed in the room where the individuals are interacting or where the event is taking place and the observer can observe the individuals/ events, through a television, sitting in another room.

5.2.1 Types of Observation

There are various types of observation, these are discussed as follows:

1) **Participant observation:** As the name suggests, in participant observation, the observer participates along with other participants in the activities/events/ phenomena being stuied so that he/ she is able to gather first hand information and interpret it effectively. Thus, the researcher is actively involved in activities carried out by the participants. This type of observation is often used by social anthropologist and can be used to study tribal groups (Majumdar, 2015). To take an example, if the researcher is studying rituals and practices of certain community during a festival, then he/ she will actively participate in the same. As the researcher is actively involved he/ she is able to gather relevant information about the day to day activities, rituals, practices etc. of the community/ group. Though, seeking entry to the group could pose a challenge besides creating rapport with the community/ group. Some of the advantages of this method include opportunity to observe the behavior of the individuals in a natural set up, and opportunity to built rapport and closeness with the community/ group members that enables the researcher to collect in-depth information and develop deeper understanding. Further, as the researcher is actually participating, he/ she gets an original perspective about the events, phenomena, rituals etc. To mention some of the disadvantages, this method could be very time consuming. Also exiting the community/ group could be a challenge as the researcher forms a bond with the participants. Another disadvantage of this type is that if the participants are aware about the observer then their behaviour and interaction may get affected as they may not be spontaneous. Though, to deal with this, deception can be used where the participants are not aware that they are being studied. But this can give rise to certain ethical issues and due care needs to be taken to protect the privacy and rights of the participants. The researcher also needs to be careful in noting down the observations and interpreting them. These need to be done as objectively as possible to avoid any bias and subjective interpretations. Also the researcher needs to be adequately trained

and skilled to carry out effective observations. He/ she also needs to carry out a background study about the community/ group so that he/ she is able to study the events, phenomena, practices etc. from right perspective.

2) **Non-participant observation:** Though, a lot of first hand information can be gathered with the help of participant observation, this type of observation has numerous challenges and problems. One way to deal with these challenges and problems would be by employing non-participant observation. In this the researcher/ observer will not participate along with the participants in the activities/ events/ phenomena being studied. Thus, the observer will observe the participants passively. An example of non-participant observation would be observing children's interaction during playtime using a one way mirror or television camera. Some of the advantages of this type include, objectivity and ability to be neutral. As the researcher is not participating, his/her perspective and interpretation can be more objective (also because he/ she may not be emotionally involved, which can happen in participatory observation). Thus, his/ her views would not be biased or subjective. The researcher is also more likely to be impartial as compared to participant observation. The participants may also share more information as they may not mind sharing the same with a stranger rather than a person who is familiar (as in case of participant observation). There are disadvantages to this method as well. Though there is greater objectivity compared to the participant observation, subjectivity on the part of observer / researcher cannot be ruled out as he/ she will ultimately interpret the behaviour based what what he/ she sees and perceives. He/ she may also not be in position to ask any questions to seek clarification. Also the observation is not complete as the interaction/ behaviour is observed during certain time period and the researcher will observe behavior/ event that is happening in front of him/ her at that moment. The set up is artificial and the participant are mostly aware that they are being observed, thus, the spontaneity can get affected and social desirability can also creep in.

3) **Structured observation:** Structured observation is denoted by " a careful definition of units to be observed, a clear delineation as to what a person or group to be the object of observation, what information constitutes the domain of observation, the size of the group and the selection principle thereof, the standardised conditions of observation" (Majumdar, 2015, page. 226). From this definition it is clear that the researcher/ observer has clear guidelines about what to observe. This in a way is helpful as the observer is prepared and knows what exactly, he/ she needs to observe. This type adequately guides the observation process though it is not as flexible as unstructured observation.

4) **Unstructured observation:** In this observation, the guidelines and principles as stated under structured observation are not available. Though the structured observation could be more systematic, unstructured observation provides a kind of freedom to observe the units/ events/ individuals/ phenomena and so on without the pressure of any conceptual guidelines or framework (Majumdar, 2015). It also needs to be noted that more often than not, an observation is semi structured, that is a combination of structured and unstructured observation is employed.

5.2.2 Advantages of Observation

The following are some of the advantages of observation:

1) This is one of the best methods of obtaining data in a naturalistic setup.
2) It is helpful when participants are not in position to adequately/ verbally answer the questions. For example, young children may not be able to answer certain questions.
3) First hand information can be obtained as methods like interview and so on may not be as reliable as observation.
4) When a method like interview is used, the individuals may not reveal all the information, but with the help of observation much more information can be obtained.
5) It can help in verification of information provided by the participants.

5.2.3 Limitations of Observation

The following are some of the limitations of observation:

1) Subjectivity can creep in during data collection and interpretation.
2) The characteristics of the observer like his / her attitudes, beliefs and even past experiences can have an impact on his/ her perception of the individuals/ events/ phenomena and so on.
3) The researcher may end up with vast information and may not be able to interpret it adequately.
4) The observation is in the present context and no information about past can be collected without using certain methods like interview.
5) Yet another problem is related to the validity and reliability of observation. According to Kerlinger (1995, page 488), "the interpretive burden that the researcher is subjected to could lead to lower validity. Further, reliability is also significant in this context. Reliability here is denoted by 'agreement amongst the observers". Thus, using videotapes and records can help achieve a higher reliability, though if such an agreement is due to chance, for example, then the reliability may suffer.

Observation is thus an effective method of data collection, but we need to remember that the researcher needs to be not only skilled and sensitive but also possess necessary expertise. He/ she also needs to be cautious and keep in mind the ethical issues while carrying out observation so that the rights of the participants are protected and they are not subjected to any harm.

Check Your Progress I

1) What is observation?

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2) List the types of observation.

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3) State any one advantage and one limitation of observation.

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5.3 INTERVIEW

This is one of the most commonly used methods of data collection. Various methods of data collection can be categorised based the extent to which they are direct. For instance, one way data can be collected is by asking questions to the participants and another way would be by using projective techniques like Rorschach inkblot series and so on. Interview can be termed as a direct method that may help in gathering relevant information directly from the participants. Though, it is possible that the participants are not able to or not willing to reveal certain information. In which case a direct method like interview will not work. Kerlinger (1995, page 441) described interview as "a face to face interpersonal role situation in which one person, the interviewer, asks a person being interviewed, the respondent, questions designed to obtain answers pertinent to research problem". The key points in this definition are that there are two main individuals involved, interviewer and interviewee who are involved in a face to face interaction. And during this interaction, the interviewer will ask certain questions to the interviewee to elicit responses.

One of the main aspects of the interview is the interview schedule. Interview schedule is nothing but questions that the interviewer has to ask as well as certain guidelines with regard to how the interviewer is expected to proceed with the interview. Preparing an interview schedule is a challenge and a lot of planning and work is required. While preparing an interview schedule one needs to be sure that the sentences are specific and clear and lack words with double meaning or ambiguous words. Though interview schedules are costly and are time consuming affair, the amount of information that can be obtained with the help of interview schedule is large.

Before preparing an interview schedule suitable background information needs to be collected about the focus of research and research problem. An interview schedule will mainly constitute 'identification information or face sheet, census type information and problem information' (Kerlinger, 1995, page 441). Identification information is mainly required so as to be able to identify the schedule. The census type information is related to the socio demographic information including age, gender, education, occupation, marital status, socio-

economic status and so on and the problem information includes questions pertaining to the research problem for which the responses from the interviewee are elicited. The items in the interview schedule could be open ended or close ended. In open ended items, a frame is provided for the answer but otherwise the interviewee has freedom to answer the way he/ she wants to. In close ended items certain fixed alternatives are provided from which the interviewee has to select, thus, limiting the flexibility of answers. In certain cases, scales are also used in interview schedule where responses can be provided in terms of degree of agreement or disagreement. For example, agree, undecided, disagree or frequently, sometimes, rarely, never. The researcher or the interviewer needs to carefully decide about what type of items he/ she wants in his/ her interview schedule based on the research problem. While carrying out interview, audio and video recording can be carried out with due permission of the interviewee(s).

Care needs to be taken while framing the questions and the following needs to be ensured:

- The question is with focuses on the research problem.
- It is not vague and lacks any ambiguity.
- A question needs to elicit an answer and should not elicit a question.
- Background information needs to be obtained about the study so that the researcher or interviewer is sure that the respondents will have answers to questions asked and also to ensure that the possibility of resistance to the question on part of the interviewees will be low or negligible.
- A question that may elicit a response that is influenced by social desirability needs to be avoided.

5.3.1 Types of Interview

Interview can be categorised as follows:

1) **Structured Interview:** This is also referred to as standardised interview. This type is standardised, as the name suggests and includes predefined questions that are sequenced in certain predefined order and also worded in certain way. Thus, there is not much freedom to the interviewer to make any changes to the questions asked. The interview schedules for such an interview are prepared carefully well in advance and with much deliberations. And it is prepared with a focus on the research problem. Though one disadvantage could be that preparing such an interview schedule is an exhaustive and time consuming process and there is not much scope for the researcher to make many modifications.

2) **Unstructured Interview:** Also termed as unstandardised interview, this type of interview is more flexible and as such questions are not predetermined and the interviewer has full freedom to ask the questions in the way and sequence that he/ she wants to. This in a way provides the necessary freedom to the interviewer to make any modifications as per the demand of the situation.

3) **Semistructured interview:** Such an interview is a combination of structured and unstructured interview. There will be an interview schedule that is predetermined, but the interviewer has full freedom to modify and make changes in it.

5.3.2 Advantages of Interview

1) A lot of relevant, in-depth and a large amount of information can be collected with the help of this method.

2) This method is suitable to collect data regarding certain serious and complex issues (that could even evoke emotional reactions).

3) This method is flexible and can be used with varied respondents from varied backgrounds.

4) Since it is face to face, the interviewer also has an advantage of observing the non verbal behaviour of the interviewee. Certain spontaneous reactions of the interviewee can also be recorded.

5) It is possible for the interviewer to explain certain questions or words to the interviewee or clarify any doubts, thus increasing the likelihood of eliciting appropriate responses.

6) Certain participants may display resistance in replying, but with suitable skills and rapport it is possible for interviewer to elicit responses from such participants.

7) It is comparatively easy for the interviewer to notice if the interviewee is faking or providing genuine responses.

5.3.3 Limitations of Interview

1) Preparing a suitable and adequate interview schedule is a task in itself and not only hard work and time but certain level of expertise and skills are also required.

2) Even interviewing requires necessary expertise and skills.

3) It is time consuming and is not cost effective.

4) It may be difficult to analyse and interpret the responses to the open ended questions.

5) Subjectivity may creep in.

6) Reliability and validity could be low.

7) Influence of social desirability cannot be ruled out.

Check Your Progress II

1) What is structured interview?

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2) State any one limitation of interview method.

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5.4 CASE STUDY

Case study can be described as an approach that helps in obtaining information about the unit from varied perspectives. Case study thus helps obtain in-depth information about the unit . Case study can be used to study not only individuals, but organisations/ institutions, events and so on. Often multiple methods of data collection including interview and observation are used in case study to collect information about the unit. In psychology, case study is frequently used in varied setups including clinical setup, research and so on. Case study can be termed as exploratory in nature where, in-depth data is collected from the unit/ participant using multiple methods of data collection. With the help of case study method, it is possible to gather relevant and large amount of data about the unit. And based on this information certain hypothesis(es) can be formulated for further research. Also certain unique cases, events, phenomenon and so on can be throughly studied with the help of this method.

Most frequently used methods of data collection in case study include interviews, observation, referring to letters, notes and diaries of the participant and any other related documents. It is mainly a qualitative approach and the data obtained by the researcher is qualitatively analysed.

When a case study is used in a research, it is important to first of all identify the focus of research, which in turn will guide the way the case (unit/ event/ phenomenon etc.) is to be studied by the researcher. In this regard suitable research questions can be formulated so that there is clarity in the problem and objectives of the study. Also it is important to review the literature in this regard so that the researcher has adequate background knowledge (though this is true with any research). The case study is necessarily complex as any unit will have numerous dimensions like personal, social, economical, political and so on. Once the focus of the case study is clear, then the methods of data collection can be finalised. As stated earlier, varied methods of data collection can be used in case study. But which methods are to be used will depend on the research questions and the research problem and objectives. The researcher will also need to decide about whether a single case will be taken or a small sample. This again will be determined by the research problem and objectives. Once the data is collected, the researcher can start organising and analysing it and while doing so the research questions and focus need to be kept in mind. Otherwise the main focus of the research can get lost in the large and in-depth amount of information gathered with the help of case study. Once the data is analysied, the researcher can then focus on preparation of report with interpretations, evidence and conclusions.

Thus, case study method can be effectively used in order to study certain units/ events/phenomena etc.

5.4.1 Characteristics of Case Study

Some of the significant features of case study method are:

- A single unit or a small sample is studied under case study.
- It is in-depth, thorough and comprehensive study of the unit, be it an individual, event, organisation/ institution etc.
- It can be termed as a direct approach.

- Case study also focuses on reciprocal inter-relationship of the variables and factors.
- It can be termed as an exploratory and descriptive in the way the information obtained about the unit is analysed.
- The unit that is studied is perceived as a whole.
- The unit is studied from various perspectives.
- Multiple methods of data collection are used to study the unit.
- The unit that is selected for study is often studied for a long period of time (though in certain cases a limited time period is specified) using varied methods so as to obtain necessary information that will enable researcher to make interpretations and draw conclusions.

5.4.2 Advantages of Case Study

1) It can be effectively used to not only develop a new theory but also challenge or modify an existing theory.
2) In-depth and exhaustive information about the unit can be collected.
3) It provides idea for further research.
4) Certain unique cases, events and phenomenon can be studied in detail with help of this method.
5) The information collected can not only be used to formulate certain hypothesis(es) but it can also be used in order to develop schedules and questionnaires.
6) It is possible to use multiple methods of data collection as per the need of the situation.

5.4.3 Limitations of Case Study

1) The results obtained cannot be generalised.
2) It is time consuming and also certain level of expertise and skills are required on part of the researcher. It is also not cost effective.
3) Subjectivity can creep in during interpretation of data.
4) Replication may not be possible.
5) It is possible that the participant may provide responses the way it is sought by the researcher.

Check Your Progress III

1) List any one feature of case study.

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2) State any one advantage of case study.

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5.5 LET US SUM UP

To summarise, in the present unit we discussed about the three main methods, namely, observation, interview and case study. Observation can be described as a process of data collection in which the units/ events/ phenomena/ individuals are witnessed first hand. There are two modes with regard to observation. One is where we directly observe persons as they behave or events (for example, employees working in this work set up) and the other is where we seek information from persons about their or others behaviour by asking questions (for example, parent can be asked about their child's behaviour at home). Observation can be carried out either in a naturalistic set up or it can be carried out in a laboratory or a clinical set up. While carrying out observation, various aids like checklist, rating scales, video recordings, one way mirror and so on can also be used. The types of observation, including participant observation, non participant observation, structured observation and unstructured observation were also discussed in the present unit, besides the advantages and limitations of observation. The next method discussed was interview, which is one of the most commonly used methods of data collection. It can be described as a face to face interpersonal role situation in which one person, the interviewer, asks a person being interviewed, the respondent, questions designed to obtain answers pertinent to research problem. One of the main aspects of the interview is the interview schedule. Interview schedule is nothing but questions that the interviewer has to ask as well as certain guidelines with regard to how the interviewer is expected to proceed with the interview. Preparing an interview schedule is a challenge and a lot of planning and work is required. An interview schedule will mainly constitute identification information or face sheet, census type information and problem information. Further, the types of interview, viz., structured, unstructured and semistructured were also discussed. The advantages and limitations of this methods were also highlighted. The last method discussed was that of case study. Case study can be described as an approach that helps in obtaining information about the unit from varied perspectives. Case study thus helps obtain in-depth information about the unit. Case study can be used to study not only individuals, but organisations/ institutions, events and so on. When a case study is used in a research, it is important to first of all identify the focus of research, which in turn will guide the way the case (unit/ event/ phenomenon etc.) is to be studied by the researcher. In the context of the case study, its characteristics, advantages and limitations were discussed.

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5.7 KEY WORDS

Case study: Case study can be described as an approach that helps in obtaining information about the unit from varied perspectives. Case study thus helps obtain in-depth information about the unit.

Interview: It is a face to face interpersonal role situation in which one person, the interviewer, asks a person being interviewed, the respondent, questions designed to obtain answers pertinent to research problem.

Non-participant observation: In non-participant observation, the researcher/ observer will not participate along with the participants in the activities/ events/ phenomena being studied. Thus, the observer will observe the participants passively.

Observation: Observation can be described as a process of data collection in which the units/ events/ phenomena/ individuals are witnessed first hand.

Participant observation: In participant observation, the observer participates along with other participants in the activities/ events/ phenomena being studied so that he/ she is able to gather first hand information and interpret it effectively.

Semistructured interview: Such an interview is a combination of structured and unstructured interview. There will be an interview schedule that is predetermined, but the interviewer has full freedom to modify and make changes in it.

Structured Interview: Also referred to as standardised interview, this type is more standardised as the name suggests and includes predefined questions that are sequenced in certain predefined order and also worded in certain way.

Structured observation: It is a careful definition of units to be observed, a clear delineation as to what a person or group to be the object of observation, what information constitutes the domain of observation, the size of the group and the selection principle thereof, the standardised conditions of observation.

Unstructured Interview: Also termed as unstandardised interview, this type of interview is more flexible and as such questions are not predetermined and the interviewer has full freedom to the ask the questions in the way and sequence that he/ she wants to.

Unstructured observation: In unstructured observation, the guidelines and principles as stated under structured observation are not available.

5.8 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress I

1) What is observation?

   Observation can be described as a process of data collection in which the units/ events/ phenomena/ individuals are witnessed first hand.

2) List the types of observation.

   Participant observation

   Non-participant observation

   Structured observation

   Unstructured observation

3) State any one advantage and one limitation of observation.

   Advantage: It is helpful when participants are not in position to adequately/ verbally answer the questions. For example, young children may not be able to answer certain questions.

   Limitation: Subjectivity can creep in during data collection and interpretation.

Check Your Progress II

1) What is structured interview?

   Also referred to as standardised interview, this type is standardised as the name suggests and includes predefined questions that are sequenced in certain predefined order and also worded in certain way.

2) State any one limitation of interview method.

   Limitation: It is time consuming and is not cost effective

Check Your Progress III

1) List any one feature of case study.

   Feature: It is in-depth, thorough and comprehensive study of the unit, be it an individual, event, organisation/ institution etc.

2) State any one advantage of case study.

   Advantage: The information collected can not only be used to formulate certain hypothesis(es) but it can also be used in order to develop schedules and questionnaires.

5.9 UNIT END QUESTIONS

1) Discuss the types of observation.
2) Explain the concept of observation and discuss its advantages and limitations.
3) Describe interview method with a focus on its types.
4) Discuss the advantages and limitations of interview method.
5) Elucidate case study and describe its the advantages and limitations.
6) Describe the characteristics of case study.

UNIT 6 INTRODUCTION TO PSYCHOLOGICAL TESTING[6]

Structure

6.0 Objectives

6.1 Introduction

6.2 Psychological Testing: Definition and Nature

6.3 Characteristics of a Good Psychological Test

6.4 Reliability and Validity

6.5 Types of Tests

6.6 Standardisation and Norms

6.7 Let Us Sum Up

6.8 References

6.9 Key Words

6.10 Answers to Check Your Progress

6. 11 Unit End Questions

6.0 OBJECTIVES

After reading this unit, you will be able to,

- define psychological testing and discuss its nature.
- discuss the characteristics of a good psychological test.
- explain reliability and validity.
- describe standardisation and norms.
- discuss the types of tests.

6.1 INTRODUCTION

It can be said that the essence of psychology is individual differences. In psychology we try to find how individuals differ and at the same time what are some of the common aspects amongst the individuals.In psychology we mainly study behaviour systematically and scientifically. And behaviour as such is studied in terms of its manifestations. These manifestations are measured with the help of psychological tests, which will be discussed in the present unit. In this unit we will discuss about psychological testing and also describe its nature. We will also highlight the characteristics of a good psychological test. Further, reliability and validity will also be explained besides standardisation and norms. Lastly, the types of tests will also be focused on.

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6.2 PSYCHOLOGICAL TESTING: DEFINITION AND NATURE

Psychological testing constitutes administration of psychological tests. Here, it is important to understand what are psychological tests.

Psychological tests can be described as tools that can be used to measure psychological entities like intelligence, personality, attitude, interest, achievement motivation and so on. Let us look at some of the definitions of psychological tests.

Psychological test was defined by Gregory (2010, page 16) as "a standardised procedure for sampling behavior and describing it with categories or scores".

Psychological test can be described as measurement of sample of behaviour that is standardised and objective (Anastasi, 1969).

Kaplan and Saccuzzo (2013) explained psychological test a device or technique used in quantification of behaviour that helps in not only understanding behaviour but also to predicting it.

Cohen and Swerdlik (2010, page 2), defined psychological testing " as the process of measuring psychology-related variables by means of devices or procedures designed to obtain a sample of behavior".

Some of the main properties of psychological tests are apparent from the definitions discussed above. To highlight these properties, psychological tests are objective in nature. They also have predictive and diagnostic value. A psychological test is also standardised, meaning that the procedure followed while administering and scoring the test is uniform and the instructions and scoring are provided in the manual of the test. Besides this the manual will also provide information about the norms based on which an individual's score can be interpreted. Any psychological test measures a sample of behaviour pertaining to certain psychological entity or variable. And though there are speed tests as well, often psychological test are power tests, that is, the difficulty level of items increaser gradually in their difficulty level. Thus, it is possible to identify the potential/ ability of different individuals, those having higher and those having lower potentiality/ ability. It denotes the extent of quality related to the psychological variable an individual has. A psychological test also needs to be valid and reliable, that again is stated in the manual along with details of method used to establish them (these will be discussed in details in later sections of this unit).

There are some of the assumptions in this regard, that we need to highlight as well, they are as follows:

1) A psychological test needs to be valid or should measure what it is supposed to measure.
2) It should be reliable or consistent.
3) It should be objective and it is assumed that the individuals taking the test, understand the test items in a similar manner.
4) It is assumed that the individuals taking the test will answer the test and will be able to accurately express their feeling in that regard.

5) It is assumed that individuals will answer the items honestly. Though there is always a possibility that individuals are answering in a certain way due to social desirability.

6) Error variance is assumed to occur due to administrator (bias, expectations), test taker (anxiety, fatigue) as well as testing conditions (temperature, distractions).

Psychological tests have a vast scope and application as it is used in varied set ups from clinical, counselling, industrial and organisational to forensic set up. In clinical set up it can be used for diagnosis of psychological disorders. For example, Beck's depression inventory can be helpful in diagnostic process of depression. In counselling set up, it can be used to make career decisions and also understand one's aptitude and interest. Tests like Differential Aptitude Test, Career Preference Record and Vocational Interest Inventory can be used in this context. Psychological tests can also be used in industrial and organisational set up for selection purpose as well as to understand stress related issues etc. in employees. Job Stress Scale, Organisational Citizenship Behaviour, Job Satisfaction Scale and so on can be used in this setup. In forensic psychology as well, psychological tests can be used to understand the psychological state of the individual. Psychological tests thus can be used to measure a wide range of psychological entities including intelligence, personality, creativity, interest, aptitude, attitude values and so on. There are even psychological tests that measure variables like internet addiction, resilience, mental health, psychological wellbeing, perceived parental behaviour, family environment etc.

Check Your Progress I

1) List the properties of a psychological test.

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2) State any two assumptions of psychological tests.

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6.3 CHARACTERISTICS OF A GOOD PSYCHOLOGICAL TEST

As we have now developed an idea about what is a psychological test, let us discuss the various characteristics of a good psychological test. These in a way can be related to the assumptions discussed in the earlier section. Some of the characteristics of a good psychological test are discussed as follows:

1) **Psychological tests are objective in nature:** Any good psychological test needs to be objective and not subjective. There should be no place for any kind of bias. An objective psychological test also denotes that it is valid and reliable.

2) **Validity of a psychological test:** The next characteristic that a good psychological test should possess is validity. Validity can be explained as the ability of the test to measure what it is supposed to measure. A weighing machine is a valid tool to measure weight and it is not valid to measure length.

3) **Reliability of a psychological test:** A good psychological test is also reliable or consistent. For example, if you measure length of a table with a ruler on certain day and if you measure the length of the same table with same ruler after six months, the length obtained in centimetres will remain same, thus indicting that this ruler is reliable.

However, in the context of validity and reliability, it is to be remembered that in psychology what we measure are intangible entities like intelligence and personality. And thus establishing validity and reliability for psychological tests is a rigorous process.

4) **A good psychological test will have discriminant feature:** The test should be able to denote any difference between one individual from the other on a given aspect or variable. For example, if two individuals differ in their music aptitude, the the test should be able to differentiate between the two on this aptitude.

5) **A good test will be comprehensive:** This denotes that the test measures all the dimensions or aspects of the construct that it measures.

A psychological test thus needs to be constructed with utmost care and all the necessary procedures need to be followed. Special care needs to be taken when the items of a test are constructed, and they need to be clear and not ambiguous. A good test also should be quantifiable and it should be possible to score the items.

Check Your Progress II

1. Fill in the blanks

   a) An ..... psychological test also denotes that it is valid and reliable.

   b) ..... can be explained as the ability of the test to measure what it is supposed to measure.

   c) In psychology we measure ..... entities.

2) Explain the discriminant feature of a good psychological test.

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6.4 VALIDITY AND RELIABILITY

Under the characteristics of a good psychological test we briefly discussed about reliability and validity. We used an example of weighing machine and a ruler. It is comparatively easy to establish the validity and reliability of such tools because the entities that they measure are tangible. In psychology, on the other hand, the entities that are studied are intangible, like intelligence, personality, attitude and so on. Further, human beings may also change and their behaviour can fluctuate. Thus, it is complex to establish validity and reliability of psychlogical tests.

In the present section of this unit we will discuss validity and reliability, that are two significant aspects of any psychological test.

Let us start with discussion on validity. As unless the test is established to be valid computing its reliability will not be meaningful.

6.4.1 Validity

Validity can be described as the characteristics of a psychological test that states whether the test measures what it is supposed to or purports to measure. Thus, a test on adjustment needs to measure adjustment and a test on self esteem needs to measure self esteem. A ruler, that measures length, is not a valid instrument to measure weight and a weighing machine is not a valid instrument to measure length. Similarly, a good psychological test needs to be valid and should measure the entity (or the sample of behaviour) that it was developed to measure.

There are various methods of validity, these are discussed as follows:

Face validity

As the name suggests the focus here is on the face value of the test. If the test seems to measure what it is supposed to measure then it can be said to have face validity. This is basically based on judgement (Veeraraghavan and Shetgovekar, 2016). Such a validity may be helpful when deciding whether the items in the test are suitable in certain situations. Though this can be considered as initial step in the process of testing the items rather than in drawing conclusions about the validity of the test.

Content validity

In this validity the focus is on the content of the psychological test. Content validity is established by comparing the items in the test with the behavioural manifestations. In content validity, whether the construct that the test is supposed to measure is represented in the test or not is focused on. Content validity can be differentiated from face validity as the former includes an examinations of the items that is comprehensive in nature. Further, quantitative data is also used. Correlation between the items and total score is computed that provides an idea about the content validity of the test. Thus, a clear idea about how each item represents the variable measured by the psychological test can be sought. In order to obtain content validity, both, the items that relate to the variables measured by psychological test and the items that do not relate to the variables measured by the test need to be included. A psychological test can be first measured for content validity during the test construction stage.

Construct validity: As was discussed in the first unit, a construct can be termed as a concept that is adopted for empirical purpose (Kerlinger, 1995). Thus, when adjustment or creativity is adopted in a research for empirical purpose, it will be termed as a construct. Construct validity involves looking for evidences that the behaviours reflected by the test to some extent indicates the construct. In this validity, hypotheses are formulated based on theory related to the construct and then attempts are made to accept or reject the hypotheses based on data collection. Based on the data then it is concluded whether the the results obtained are explained by the theory or not. If not then the theory is modified and the process is repeated.

Criterion related validity

This is related to the predictive feature of the psychological test and is scientific in nature (Veeraraghavan and Shetgovekar, 2016). This can be explained as the extent to which a psychological test covaries with another valid psychological test measuring the same variable or with the help of gold standard assessment strategies (Haynes et al., 1999). Gold standard assessment strategies are nothing but a different and accurate criterion or behavioural evaluation that is carried out by experts using valid psychological tests, observation and interview (Zolotor & and Mayer, 2004; Rich and Eyberg, 2001),

Criterion validity constitutes the following three categorises

a) **Discriminative validity:** This can be determined based on whether a test is able to categorise the individuals in to groups, based on the construct that it measures. This type of validity is relevant when we need to make a decision that is categorical, for example, whether the individual displays maladjustment or not. Though such a validity may not be relevant when the test developed is a continuous scale. For exaple a test that measures adjustment over a period of time, say during the counselling process.

b) **Concurrent validity:** In psychology, there could be multiple tests that are developed that measure dissimilar or similar entities. In concurrent validity, a validity of a test is established by comparing its scores with that of another valid test that measures dissimilar or similar entity. This can be done by administering the two tests on same group of individuals at same time. The validity of the developed test is determined based on whether it has a significant positive correlationship with another valid test measuring the same construct or has no significant correlationship with a valid test that measures a different construct.

- ***Convergent validity:*** This validity measures the extent to which two tests that measure similar or same construct overlap. Thus, a correlation is established between two tests that measure similar or same entity and if there is significant positive correlation then we can now that the test developed is valid. For example, a test developed to measure occupational stress has significant positive correlationship with another valid test that also measures occupational stress.

- ***Discriminant validity:*** This is also known as divergent validity. In this validity, an attempt is made to discriminate the test from the tests that measure an entity that the test is not developed to measure. Thus, the test developed

needs to display no correlation with such a test. Thus, there will be no correlationship between the test developed and the test that measures a different construct. For example, there will not be any correlationship between occupational stress and job anxiety. With the help of such a validity, we can come to know that the test developed measures the construct that it is developed for and does not measure another unrelated construct or a construct that could overlap with the construct measured by the test developed.

c) **Predictive validity:** This validity can be explained as relationship between performance on the psychological test developed at a certain time and performance on a criterion measure at some other point of time (Kazdin, 1998). This validity is established with the help of correlation between the scores that are obtained from two different tests. Thus, it is similar to concurrent validity. But the only difference is that the tests are administered at two different points in time and not at the same time.

Incremental validity

This is mainly used to establish whether the present psychological test will provide more information about the psychological entity that it is developed to measure than the tests that are already available.

6.4.2 Reliability

Reliability denotes consistency of the psychological test over a period of time. For example, when a length of a table is measured with the help a ruler on a certain day and then after six months, the length obtained will be same. Thus, the ruler can be termed as consistent instrument to measure the length. This is comparatively easy as table is a tangible entity and as such its length will not vary, unless it is broken or subjected to some other modification, in which case as well, such a modification or change will be easily visible. However, in case of psychological entities that are intangible, establishing reliability or consistency is a difficult task. Therefore, if a psychological test on adjustment is developed and it is administered on a group of adolescents, the scores obtained at a certain point and some time later, say after six months need to be more or less same or similar. Reliability can be denoted with the help of reliability coefficient, that can be statistically computed.

There are various methods to test reliability of a test, these are discussed as follows:

Test–Retest Method

In this method, a correlation is computed between the test scores and retest scores of a particular test. The correlation obtained needs to be obviously positive and lower the correlation, lower the reliability. Thus, the test is administered to a certain group of individuals at a particular point in time and then re-administered after a time gap to establish its consistency. Though, error could occur in test-retest reliability due to issues like practice effect, maturation, learning and memorisation of items by the participants.

Alternate or equivalent forms method

To overcome some of the issues faced in test-retest reliability, alternate form method can be used. In this method an alternate form of the test is developed. The two forms are then administered one after the other on same group of individuals and the scores obtained are correlated to establish consistency or reliability. One of the major challenges in this regard is creating two equivalent forms of the test.

Split- half method

This method mainly focuses on internal consistency. This can help counter the disadvantage of the alternate forms method as only one test is developed and administered.The test is then split in to half as the name suggests. One important question that may arise is how the test can be split. One way that it can be split is in to half, with the above 50% items and the below 50% items. Though this will not work when the test is a power test with increasing level of difficulty. A better way is to split on the basis of alternate items, that is even numbered items in one lot and odd numbered items in another. As the scores are obtained, correlation can then be computed between the two lots to obtain internal consistency. The Spearman–Brown prophecy formula can be used for computation of correction as reliability is otherwise obtained only for half the test. This method can be effectively used with tests that have large number of items that measure same psychological entity.

Kuder–Richardson Reliability and Coefficient Alpha (á)

The Kuder–Richardson Reliability indicates inter-item consistency and is mainly used for psychological tests that have items with multiple choice, items with fill in the blanks, items seeking short answer and so on. There is just one form of the psychological test and it is administered in one sitting. As the focus of this method is on inter-item consistency, it is important that the test item are homogeneous in nature. When the items are heterogeneous, the reliability coefficient obtained will be low.

Coefficient Alpha, also known as Cronbach's Alpha can be termed as an extension of Kuder–Richardson Reliability (Veeraraghavan and Shetgovekar, 2016). This can be used for tests that have more than two answers and thus can also be used for Likert scale. This also focuses on internal consistency.

Scorer Reliability

In psychological testing it is also relevant to obtain a scorer reliability as error variance can also occur due to the test administrator and scorer. Scorer reliability can be established by having two test scorers score the items for a same test and then, by computing correlation coefficient between the scores given by the two scorers.

Check Your progress III

1) What is discriminant validity?

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2) How many forms of test are there is alternate forms method of reliability?

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3) What is the relevance of scorer reliability?

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6.5 STANDARDISATION AND NORMS

Standardisation and norms are also important aspects of psychological tests and are stated in the manual that comes along with the test. Psychological tests denote how individuals are different from each other with reference to various psychological entities. And in order to adequately measure presence and level of such entities in an individual, uniformity in procedure, administration and scoring of the test is required. This is termed as standardisation.

Further, it is also important to have a norm that can be referred to, to suitably interpret the scores obtained by the individuals. Often after a test is administered and scored, a raw score is obtained which is meaningless, unless it is compared against a standard or norms. Standardisation and norms are established after it is ensured that the test is reliable and valid. To obtain the norms, the test is administered to a large number of individuals. For instance, we can obtain norms for weights of newly born infants in India, by measuring the weight of a large number of newly born infants in a given period of time. Then based on this, norms can be created. An average score will also be obtained. Thus, weight of any new born infant can then be compared with the norms to understand where they fall and make interpretations accordingly.

In Psychology, when norms are created for various psychological tests, various aspects like gender, culture, geographical location and so on need to be taken in to consideration and thus separate norms can be created for different groups. And these details need to reflect clearly in the test manual. For instance, taking the earlier example, the norms for weight of newly born infants in India will differ from that of newly born infants in Germany or USA.

Check Your Progress IV

What is standardisation?

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6.6 TYPES OF TESTS

There are various types of psychological tests. These are discussed as follows:

Individual test: Tests that are administered on a single individual. For example, Wechsler Adult Intelligence Scale (WAIS), Stanford-Binet Intelligence Scale (SB), Bhatia battery.

Group test: Such tests can be administered to a group of individuals at the same time. For example, NEO PI and Minnesota Multiphasic Personality Inventory

Speed test: A speed test constitutes items that are of same difficulty level, however a certain time period is provided to complete the test.

Power test: A power test constitutes items that increase gradually in terms of their difficult level. Though there is no time limit to complete the test.

Verbal test: A paper pencil test can be termed as a verbal test where the items are mentioned using language. For example: 16 PF and Eysenck's Personality Inventory.

Non-verbal test: In this type of test certain figures and symbols are used. For example, Raven's Progressive Matrices. In this the language may be used only to provide instructions to the individual taking the test.

Performance test: In performance test, the individual taking the test has to perform certain tasks. For example: Alexander's passalong test and Koh's block design test.

Objective tests: In objective tests, the individual will choose from certain correct answers that are decided in advance. This avoids any subjectivity on behalf of the scorer. The responses could be in terms of true or false or multiple choices or even a rating scale like Likert scale or Thurston's scale may be used. For example: NEO PI.

Projective Tests: These are subjective in nature. Here, the test taker may be asked to respond to certain semi-structured or unstructured stimuli. The responses are then to be interpreted by the administrator, where subjectivity may creep in. Examples of projective tests are Rorschach Inkblot test, Somatic Inkblot Series, Sentence Completion Test, Thematic Apperception Test and Children's Apperception Test.

Besides the above, psychological tests can also be categorised as follows:

Intelligence tests: There are various intelligence tests that are used to measure intelligence of individuals. Intelligence can be described as one's ability to adjust and cope with the environment. Binet and Simon (1960) defined intelligence as an individual's capacity to make adequate judgements, carry out reasoning and ability to comprehend. Wechsler (1944, page 3) defined intelligence as "the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment". These tests are often used in educational and clinical set ups. Examples of intelligence test are Wechsler Intelligence Scale for Children (WISC), Stanford-Binet Intelligence Scale (SB), Bhatia battery.

Personality tests: These are used to measure personality of individuals. Larsen and Buss (2018) defined personality as a collection of psychological traits and mechanisms that are stable and organised and that have an influence an individual's interaction and also has an impact on how he/she modifies his/ her physical, social and psychological environment. It can also be explained as differences amongst individuals with regard to their patterns of thinking, feeling and the way they behave (American Psychological Association, 2019). Personality tests are used widely in varied setups including clinical, educational, counselling, industrial and organisational setup and so on. Examples of personality test are Eysenck's Personality Inventory, Thematic Apperception Test (TAT), Somatic Inkblot Series (SIS).

Aptitude tests: There are tests that measure the potential/ abilities possessed by an individual in certain area. These find their application in schools and even in industrial set up for selection purpose.They denote whether a person will be able to perform effectively if he/ she is given training in that area. For instance, a person with aptitude for dance or music will do well in the area if given training. Examples of aptitude tests are Differential Aptitude Test, Seashore Musical Aptitude Test.

Interest inventories: These measure interests of individuals. Interest is important as aptitude in making career decisions and thus these tests are also used often in educational setup. Example of interest inventory is Vocational Interest Inventory.

Attitude tests: These tests measure attitude of an individual towards events, other individuals, objects and so on. Often in attitude tests, Thurston and Likert scales are used. These could measure attitude towards women, health and so on.

Achievement tests: There are also tests that measure achievement of individuals. They mainly test an individual's learning in certain academic area. Such tests are often used in educational setup. Academic achievement test and Mathematics Achievement Test are examples of achievement tests.

Check Your Progress V

Give example of the following:

Group Test: .....

Nonverbal test: .....

Intelligence Test:.....

Personality Inventory: .....

AptitudeTest: .....

BOX 6.1 ADMINISTRATION AND SCORING OF A TEST

As a student of psychology and especially when we are learning about psychological testing, we need to not only understand what is psychological testing and psychological tests and the relevant concepts like reliability, validity, standardisation and norms, but we also need to have an idea about how to administer a test and score it.

The administration of a test will differ based on whether it is administered to an individual or a group. When it is administered to an individual, it will be given to a single individual and accordingly preparations need to be made. And if it is administered to a group, then adequate sitting arrangement is required and necessary preparations in that direction are required.

Either ways it is to be remembered that the test is administered in a systematic and standardised manner. Same instructions (as specified in the manual) are to be given to the test taker(s).

Before the test is administered, whether to an individual or a group, ensure that all the material required for the test administration is ready. Also ensure that the environmental conditions in which the test will be administered are conducive and free from any distractions. It is also important that you throughly read the test manual and also have good idea about the concept that the test measures.

The following points need to be considered while administering a test:

- Focus on the purpose for which the test is administered. Tests are administered in order to measure an individual on certain variable. And based on what exactly is to be measured, a test needs to be selected. For instance, personality can be measured with the help of 16 PF as well as NEO- PI. You need to select a test based on what you want to measure. It is important that a psychological test is administered by a person who possesses necessary qualification, expertise and skills to do so (with regard to the practical component of this course, the variables to be measured have already been specified and you will learn how to administer and score a test measuring one of the specified variables).
- It is important that you throughly read the manual of the test and are familiar with the instructions, procedure, duration of the whole test administration process and any other relevant information in that regard. Typically the manual will have background information about the variable that the test measures, besides information about the instructions, reliability, validity. Also details with regard to how to score the test and norms will also be provided.
- Ensure that all the material required for test administration is kept ready before administration.
- Ensure that the room where the test will be administered is adequate in terms of temperature and illumination. Also ensure that it is free from any distractions. There needs to be comfortable sitting arrangement for the test taker (s).
- Also focus on the ethical issues to be followed during test administration like confidentiality, privacy and so on. We discussed briefly about ethics in the first unit and same are also relevant in this context.
- While administering the test, the instructions need to be provided clearly to the test taker(s). Also if there are any doubts or questions, then suitable clarification/ answers have to be given.

- Keep in mind the individual characteristics while administering the test. Your approach may differ when you administer a test to children, elderly, people with disability and so on. Also language and culture need to be focused on.
- Most important thing while administering a test is also creating a rapport with the test takers so that their test anxiety is reduced and they extend their full cooperation during the test administration process.
- After the test is administered, if required debriefing is to be carried out, where any information that was not revealed before the test was administered, needs to be informed to the test taker(s). Introspective report can also be taken from the test taker(s).
- The test responses can then be scored as per the instructions and scoring key given in the test manual and interpretations can be be made based on the norms provided.
- After the interpretation is carried out the test results are to be informed to the test taker(s) in suitable manner.

6.7 LET US SUM UP

In the present unit we discussed about the definition and nature of psychological testing. Psychological testing constitutes administration of psychological test Psychological tests can be described as tools that can be used to measure psychological entities like intelligence, personality, attitude, interest, achievement motivation and so on.They can be described as measurement of sample of behaviour that is standardised and objective (Anastasi, 1969). Psychological tests are mainly objective in nature. They also have predictive and diagnostic value. A psychological test is also a standardised, meaning that the procedure followed while administering and scoring the test is uniform. There are various assumptions with regard to psychological tests. A psychological test needs to be valid or should measure what it is supposed to measure. It should also be reliable or consistent. It should be objective and it is assumed that the individuals taking the test, understand the test items in a similar manner. It is also assumed that the individuals taking the test will be able to accurately express their feeling in that regard. Further, it is assumed that individuals will answer the items honestly. Though there is always a possibility of social desirability creeping in. Error variance is assumed to occur due to administrator (bias, expectations), test taker (anxiety, fatigue) as well as testing conditions (temperature, distractions). Psychological tests have a vast scope and application as it is used in varied set ups from clinical, counselling, industrial and organisational to forensic set up. The characteristics of a good psychological test were also discussed in this unit, that include objectivity, validity, reliability, discriminant and comprehensive feature. We further discussed in detail about the terms validity and reliability. Validity can be described as the characteristics of a psychological test that states whether the test measures what it is supposed to or purports to measure. There are various methods of validity including face validity, content validity, construct validity, criterion validity and incremental validity. Reliability, on the other hand, denotes consistency of the psychological test over a period of time. Various methods to test reliability are test-retest method, alternate or equivalent forms method, split-half method, Kuder- Richardson reliability and Coefficient alpha and scorer reliability. Standardisation and norms were also discussed in the unit.

Psychological tests denote how individuals are different from each other with reference to various psychological entities. And in order to adequately measure presence and level of such entities in an individual, uniformity in procedure, administration and scoring of the test is required. This is termed as standardisation. it is also important to have a norm that can be referred to suitably interpret the scores obtained by the individuals. Often after a test is administered and scored, a raw score is obtained which is meaningless, unless it is compared against a standard or norms. Lastly, various types of psychological tests were discussed in the unit.

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6.9 KEY WORDS

Psychological testing: Psychological tests is a device or technique used in quantification of behaviour that helps in nor only understanding behaviour but also to predict it (Kaplan and Saccuzzo, 2013).

Reliability: Reliability denotes consistency of the psychological test over a period of time.

Standardisation: Standardisation denotes uniformity in procedure, administration and scoring of the test.

Validity: Validity can be described as the characteristics of a psychological test that states whether the test measures what it is supposed to or purports to measure.

6.10 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress I

1) List the properties of a psychological test.

- Psychological tests are objective in nature.
- They have predictive and diagnostic value.
- It is also a standardised, meaning that the procedure followed while administering and scoring the test is uniform.
- It measures a sample of behaviour pertaining to certain psychological entity or variable.
- A psychological test needs to be valid and reliable,

2) State any two assumptions of psychological tests.

The two assumptions of psychological tests are:

- It is assumed that the individuals taking the test will answer the test will be able to accurately express their feeling in that regard.
- It is assumed that individuals will answer the items honestly. Though there is always a possibility of social desirability creeping in.

Check Your Progress II

1) Fill in the blanks

a) An objective psychological test also denotes that it is valid and reliable.

b) Validity can be explained as the ability of the test to measure what it is supposed to measure.

c) In psychology we measure intangible entities.

2) Explain the discriminant feature of a good psychological test.

3) Discriminant feature of a test implies that the test is able to denote any difference between one individual from the other on a given aspect or variable.

Check Your progress III

1) What is discriminant validity?

In discriminant validity, an attempt is made to discriminate the test from the tests that measure an entity that the test is not developed to measure.

2) How many forms of test are there is alternate forms method of reliability?

Two forms

3) What is the relevance of scorer reliability?

In psychological testing it is relevant to obtain a scorer reliability as error variance can also occur due to the test administrator and scorer.

Check Your Progress IV

1) What is standardisation?

Standardisation denotes uniformity in procedure, administration and scoring of the test.

Check Your Progress V

1) Give example of the following

Group Test: 16 Personality factors test

Nonverbal test: Coloured Progressive Matrices

Intelligence Test: Wechsler Adult Intelligence Scale (WAIS)

Personality tests: The Myer-Briggs Type Indicator (MBTI)

Aptitude Test: David Battery of Differential Abilities (DBDA)

6. 11 UNIT END QUESTIONS

1) Define psychological tests and discuss its nature.
2) Highlight the characteristics of a psychological test.
3) Define validity and discuss its types.
4) Elucidate reliability with a focus on its methods.
5) Explain various types of psychological tests.

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