1. Details of Module and its structure

Module Detail	
Subject Name	Psychology
Course Name	Psychology 01 (Class XI, Semester - 1)
Module Name/Title	Methods of Enquiry in Psychology – Part 1
Module Id	kepy_10201
Pre-requisites	Introduction to Methods of Scientific Enquiry in Psychology
Objectives	To understand the goals of psychological enquiry; steps in of conducting a psychological research; learn of the alternative paradigms of research; understand nature of psychological data; understand the observation method
Keywords	Objectivity, systematic, scientific research, demographic

2. Development Team

Role	Name	Affiliation
National MOOC Coordinator (NMC)	Prof. Amarendra P. Behera	CIET, NCERT, New Delhi
Program Coordinator	Dr. Mohd. Mamur Ali	CIET, NCERT, New Delhi
Course Coordinator (CC) / PI	Dr. Anjum Sibia	DEPFE, NCERT, New Delhi
Course Co-Coordinator / Co-PI	Dr. Prabhat Kumar Mishra	DEPFE, NCERT, New Delhi
Subject Matter Expert (SME)	Ms. Rimjhim Jairath	The Shri Ram School, Aravalli, Gurgaon
Review Team	Ms. Sudeshna Nath Ms. Satadipa Choudhuri	DPS, Vasundhara, Ghaziabad Vasant Valley School, Vasant Kunj, New Delhi

Table of Contents :

Methods of Enquiry in Psychology

"Deepest recession in decades produces huge rates of unemployment."
"Eyewitness to killing proves unable to provide reliable clues."
"Texting while driving blamed for rise in traffic fatalities"
"Childhood obesity rates surge

Psychology is the scientific study of the mind and behaviour. Because Psychology is a science, psychologists must collect data systematically and objectively. Just as recording of all facts and events is important in scientific research, it is applicable to psychological enquiry too.
eg A classic example of social apathy was taken up by two social psychologists as given in the following transcript:

The Bystander Effect as studied by John Darley and Bibb Latane

John M. Darley, was the first social psychologist who demonstrated the BYSTANDER EFFECT. In this experiment, an emergency situation is staged and the participant is either in a group or alone. John Darley then measured the duration of time for the participants to react and whether or not they intervene in the situation. He also worked with Bibb Latane, a United States social psychologist, to conduct this experiment in 1968.

John Darley and Bibb Latane were inspired to investigate emergency helping behaviours after the murder of Kitty Genovese in 1964. The newspaper report of the murder stated that 38 people had heard and seen the attack, which lasted an hour, yet they did nothing. The murderer attacked Genovese and stabbed her, but he left the scene after attracting attention.

Psychologists and other social scientists utilize the scientific method to test and systematically understand both human and animal behaviour. In this regard psychologists fulfill the goals of scientific enquiry : **describe, explain, predict and control** behaviour to finally **apply** to real life.

Eg While watching with an adolescent play a rough match on the field, you might ask questions like "What is Person A doing?" (describing), "Why is s/he doing that?" (explaining), "What would happen if Person B responds aggressively?" (predicting), and "What can I do to get Person A to react in a socially appropriate manner?" (changing).

***Description*:** In a psychological study, we attempt to describe a behaviour or a phenomenon accurately as possible. This helps in distinguishing a particular behaviour from other behaviours. For example, the eg A researcher may be interested in observing ease of learning computer skills amongst the elderly. Study habits may consist of diverse range of behaviours, such as enthusiasm of attending all sessions/ classes regularly, planning a regular practise schedule, preparing according to the set schedule, revising the work on a daily basis etc. Within a particular category there may be further minute descriptions.

***Prediction*:** The second goal of scientificenquiry is prediction of behaviour. If you are able to understand and describe the behaviour accurately, you come to know the relationship of a particular behaviour with other types of behaviours or phenomena. You can then forecast that under certain conditions this particular behaviour may occur within a certain margin of error.

On the basis of the above study, a researcher is able to establish a positive relationship between the amount of practice time and ease of using the key board. Later, if you come to know that a particular person devotes more time for practise, you can predict that the person is likely to improve their computational skills. Prediction becomes more accurate with the increase in the number of persons observed.

***Explanation*:** The third goal of psychological enquiry is to know the causal factors or determinants of behaviour. Psychologists are primarily interested in knowing the factors that make behaviour occur. Also, what are the conditions under which a particular behaviour does not occur. For example, what makes some children more attentive in the class? Why some children

devote less time for study as compared to others?

Thus, this goal is concerned with identifying the determinants or antecedent conditions (i.e. conditions that led to the particular behaviour) of the behaviour being studied so that cause-effect relationship between two variables (objects) or events could be established.

***Control*:** If you are able to explain why a particular behaviour occurs, you can control that behaviour by making changes in its antecedent conditions. Control refers to three things: making a particular behaviour happen, reducing it, or enhancing it. For example, you can allow the number of hours devoted to study to be the same, or you can reduce them or there may be an increase in the study hours. The change brought about in behaviour by psychological treatment in terms of therapy in persons, is a good example of control.

***Application*:** The final goal of the scientificenquiry is to bring out positive changes in the lives of people. Psychological research is conducted to solve problems in various settings. Because of these efforts the quality of life of people is a major concern of psychologists. For example, applications of yoga and meditation help to reduce stress andincrease efficiency. Scientific enquiry is also conducted to develop new theories or constructs, which leads to further research.

What are the characteristics of a science?

Science is not so defined by ***what*** it investigates as by ***how*** **it investigates**. The scientific method attempts to study a particular event or phenomenon in an objective, systematic, and testable manner.

The **objectivity** refers to the fact that if two or more persons independently study a particular event, both of them, to a great extent, should arrive at the same conclusion. For instance, if you and your friend measure the length of a table using the same measuring device, it is likely that both of you would arrive at the same conclusion about its length.

The second characteristic of scientific research is that it follows **systematic** procedure or steps of investigation. It includes the following steps: *conceptualization of a problem, collection of data,*

drawing conclusions, and revising research conclusions and theory. Let us discuss these steps in some detail.

(1) ***Conceptualizing a Problem***: The process of scientific research begins when a researcher selects a theme or topic for study. Then s/he narrows down the focus and develops specific research questions or problems for the study. This is done on the basis of review of past research, observations, and personal experiences. For example- a researcher was interested in observing the study habits of students. For this purpose, s/he may identify different facets of study habits first, and then decide whether s/he is interested in study habits shown in the class or at home.

After identification of the problem, the researcher proceeds by developing a tentative answer of the problem, which is called **hypothesis**. It is a testable explanation of an event or a relationship- 'greater is the amount of time spent by children in viewing violence on television, higher is the degree of aggression displayed by them'. In research, one tries to prove whether the statement is true or false.

Latané and Darley's hypothesis was a prediction from their more general theory of diffusion of responsibility: The more people who witness an emergency situation, the less likely it is that help will be given to a victim

- ***Collecting Data***: The second step in scientific research is to collect data. Data collection requires developing a research design or a blueprint of the entire study. It requires taking decisions about the following four aspects:

(a) participants in the study,

(b) methods of data collection,

(c) tools to be used in research, and (d) procedure for data collection.

Depending upon the nature of the study, the researcher has to decide who would be the **participants** (or informants) in the study. The participants could be children, adolescents, college students, teachers, managers, clinical patients, industrial workers, or any group of individuals in whom/ where the phenomenon under investigation is prevalent.

The second decision is related to the use of **methods** of data collection, such as observation method, experimental method, correlational method, case study, etc.

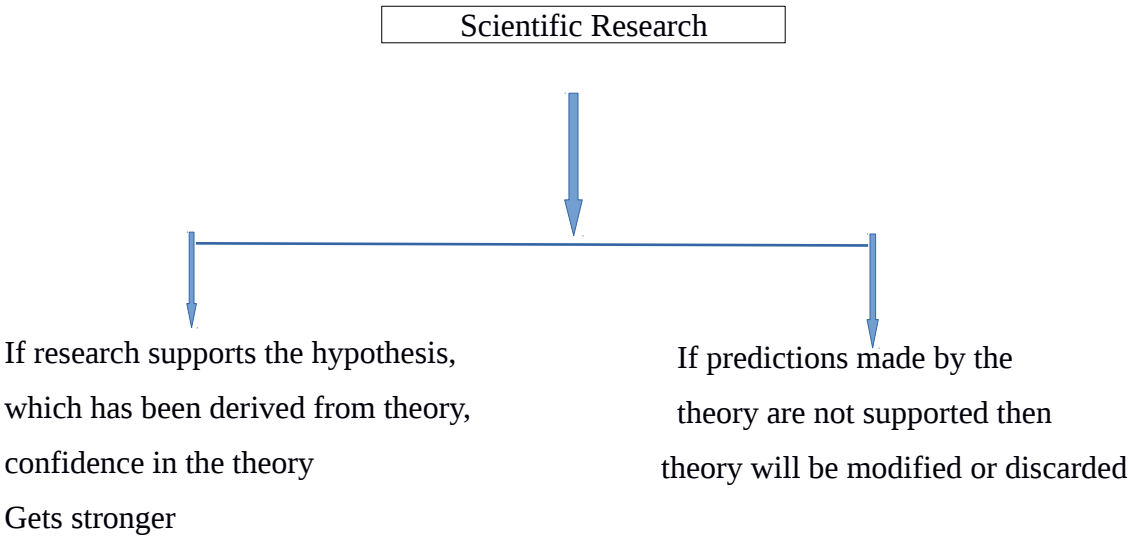
The researcher needs to decide about appropriate **tools** (for example, interview schedule, observation schedule, questionnaire, etc.) for data collection.

The researcher also decides about how (**procedure)** the tools need to be administered to collect data (i.e. individual or group). This is followed by actual collection of data.

- ***Drawing Conclusions***: The next step is to analyse data so collected through the use of statistical procedures to understand what the data mean. This can be achieved through graphical representations (such as preparation of pie-chart, bar -diagram, cumulative frequencies, etc.) and by the use of different statistical methods. The purpose of analysis is to verify a hypothesis and draw conclusions accordingly.

- ***Revising Research Conclusions***: Scientists communicated their findings to the scientific communities – submit their articles to a journal. This allows fellow scientists to learn about new ideas and findings, to scrutinize the research, to challenge or expand it. Scientists conduct more research – **as additional evidence comes in, scientists attempt to build theories** (a theory is a set of formal statements that explains how and why certain events are related to one another. E.g. theory of social impact created; Piaget's theory of Cognitive Development).

Scientists use the theory to develop new hypothesis which are then tested by conducting additional research and gathering new evidence. By this method the scientific process becomes self-correcting



Thus the scientific method is used by psychologists and by researchers from other scientific disciplines, to reach an understanding about the world we live in.

Alternative Paradigms of Research

Psychologists suggest that human behaviour can and should be studied following the methods adopted by sciences like physics, chemistry, and biology. The key assumption of this **scientific** view has been that human behaviour is predictable, caused by internal and external forces, and can be observed, measured, and controlled. In order to achieve these goals, the discipline of psychology, for larger part of the twentieth century, restricted itself to the study of **overt behaviour**, i.e. the behaviour that could be observed and measured. It did not focus on personal feelings, experiences, meanings, etc.

In recent years, a different method known as ***interpretive*** has emerged. Called qualitative research in some disciplines, it is conducted from an experience like perspective in that the researcher does not start with concepts determined a priori but rather seeks to allow these to emerge from encounters in "the field" It emphasises understanding over explanation and prediction. It takes the stand that, in view of complex and variable nature of human behaviour and experience, its method of investigation should be different from the method of investigation of the physical world. This viewpoint emphasises the importance of how human beings give meaning to events and actions and interpret them as they occur in a particular context.

Let us take the experiences that may occur in some unique contexts, such as persons experiencing suffering due to external factors (for example, people affected by tsunami, earthquake, cyclone, terrorism) or internal factors (for instance, prolonged illness, etc.). In such types of situations, objective measurement is neither possible nor desirable. Everyone interprets reality in her/his own way based on past experiences and contexts.

Therefore, we need to understand the subjective interpretation of the reality. The goal here is to explore the different aspects of human experiences and behaviour without attempting to disturb

its natural flow.

Both scientific and interpretive traditions are concerned with studying behaviour and experiences of others. At the same time psychological enquiry also aims at understanding self by reflecting on one's own experiences and insights.

NATURE OF PSYCHOLOGICAL DATA

Data form an important input in psychological enquiry but psychological data are different as compared to other sciences.

- Psychologists need to collect a variety of information from different sources employing diverse methods. Eg It can relate to an individuals' covert or overt behaviour, their subjective experiences and mental processes. It is possible that when you interview a student, s/he may report behaving in a particular manner in a given situation. But when you go for actual observation you may find just the opposite of what had been reported.
- Data are not independent of the physical or social context, the persons involved, and the time when the behaviour occurs as not all people behave in exactly the same manner in the same situation. We behave differently when alone than in a group, or at home and in office.
- The method of data collection (survey, interview, experiment, etc.) used and the characteristics of respondents (such as, individual or group, young or old, male or female, rural or urban, etc.) influence the nature and quality of data.
- Inferences have to be made from data.
- A researcher can only attach meaning to the data by placing it in its proper context. In psychology, different types of data or information are collected. These include:

  - ***Demographic Information***: This information generally includes personal information like name, age, gender, birth order, number of siblings, education, occupation, marital status, number of children, locality of residence, caste, religion, parental education, occupation, and family income, etc.
  - ***Physical Information***: Information about ecological conditions (hilly/desert/forest), mode of economy, housing conditions, size of rooms, facilities available at home, in the neighbourhood, in the school, mode of transportation, etc.

- ***Physiological Data***: In some studies physical, physiological and psychological data are collected about height, weight, level of fatigue, Galvanic Skin Resistance (GSR), electrical activity of the brain measured by Electro-encephalograph (EEG), blood oxygen levels, duration of sleep, blood pressure.
- ***Psychological Information***: Psychological information collected, may relate to such areas as intelligence, personality, interest, values, creativity, emotions, motivation, psychological disorders, illusions, delusions, hallucinations, perceptual judgment, thought processes, subjective experiences, etc.

For example In order to study impact of weather on road rage- A researcher will need to collect data keeping in mind reactions of a specific age group, gender , place of residence – plains vs hills, levels of fatigue and emotional state

Important Methods of Psychological Enquiry:

In order to gather evidence and test hypotheses psychologists use methods like Observation, Experimental, Correlational, Survey, Psychological Testing, and Case Study .

Method	**Example**
Observation	You can observe the behaviour of spectators watching a football match.
Experimental	You can conduct an experiment to see if children taking an examination do better in the classroom in which they had studied the subject or in the examination hall
Correlation	You can correlate intelligence with, say, self-esteem
Survey	You can survey students' attitude towards privatisation of education.
Psychological Testing	You can use psychological tests to find out individual differences.
Case Study	You can conduct a case study on the development of language in a child.

Observational Method

Observation is an important tool of psychological enquiry. All of us observe and describe behavior often trying to assume why people behave the way they do. But a professional

psychologist would do the same more objectively and systematically as a scientific observation differs from day-to-day observation in the following respects:

→ ***Selection***: Psychologist **select** a particular behaviour for observation. For example, observing behavior of students during a Maths class in school or a worker in a factory during lunch or even observing the behaviour of monkeys in their natural habitat instead of cages.

→ ***Recording****:* While observing, a researcher **records** the selected behaviour using different means, such as marking tallies for the already identified behaviour whenever they occur, taking notes describing each activity in greater detail using short hand or symbols, photographs, video recording.

→ ***Analysis of Data***: After the observations have been made, psychologists **analyse** whatever they have recorded with a view to derive some meaning out of it.

A good observer knows what s/he is looking for, whom s/he wants to observe, *when* and *where* the observation needs to be made, in what form the observation will be recorded, and what methods will be used to analyse the observed behaviour.

Types of Observation

Observation can be of the following types:

Naturalistic vs Controlled Observation: When observations are done in a natural or real-life settings, it is called **naturalistic observation**. The observer makes no effort to control or manipulate the situation for making an observation. This type of observation can be conducted in hospitals, homes, schools, day care centers, etc.

For example, Mary Ainsworth used a behavior schedule to study how infants responded to brief periods of separation from their mothers. During the Strange Situation procedure infant's interaction behaviors directed toward the mother were measured along these areas:

- Proximity and contacting seeking
- Contact maintaining
- Avoidance of proximity and contact
- Resistance to contact and comforting

The observer noted down the behavior displayed during 15 second intervals and scored the behavior for intensity on a scale of 1 to 7.

Observations were recorded every 15 seconds and placed into behavioural categories					
Intensity	**Proximity and contact seeking**	**Content maintaining**	**Proximity and interaction avoiding**	**Proximity and interaction reseting**	**Searching**
1					
2					
3					
4					
5					
6					
7					

However, many a times you might need to control certain factors that determine behaviour as they are not the focus of your study. For this reason, many of the studies in psychology are conducted in the laboratory. For example, in a classic study by Bib Latane if you see, you will reaslise that smoke could only be introduced in a controlled laboratory situation. **(https://www.youtube.com/watch?v=KE5YwN4NW5o**) This type of observation is called Controlled Laboratory Observation.

Non-Participant vs Participant Observation: Observation can be done in further two ways. One, you may decide to observe the person or event from a distance. Two, the observer may become part of the group being observed. In the first case, the person being observed may not be aware that s/he is being observed.

For example, you want to observe the pattern of interaction between teachers and students in a particular class. There are many ways of achieving this goal. You can install a video camera to record the classroom activities, which you can see later and analyse. Alternatively, you may decide to sit in a corner of the class without interfering or participating in their everyday activities. This type of observation is called **non-participant observation**. The danger in this type of set-up is that the very fact that someone (an outsider) is sitting and observing may bring a change in the behaviour of students and the teacher.

In participant observation, the observer becomes a part of the school or the group of people being observed. The observer takes time to establish a rapport with the group so that they start accepting her/him as one of the group members. However, the degree of involvement of the observer with the group being observed depends upon the focus of the study.

Evaluation:

1. The advantage of the observation method is that it enables the researcher to study people and their behaviour in a naturalistic situation, as it occurs.
2. Each occurrence of the natural situation is a one time event. Unlike the experimental method it cannot be repeated over and over again.
3. However, the observation method is labour intensive, time consuming, and is susceptible to the observer's bias. Often the observation is influenced by observer's values and beliefs about the person or the event. Even psychologists who are trained observers can distort what they see to make it conform to what they were hoping to see. 'We see things as we are and not as things are'. Therefore, the observer should record the behaviour as it happens and should **not interpret** the behaviour at the time of occurrence itself.