

Methods of Enquiry in Psychology

NCERT TEXTBOOK QUESTIONS SOLVED

Question 1. What are the goals of scientific enquiry?

Answer: There exists diversity in types of researches or studies undertaken by psychologists but they all seem to share some common goals of enquiry, which are as follows:-

1. Description

- This helps to define the phenomena and distinguish it from other phenomena.
- Description is necessary because any event or behaviour may have many aspects.
- For example, the idea of entertainment varies from reading books to going to pubs, depending on the individual.
- The recording of event or behaviour is an integral part of description.

2. Prediction

- Prediction means forecasting of events.
- It establishes relationship between two variables.
- For example, one might say exercising leads to weight loss.
- In psychology all predictions are made within a certain margin of error i.e. they are not pin-pointed or exact.

3. Explanation

- Explanation involves knowing the cause or the reason behind the behaviour.
- It also tries to understand the conditions under which a particular behaviour occurs. For example, a child behaves rudely whenever he is disturbed so his disturbances become the cause of his rude behaviour.

4. Control

- Control means creating change in the phenomenon or behavior.
- It refers to making behaviour happen, reduction in it or enhancement in it.
- The changes produced by psychological treatment in terms of therapy are good examples of control.

5. Application

- Psychological researches are often conducted to solve various problems faced by the society.
- Psychology helps in solving problems at individual, organizational or community level.
- For example, therapies are provided to individuals and counseling is also there to help them.
- At the organizational level, various psychological concepts like work motivation are used to enhance performance. At the community level, counseling is provided to help people engage in various, helpful and eco-friendly behaviours.

Question 2. Describe the various steps involved in conducting a scientific enquiry.

Answer: Scientific research or study is a clearly defined process that goes through a series of steps—

1. Conceptualising a problem

- The process begins when a researcher selects a theme or topic for study.
- Then the research questions or problems for the study are formulated.
- Problem is based on the review of past researches, observations and personal experiences.
- Problem indicates the relationship between variables.
For example, what is the relationship between reward and classroom learning?
- After formulation of problem, the hypothesis is formed, which is the tentative and testable statement about the relationship between two variables.
For example, increased amount of reward will lead to betterment in learning.

2. Collecting data

- Data collection requires developing a research design or a blueprint of the entire study.
- Participants of the study are decided, depending on the nature of study, they could be children, adolescents, college students, teachers, workers, elder people etc.
- Methods of data collection like observation, experimental, correlational method etc are decided.
- The next decision is taken about the tools to be used, like interview schedule, questionnaire, survey etc.
- Procedure for data collection is decided i.e. how the tools need to be administered to collect data i.e. individual to collect data i.e. individual or group administration.
- This is followed by actual data collection.

3. Drawing conclusions

- The next step is to analyse data to understand its meaning.
- The graphical representation of data is made using, bar diagram, pie chart, histogram, mean, median, mode, standard deviation etc.
- The purpose of analysis is to verify a hypothesis and draw conclusions accordingly.

4. Revising research conclusions

- The research begins with the hypothesis.
- Then researcher sees whether the conclusions support this hypothesis or not.
- If conclusions support the hypothesis then it is confirmed.
- If it is not confirmed researcher revises or states an alternative hypothesis/theory and again tests it and the same process continues.

Question 3. Explain the nature of psychological data.

Answer: Data is any information related to mental processes, experiences and behaviour, collected by using various tools.

Psychological data are of different types, such as:-

1. Demographic information

This information includes personal information related to a particular individual. This includes name, age, gender, education, marital status, residence, caste, religion, income etc, which are personally relevant.

2. Physical information

This includes information pertaining to physical environment i.e. ecological condition. It also includes information about economy, housing conditions, facilities at the home, in the school, transportation etc.

3. Physiological data

This is related to Biological data.

For example, height, weight, heart rate, level of fatigue, EEG, reaction time, sleep, blood pressure etc is collected.

Data related to animal's biological functioning is also collected.

4. Psychological information

This includes data regarding psychological functioning of individual.

It involves data about intelligence, personality, attitudes, values, emotions, motivation, psychological dysfunctions, consciousness etc.

Thus obtained data is divided into various categories, so that it can be analysed using statistical measures.

Question 4. How do experimental and control group differ? Explain with the help of an example.

Answer:

1. **Experimental group:** The subjects in study who receive some special treatment in regard to the independent variable.
In an experiment this group is administered the independent variable (the variable that is manipulated to see its effect on any other variable under study).
2. **Control Group:** control group is a comparison group.
 - The independent variable is not administered on this group.
 - Subjects in a study who do not receive the special treatment given to the experimental group.

The purpose is to see whether any difference occur in two groups as a result of application of independent variable on experimental group.

For example, suppose, an experiment is carried out to study the effect of presence of others on helpful behaviour, one participant was put in a situation requiring help, say, someone drowning in swimming pool, here five other people were also present, another participant was alone in the emergency situation.

In an experiment except for the experimental manipulation, other conditions are kept constant for both the groups.

Question 5. A researcher is studying relationship between speed of cycling and the presence of people. Formulate a relevant hypothesis and identify the independent and dependent variables.

Answer:

- **Variable:** It is any stimulus or event which varies or can take on different values can be measure e.g. weight, height.
- **Hypothesis:** It is a tentative and testable statement which expresses relation between two or more than two variables, e.g.: those who are rewarded shall require lesser number of trials to learn than those who are not rewarded.
- **Independent variable:** It is the variable which is systematically manipulated or altered in an experiment. It is the cause.
- **Dependent variable:** It is the variable that is measured in an experiment. It is the effect.
- **As per the question:** Hypothesis. Presence of others will enhance the speed of cycling.
Independent variable. Presence of others
Dependent variable. Speed of cycling

Question 6. Discuss the strengths and weaknesses of experimental method as a method of enquiry.

Answer: Experimental method is aimed at discovering causal relationship between various factors by manipulating the situation under totally controlled conditions.

Characteristics:

- Experimentation involves manipulation of variables to study their effect on other aspects.
- Experiments are carried out in totally controlled condition.
- Subjects or individuals are assigned to experimental and control group, randomly.
- All factors other than manipulated variable that might affect the dependent variable are kept constant.

Advantages:

- Experimental method aims at establishing cause-effect relationship between the variables.
- Replication and verification of obtained result is possible.
- The investigator can manipulate the independent variable according to the demands of the situation.
- It can be performed at any time.
- It is very objective—No personal bias exists.

Limitations:

- Experiments are conducted in a very artificial and unrealistic situations-the setting is not natural.
- They lack external validity i.e. generalizability. Since they are not done in natural settings, the results can't be generalized with confidence.
- It is difficult to control and know all extraneous variables like – motivation, emotion, state etc.
- It is not always possible to study a problem experimentally.
For example, personality can't be studied experimentally.

Question 7. Dr. Krishnan is going to observe and record children's play behaviour at a nursery school without attempting to influence or control the behaviour. Which method of research is involved? Explain the process and discuss its merits and demerits.

Answer: Dr. Krishnan would use the method of non-participant observation to observe and record children's behaviour at play without attempting to influence or control the behaviour. He would sit in a corner and observe the children's behaviour without them being aware of it. He would note the behaviour of children while playing, how ' they interact with each other and their reaction towards winning or losing. He would collect all the data in a file and then match the conclusion with the hypothesis.

Merits of non-participant observation:

- The researcher observes the people and their behaviour in naturalistic settings.
- The observer can get first hand information regarding the subject.

Demerits:

- This method is time consuming, labour intensive and subject to personal biases.
- The researcher may interpret the behaviour based on personal values.

Question 8. Give two examples of the situations where survey method can be used. What are the limitations of this method?

Answer: Survey Method is a research method utilizing written questionnaires or personal interviews to obtain data of a given population.

For example: Surveys are used in variety of situations such as

1. They can be used in political regime to know whether people approve or disapprove any particular policy of government, say for example, policy of reservation in higher education or Nuclear deal with America in recent times.
2. They are used during elections also to know who will people vote to.
3. Surveys can also be used to test hypothesis about the relationship among variables. One may try to find out the effect of some event on people's behaviour.
For example – Surveys have been conducted after the earthquake at Bhuj in Gujarat to find out the impact of earthquake on people's lives.
4. In marketing area, before launching a product surveys are often conducted. They are used to assess people's attitude on various social issues such as family planning and gender equality.

Limitation:

1. The major difficulty is the issue of accuracy and honesty of the responses as the respondents attempt to create favourable impression – faking is possible.
2. Surveyor's bias also affects the results. He/she may ask the question in such a way as to elicit desired response.
3. Surveys remain at the surface and it does not penetrate into the depth of the problem. They are time-consuming and expensive.
4. These techniques make the respondent conscious. So he/she may mould his/her responses.
5. Survey demand expertise, research knowledge and competence on the part of the researcher. Most of the survey researchers don't possess these qualities in the required amount. This invalidates the quality of survey.
6. Sample selected might not be the true representative of the population.

Question 9. Differentiate between interview and questionnaire.

Answer: Interview :

- Interview is a face to face interaction between two people
- They can be structured or unstructured
- Interviews are flexible; questions can be added or altered.
- Interviewer can dig deeper by posing counter question and by noticing non-verbal clues.
- They are subjective in nature.
- It is not a good tool for those who can't express themselves verbally
- It requires highly skilled person as interviewer.

Questionnaire :

- It consists of a form containing a series of questions where the respondents themselves fill in the answers.
- Questionnaire is always structured.
- It is not possible to know anything more than what is asked in the question.
- They are highly objective.
- Sometimes someone else can also fill in the questionnaire other than the target person.
- Clarification of questions is sometimes not possible.
- They can be administered to a large number of people at a time.
- Comparatively less skilled person can do the Interpretation.

Question 10. Explain the characteristics of a standardised test.

Answer: Characteristics of a standardised test:

1. **Reliability:** Reliability refers to the consistency of scores obtained by an individual on the same test on different occasions. If the test is reliable, these showed not be any variation in the scores obtained by the students on the 2 occasions.

For this we can complete the following:

(i) Test-retest reliability: it indicates the temporal stability. It is computed by finding out co-efficient of correlation b/w the 2 sets of same people.

(ii) Split-half reliability: It gives an indication about the degree of intends, consistency of the test. .

2. **Validity:** For a test to be usable, it must be valid. Validity refers to the question "does the test measure what it claims to measures". E.g. If a test is for assessment intelligence, it should only be testing intelligence and not aptitude.
3. **Norms:** A test becomes standardized if norms are developed for the test, norm is the normal average performance of the group. The test is administered on a large number of students. Their average performance standards are based in their age, sex, place of residence, etc. this helps us in compassion of performance of groups and individual students.

Question 11. Describe the limitations of psychological enquiry.

Answer: LIMITATIONS OF PSYCHOLOGICAL ENQUIRY:

1. **Lack of true zero point**

Psychological measurements do not have a true zero point like physical sciences. For example, there is no zero interest, attitude or personality.

So the measurements are not absolute, they are relative in nature.

Sometimes ranks are also used as scores.

2. **Relative nature of psychological tools**

Psychological tests, Questionnaire etc. are not universally applied; they are made for particular context.

Tools developed in urban context may not be applied in rural area, also western tests

and other tools may not apply elsewhere.

3. **Subjective interpretation qualitative data**

The data which can't be categorized or quantified in scores or ranks, runs the risk of subjective (individual, personal) interpretation. Every researcher may give different meanings to data.

Question 12. What are the ethical guidelines that a psychologist needs to follow while conducting a psychological enquiry?

Answer: Since psychology largely deals with human beings, so the researchers need to follow some moral principles which are as follows:

1. **Voluntary participation**

- This means that participants have the freedom to choose whether to participate in the study or not.
- Use of force or coercion or any other pressure should not be used.
- Participants should have the right to withdraw from study any time without penalty.

2. **Informed consent**

- Participants in a study should understand what treatment they will undergo during study.
- This information should be given before the study/research starts.
- If at times it is not possible to reveal all the information, they should be at least explained the nature of study before it starts.

3. **Debriefing**

- Sometimes due to the nature of the study it becomes necessary to withhold some information from the participants, this is known as deception.
- So after the study is over the participants are given complete information to complete their understanding of research.
For example, suppose a researcher wants to study the relationship between frustration and aggression, the participants will not be informed that they'll be put in a frustrating situation; otherwise experiment or study will have no conclusions; so here deception is necessary.
However, after it is over they should be told that they were aroused deliberately. , Why was it done should also be explained.
- It ensures that the participants leave the study in the same physical or mental state as when they entered.
- Efforts should be made to remove any anxiety or other adverse effects from the minds of the participants as a result of being deceived in the study.

4. **Sharing the results of the study**

It is obligatory for the researcher to go to the participants and share the results of study with them.

Participants expect that the results of study done with them will be told to them, they want to know about their behaviour and where do they fall as compared to others.

It has two advantages:-

- One, researchers full fill the expectations of the participants.
- Second, the participants may tell the researcher about something else which may provide supplementary information.

5. **Confidentiality of data sources**

- The participants have right to privacy.
- This right is protected by keeping the information provided by them in strict confidence.
- It becomes more important if the information is personal and may become embarrassing if revealed.
- The information should be used for the purpose of research only.
- To maintain confidentiality one should not record their identities.
- Sometimes identity is required, in such cases code numbers should be given on the data sheet and the names and their codes should be kept separately.