

METHODS OF ENQUIRY IN PSYCHOLOGY

1. INTRODUCTION

Psychology studies experiences, behaviour and mental processes. Psychologists use systematic and scientific methods to study these phenomena.

Why do psychologists use different methods? Human behaviour is complex and diverse. One method cannot answer every psychological question. Different methods help psychologists **describe, predict, explain** and **control** behaviour.

Major methods: **Observation → Experiment → Correlational Research → Survey → Psychological Testing → Case Study**

2. GOALS OF PSYCHOLOGICAL ENQUIRY The 5 Goals

Description → Prediction → Explanation → Control → Application

Goal: Description

Meaning: Accurately describe a behaviour/phenomenon

Simple Example: What are students' study habits?

Goal: Prediction

Meaning: Forecast behaviour under certain conditions

Simple Example: More study time may predict better performance

Goal: Explanation

Meaning: Identify causes/determinants of behaviour

Simple Example: Why do some students study less?

Goal: Control

Meaning: Make behaviour happen, reduce it or increase it

Simple Example: Changing study conditions to improve study time

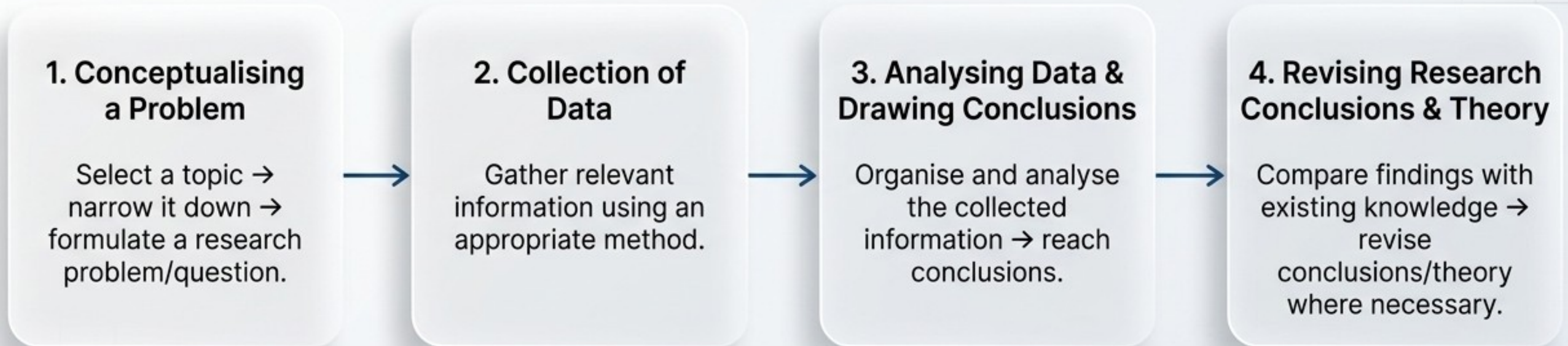
Goal: Application

Meaning: Use psychological knowledge to solve real-life problems

Simple Example: Using relaxation techniques to reduce stress

Exam line: Psychological enquiry aims at understanding behaviour scientifically and applying the knowledge generated to improve people's lives.

3. STEPS IN CONDUCTING SCIENTIFIC RESEARCH 4-Step Flow



Scientific research is:
Objective + Systematic + Testable

Objectivity: Different researchers studying the same phenomenon should reach broadly similar conclusions when using the same procedure.

4. ALTERNATIVE PARADIGM OF RESEARCH

Interpretive Method

Traditional psychological research largely emphasised observable and measurable behaviour.

The interpretive approach focuses on understanding rather than only explanation and prediction.

Key Points

- Human behaviour is complex and context-dependent.
- People give meaning to their experiences.
- The researcher tries to understand the person's subjective interpretation.
- Natural behaviour is studied without unnecessarily disturbing it.

Scientific vs Interpretive

Scientific Approach

Objective measurement
Explanation & prediction
More controlled
Observable/measurable aspects

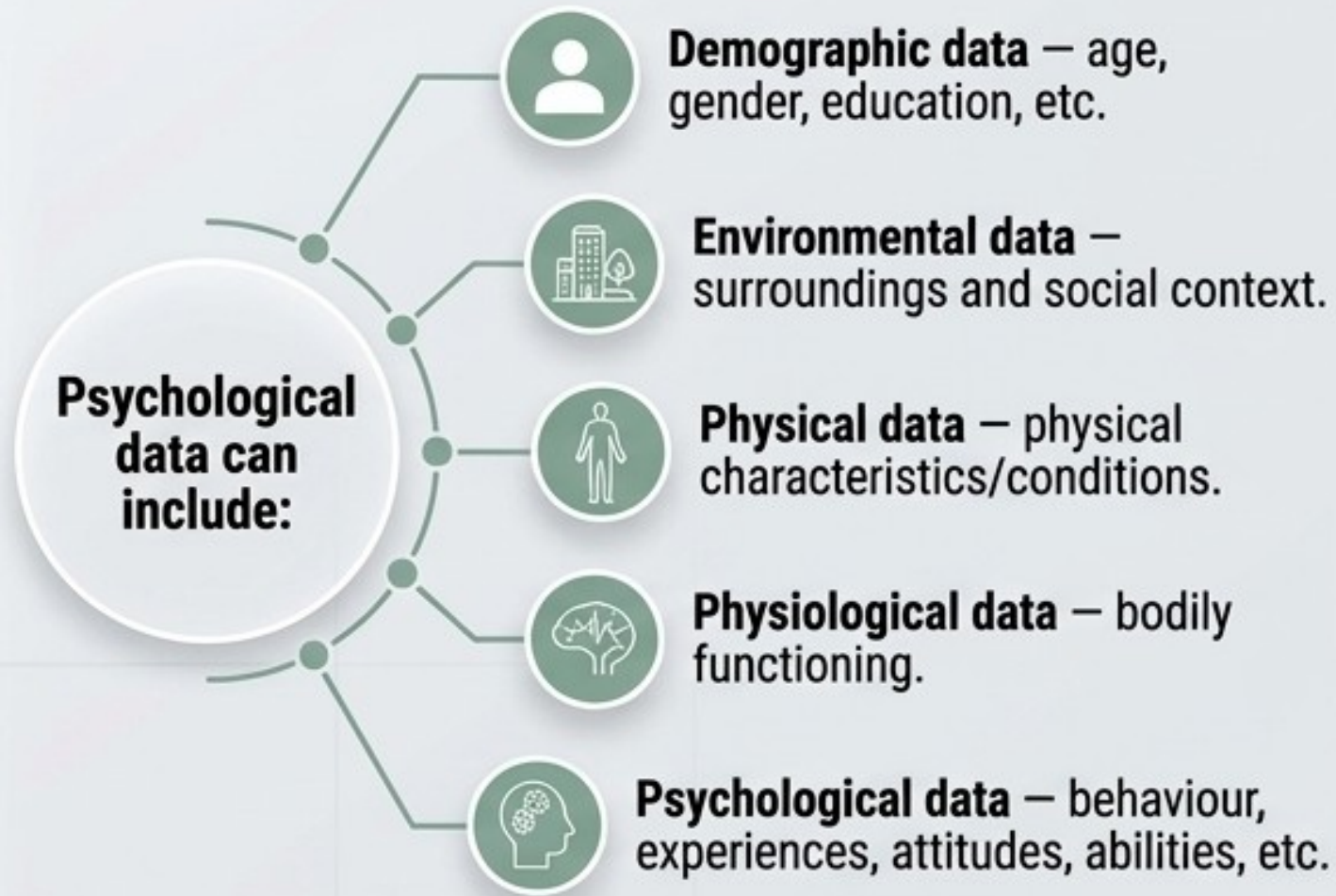
Interpretive Approach

Subjective meaning
Understanding
More context-sensitive
Human experiences and meanings

Also important: Psychology can involve self-reflection — understanding one's own thoughts, experiences and behaviour.
Conclusion Thus, psychological enquiry uses both scientific and interpretive approaches to understand behaviour and experiences.
The appropriate approach depends on the nature and context of the psychological problem being studied.

5. NATURE OF PSYCHOLOGICAL DATA

Data = Information collected during psychological enquiry.



Important

Psychological data are context-dependent and are connected with the theory and method used to collect them.

6. OBSERVATIONAL METHOD

Scientific observation = Systematic observation, recording and analysis of behaviour.

Day-to-day vs Scientific Observation



Day-to-day:
Casual → unsystematic
→ may be biased.



Scientific:
Planned → systematic
→ objective → behaviour is recorded and analysed.

Types of Observation



Naturalistic

→ Behaviour observed in its natural setting.



Controlled

→ Behaviour observed under controlled conditions.



Participant

→ Researcher becomes part of the group/activity being studied.



Non-participant

→ Researcher observes without becoming a participant.

Example: Observing children's play behaviour in a nursery school.

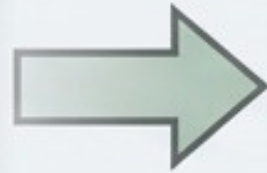
7. EXPERIMENTAL METHOD

Main Purpose: To establish a cause-and-effect relationship between variables.

Variable: Any characteristic or condition that can change or take different values.

Independent Variable (IV)

→ The variable that is manipulated, altered or varied by the researcher.



Dependent Variable (DV)

→ The variable whose change or outcome is measured/observed as a result of the independent variable.

Easy Example

Effect of study environment on concentration

IV → Study environment — researcher changes the study environment.

DV → Concentration level — researcher measures the resulting concentration.

Remember:

IV = Cause / Manipulated

DV = Effect / Measured

9. EXPERIMENTAL & CONTROL GROUP

Experimental Group

→ Receives the experimental treatment/manipulation.



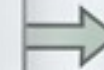
Treatment



Observe DV

Control Group

→ Does not receive the experimental treatment and provides a basis for comparison.



No Treatment



Observe DV

Other relevant conditions are kept as similar as possible between the groups so that differences in the DV can be linked to the experimental manipulation.

8. CONTROLLING EXTRANEEOUS VARIABLES

Extraneous variables are other factors that may influence the dependent variable but are not the main focus of the study. Researchers try to control them so that the effect of the IV can be identified more clearly.

1. Elimination

→ Remove an unwanted factor from the research situation.

Example: Conducting a memory test in a quiet room to remove unnecessary noise.

2. Hold Constant

→ Keep a possible influencing factor the same for all participants.

Example: Giving every student the same amount of time to complete a task.

3. Randomisation

→ Assign participants to different groups by chance so that groups are less likely to differ systematically.

Example: Dividing students into experimental and control groups through a lottery.

4. Matching

→ Make participants in different groups similar on an important characteristic.

Example: Matching students in two groups according to their previous academic performance.

5. Counterbalancing

→ Change the order in which conditions are presented to reduce sequence or practice effects.

Example:

Group A → Task A → Task B

Group B → Task B → Task A

10. FIELD & QUASI-EXPERIMENT

Field Experiment

An experiment conducted in a natural or real-life setting rather than a laboratory. The researcher still manipulates the independent variable. Control over other variables is usually less than in a laboratory. Findings may have greater generalisability to real-life situations.

- **Example:** Studying whether lecture or demonstration teaching produces better learning in an actual school classroom.

Remember:

Laboratory Experiment → High control

Field Experiment → Natural setting + manipulation

Quasi-Experiment → Limited manipulation / naturally occurring groups

Quasi-Experiment

A study that resembles an experiment but the researcher cannot fully manipulate the independent variable. The independent variable is selected rather than deliberately manipulated. Naturally occurring or already-existing groups may be used. Useful when manipulating a condition is impossible or unethical.

- **Example:** Comparing students who belong to two already-existing classes when the researcher cannot randomly create the groups.

11. CORRELATIONAL RESEARCH

Studies the relationship/association between two variables.

Negative (-) → Variables move in opposite directions.
Example: Stress ↑ → Sleep duration ↓

Zero (0) → No systematic relationship.

Positive (+) → Both variables move in the same direction.
Example: Study time ↑ → Achievement ↑



IMPORTANT: Correlation ≠ Causation

A correlation shows association; it does not automatically prove that one variable causes the other.

12. SURVEY RESEARCH

Meaning: Survey research is used to collect information about people's opinions, attitudes, beliefs or existing conditions.

Interview — direct interaction; questions asked by interviewer.

Questionnaire — information collected through written questions.

Telephone survey — information collected through telephone interaction.

Quick Difference

Interview → interaction with interviewer

Questionnaire → questions answered by respondent

13. PSYCHOLOGICAL TESTING

Definition: A psychological test is a standardised and objective instrument used to measure psychological characteristics and understand individual differences.

Why are psychological tests used?

Measure abilities

Assess personality/ characteristics

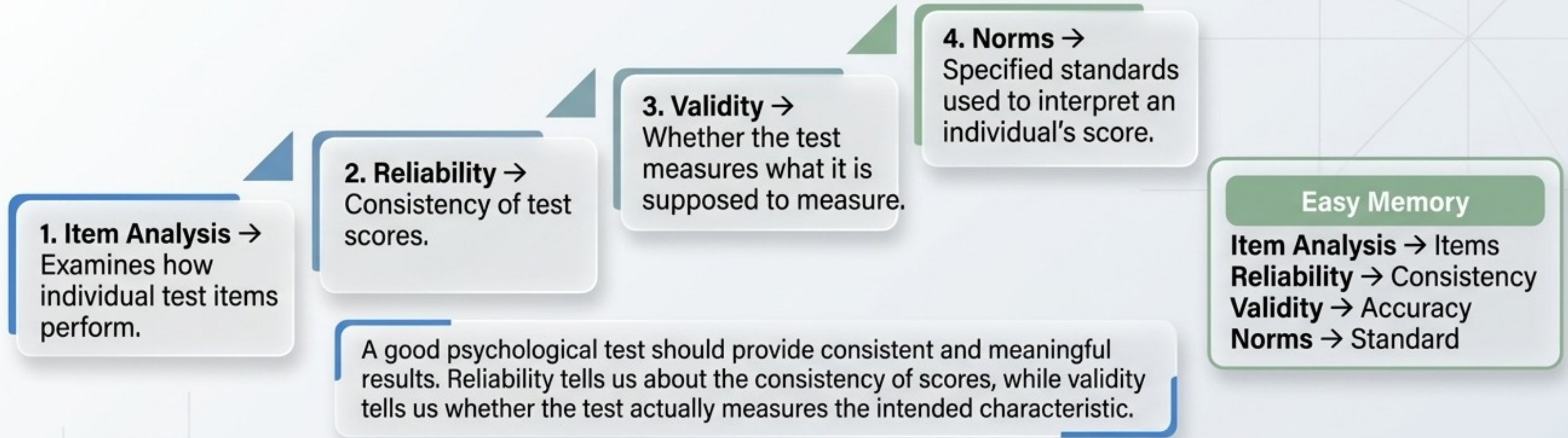
Understand individual differences

Compare an individual's performance with established standards/groups

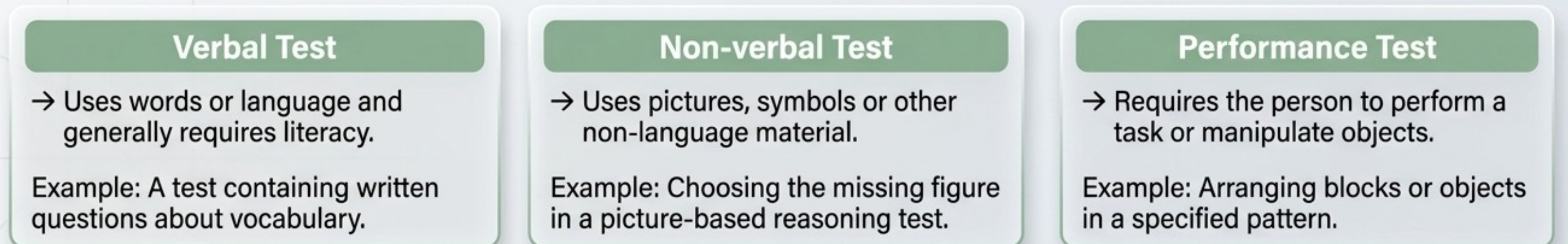
Features

Standardised + Systematic + Objective

14. CRITERIA OF A GOOD PSYCHOLOGICAL TEST



15. TYPES OF PSYCHOLOGICAL TESTS A. On the basis of Nature



16. INDIVIDUAL & GROUP TESTS

Individual Test → One person is tested at a time.

Group Test → A large number of people can be tested at the same time.

Individual → One person; **Group** → Many people

17. SPEED & POWER TESTS

Speed Test → Has a time limit and assesses how quickly a person can complete the items accurately.

Power Test → Gives sufficient time or no strict time limit and focuses mainly on the person's ability to solve increasingly difficult items.

Speed → Time is important; **Power** → Ability/difficulty is important

18. CASE STUDY

Meaning

A case study is an in-depth study of a particular individual, group or case.

Key Features

- Detailed investigation
- Focuses on a particular case
- Uses information from different sources
- Particularly useful when studying unique or complex cases

Example

Detailed study of the development and difficulties of a child with ADHD.

19. ANALYSIS OF DATA

Two broad approaches:

Quantitative Analysis

- Data represented through numbers/scores.
- Uses statistical procedures.

Scores can be compared between individuals or groups. Statistical methods help researchers draw conclusions and make inferences.

Qualitative Analysis

- Data are analysed through meanings, descriptions and interpretations.
- Useful for understanding experiences and context.

Data may include narratives, field notes, interviews and observations. Narrative analysis and content analysis are used for qualitative data.

Remember:

Quantitative = Numbers

Qualitative = Meaning/Description

Both approaches can be complementary and may be combined to understand a psychological phenomenon more completely.

20. LIMITATIONS OF PSYCHOLOGICAL ENQUIRY Important Exam Points

1. Lack of Absolute Zero Point

- Many psychological measurements do not have a true zero point.

2. Relative Nature of Psychological Tools

- A test developed in one cultural/contextual setting may not automatically be suitable elsewhere.

3. Subjective Interpretation of Qualitative Data

- Interpretation may differ between researchers.

Key idea: Psychological findings must therefore be interpreted carefully and in context.

21. ETHICAL ISSUES

Psychological research involves human beings, so researchers must protect participants' rights, dignity, privacy and well-being.

Core Ethical Principles

1. Voluntary Participation

→ Participants should have the freedom to participate or refuse.

2. Informed Consent

→ Participants should know what will happen in the study before agreeing.

3. Protection from Harm / Beneficence

→ Research should minimise possible physical or psychological harm.

4. Privacy & Confidentiality

→ Personal information should be protected.

5. Right to Withdraw

→ Participants should be free to leave the study without penalty.

6. Sharing Results / Justice

→ Research benefits and relevant findings should be handled fairly.

These principles are explicitly emphasised in NCERT's treatment of ethical research.

SECTION A – MCQs

1. A psychologist first identifies and clearly defines the problem to be investigated before collecting information. Which step of scientific research is being described?

A. Collection of data

B. Conceptualising a problem

C. Analysis of data

D. Revising the theory

Answer: 1. B

2. A researcher changes the amount of noise in a room and then measures students' concentration. In this experiment, concentration is the:

A. Independent variable

B. Extraneous variable

C. Dependent variable

D. Control variable

Answer: 2. C

3. Which of the following best distinguishes a field experiment from a laboratory experiment?

A. A field experiment does not involve variables

B. A field experiment is conducted in a natural/real-life setting

C. A field experiment cannot establish cause and effect

D. A field experiment does not involve manipulation of the IV

Answer: 3. B

SECTION A — MCQs (Continued)

4. A researcher finds that as the number of hours spent on social media increases, the number of hours spent studying decreases. This represents:

A. Positive correlation

B. Zero correlation

C. Negative correlation

D. Perfect correlation

Answer: 4. C

5. Which criterion of a psychological test indicates whether it actually measures the characteristic it claims to measure?

A. Reliability

B. Norms

C. Item analysis

D. Validity

Answer: 5. D

6. A researcher gives participants sufficient time and presents increasingly difficult problems to assess their ability. This is most appropriately described as a:

A. Speed test

B. Power test

C. Verbal test

D. Group test

Answer: 6. B

SECTION B — LONG-ANSWER QUESTIONS

1. Explain the five major goals of psychological enquiry.

OR: How does psychological enquiry move from describing behaviour to applying psychological knowledge in real life? Explain.

OR: A psychologist wants to know what students do, forecast their future performance, identify the reasons behind their behaviour, modify it and finally use the findings to solve a practical problem. Identify and explain the five goals involved.

Answer

Psychological enquiry aims to study human behaviour and mental processes in a systematic and scientific manner. Its major goals are description, prediction, explanation, control and application.

Description involves accurately describing a behaviour or psychological phenomenon. For example, a psychologist may study the study habits of students.

Prediction means forecasting behaviour under particular conditions. For example, study time may help predict academic performance.

Explanation involves identifying the causes or determinants of behaviour, such as understanding why some students study less.

Control refers to modifying behaviour by increasing, reducing or changing it under suitable conditions.

Application means using psychological knowledge to solve practical problems and improve people's lives.

Thus, psychological enquiry does not merely describe behaviour; it helps psychologists understand, predict, modify and apply knowledge about behaviour in real-life situations.

2. Describe the major steps involved in conducting scientific research in psychology.

OR: How does a psychological researcher proceed from identifying a research problem to revising an existing theory? Explain the process.

OR: A researcher identifies a problem, gathers information, analyses the findings and then compares the conclusions with existing knowledge. What stages of scientific research are reflected here? Explain each.

Answer

Scientific research in psychology follows a systematic and objective procedure. The major steps are conceptualising a problem, collecting data, analysing data and drawing conclusions, and revising research conclusions and theory.

First, the researcher conceptualises the problem by selecting a topic, narrowing it down and formulating a clear research question.

Second, the researcher conducts collection of data using an appropriate method such as observation, experiment, survey or psychological testing.

Third, the collected information is analysed and conclusions are drawn. The researcher organises the data and interprets the findings.

Finally, the researcher revises research conclusions and theory by comparing the findings with existing knowledge and modifying conclusions or theories wherever necessary.

Therefore, scientific research is a continuous and systematic process through which psychological knowledge is developed and refined.

3. Explain the independent variable, dependent variable and extraneous variable with suitable examples.

OR: How does an experiment establish a cause-and-effect relationship? Explain with reference to independent and dependent variables.

OR: A researcher wants to study whether the study environment affects students' concentration. Identify what the researcher should manipulate, what should be measured and what other factors should be controlled. Explain.

Answer

The experimental method is used to study cause-and-effect relationships between variables.

The Independent Variable (IV) is the variable that is manipulated or changed by the researcher. In a study of study environment and concentration, the researcher may change the study environment.

The Dependent Variable (DV) is the variable whose change or outcome is measured or observed. In this example, the students' concentration level would be measured.

An Extraneous Variable (EV) is another factor that may influence the dependent variable and therefore needs to be controlled. For example, distractions, room temperature or interruptions may affect concentration.

Thus:

IV → Manipulated by researcher

DV → Measured outcome

EV → Other influencing factor

IV → Manipulated by researcher

DV → Measured outcome

EV → Other influencing factor

By manipulating the IV and observing its effect on the DV while controlling other relevant factors, the researcher can examine a possible cause-and-effect relationship.

4. Explain the major techniques used to control extraneous variables in an experiment.

OR: How can a researcher minimise the influence of unwanted variables during an experiment? Explain any five techniques.

OR: A researcher wants to ensure that differences in the dependent variable are actually due to the experimental treatment and not to other factors. What procedures can be used to achieve this? Explain.

Also prepare: Distinguish between an experimental group and a control group. Why is a control group important in experimental research?

Answer

Extraneous variables are factors other than the independent variable that may influence the results of an experiment. Researchers use different techniques to control their influence.

Elimination — An unwanted factor is removed from the research situation. **Example:** Conducting a test in a quiet room to avoid noise-related disturbance.

Hold Constant — A possible influencing factor is kept the same for all participants. **Example:** Giving all participants exactly 30 minutes to complete the task.

Randomisation — Participants are assigned to different groups by chance. **Example:** Using a lottery to divide students into two groups.

Matching — Participants are made similar on an important characteristic. **Example:** Matching students in two groups according to their previous academic performance.

Counterbalancing — The order of conditions is varied to reduce practice or sequence effects. **Example:** One group performs $A \rightarrow B$, while another performs $B \rightarrow A$.

An experimental group receives the experimental treatment or manipulation, whereas a control group does not receive the experimental treatment and provides a basis for comparison. Therefore, experimental control helps the researcher determine whether the observed change in the dependent variable is actually associated with the experimental manipulation.

5. Differentiate between a field experiment and a quasi-experiment. Explain with suitable examples.

OR: What is meant by a field experiment?
How does it differ from a quasi-experiment?

OR: A psychologist studies students in their actual classroom but manipulates the study condition. In another study, two already-existing classes are compared without randomly assigning students. Identify the two research situations and explain the difference.

OR: What is correlational research? Explain positive, negative and zero correlation. Why does correlation not establish causation?

Answer

A field experiment is an experiment conducted in a natural or real-life setting. The researcher still manipulates the independent variable, although control over other variables may be lower than in a laboratory.

For example, a researcher may study the effect of different teaching conditions in an actual classroom.

A quasi-experiment resembles an experiment, but the researcher cannot fully manipulate the independent variable or randomly assign participants. Naturally occurring or already-existing groups may be studied.

For example, a researcher may compare students from two already-existing classes.

The major difference is that a field experiment involves manipulation of the IV in a natural setting, whereas a quasi-experiment has limited experimental control/manipulation and may use naturally occurring groups.

Correlational research, on the other hand, studies the relationship between variables without establishing that one causes the other. A positive correlation means variables move in the same direction, a negative correlation means they move in opposite directions, and zero correlation indicates no systematic relationship.

Therefore, correlation indicates association but does not by itself establish causation.

6. Explain the major criteria of a good psychological test. Also discuss the different types of psychological tests.

OR: What makes a psychological test reliable and valid? Explain the important criteria used for evaluating a psychological test.

OR: A test produces consistent scores but does not actually measure the ability it claims to measure. Which criterion is satisfactory and which criterion is questionable? Explain the major criteria of a good psychological test.

OR: Classify psychological tests on the basis of their nature, administration and classification. Explain with examples.

Answer

A psychological test is a standardised and objective instrument used to measure psychological characteristics and understand individual differences. A good test should satisfy certain important criteria.

Criteria

Item Analysis examines how individual items of a test perform and helps determine whether the items function appropriately.

Reliability refers to the consistency of test scores. A reliable test should produce reasonably consistent results.

Validity refers to whether the test actually measures what it is intended to measure. Therefore, in the situation given, the test may have reliability but lacks adequate validity.

Norms provide established standards against which an individual's score can be interpreted.

Structural

Psychological tests can also be classified in different ways:

On the basis of Nature:

- **Verbal tests** — use words or language. Example: a vocabulary test.
- **Non-verbal tests** — use pictures or symbols. Example: a picture-based reasoning test.
- **Performance tests** — require the person to perform a task. Example: arranging blocks in a particular pattern.

On the basis of Administration:

- **Individual test** — given to one person at a time.
- **Group test** — administered to several people at the same time.

On the basis of Classification:

- **Speed tests** — emphasise quick performance under a time limit.
- **Power tests** — emphasise the level of difficulty a person can handle, with greater emphasis on ability than speed.

Thus, psychological tests provide a systematic way of measuring psychological characteristics and understanding individual differences, provided that they meet appropriate standards of reliability, validity and interpretation.