

CHAPTER 2

Methods of Enquiry in Psychology

CBSE Class 11 · Psychology · Chapter 2

CBSE · Psychology · Class 11

WHAT THIS CHAPTER DOES

A State the goals of psychological enquiry and the steps of the scientific method.

B Explain the experimental method — IV, DV, control of variables, experimental vs control group.

Boards prep that builds confidence, not anxiety.

TODAY'S MISSION

Today's mission

1

State the goals of psychological enquiry and the steps of the scientific method.

2

Explain the experimental method — IV, DV, control of variables, experimental vs control group.

3

Master why correlation does NOT imply causation, with +ve, -ve and zero correlation.

4

Compare observation, survey, interview, case study and tests, and list the ethical safeguards.

WHY THIS MATTERS

Why this chapter matters

- 1** It is the 'HOW' chapter — it turns Chapter 1's claim that psychology is a science into a working method.
- 2** Worth 6-8 marks of the annual paper, with the experiment and correlation ideas reused in every later unit.
- 3** It trains you to think like a scientist: spot variables, demand evidence, and refuse to confuse correlation with cause.

TOPIC

A

The goals of psychological enquiry

TOPIC

What psychological research aims to do

DESCRIPTION & PREDICTION

The first goal is **DESCRIPTION**: accurately recording **WHAT** a behaviour is — how often it occurs, in what form, under what conditions — without yet explaining it. For example, a psychologist might describe how children of a certain age play together. The second

EXPLANATION

The third goal, **EXPLANATION**, goes deeper than description and prediction: it asks **WHY** a behaviour occurs — what causes it and what conditions produce or prevent it. Explanation means identifying the factors responsible for a behaviour and how they relate to one another. For example, explaining exam

CONTROL

The fourth goal is **CONTROL**: once we can explain a behaviour, we may be able to bring it about, sustain it, stop it, or change its frequency or intensity. Control does not mean manipulation in a sinister sense — it means using knowledge to influence behaviour helpfully, such as reducing a student's

APPLICATION

The ultimate purpose tying all the other goals together is **APPLICATION** — using psychological knowledge to improve the quality of human life and solve real problems. Psychologists apply their findings in classrooms, hospitals, workplaces, sports and communities: designing better teaching methods, treatments for

THEOREM · LOAD-BEARING RESULT

The steps of the scientific method



Scientific psychological research follows an orderly cycle: identify the **PROBLEM**, frame a testable **HYPOTHESIS**, **COLLECT** data through an appropriate method, **ANALYSE** the data, draw a **CONCLUSION**, and then **REVISE** the research conclusions in the light of the evidence.

STATEMENT

Problem -> Hypothesis (a tentative, testable statement of the expected relationship) -> Data collection (using observation, experiment, survey, etc.) -> Data analysis (quantitative or qualitative) ->

WHY THIS MATTERS

- Following these steps in order is exactly what makes psychology systematic and self-correcting: each conclusion is tied to evidence and can be revised, so the discipline improves over time rather than relying on opinion.

WATCH OUT FOR

NOTE A hypothesis is NOT a wild guess and NOT the conclusion — it is a tentative, **TESTABLE** prediction stated **BEFORE** the data are collected. Stating the hypothesis after seeing the data, or treating it as proven fact, is a conceptual error examiners penalise.

TOPIC

B

The nature of psychological data

TOPIC

What counts as data in psychology

TYPES OF DATA

Psychologists gather several kinds of data about a person or situation. **DEMOGRAPHIC** information covers facts like age, gender, birth order and occupation. **PHYSICAL** information covers the setting and environment (place, time, conditions). **PHYSIOLOGICAL** data records bodily activity

WHERE DATA COMES FROM

The source of psychological data is the participant (or 'subject') being studied, but information can be obtained in different ways: by the participant reporting on themselves (self-report), by an observer recording their behaviour, by physiological instruments measuring the body or

QUANTITATIVE DATA

QUANTITATIVE data is information expressed in **NUMBERS**, which can be counted, measured and analysed statistically — for example, a memory-test score of 18 out of 20, a reaction time of 0.4 seconds, or the number of times a child shares a toy. Quantitative data allows precise comparison between

QUALITATIVE DATA

QUALITATIVE data is descriptive information expressed in **WORDS** rather than numbers — capturing meaning, themes, feelings and the quality of an experience. Examples include an interview transcript about how exam stress feels, a diary entry, or detailed field notes from an observation

TOPIC

C

The observation method

TOPIC

Watching behaviour, scientifically

WHAT SCIENTIFIC OBSERVATION IS

The observation method involves watching and recording behaviour in a **SYSTEMATIC**, planned and objective way. It is not casual people-watching: the observer decides in advance **WHAT** to observe, **WHEN** and **WHERE** to observe it, and **HOW** to record what is seen (for example, by

NATURALISTIC VS CONTROLLED

Observation can be **NATURALISTIC** or **CONTROLLED**. In **NATURALISTIC** observation, behaviour is observed in its real-life setting **WITHOUT** any interference by the observer — for example, watching how children behave in a playground. Its strength is realism; its

PARTICIPANT VS NON-PARTICIPANT

Observation is also classified by the observer's role. In **PARTICIPANT** observation, the observer becomes a part of the group being studied and observes from the inside — joining the group's activities. This gives deep, insider insight but risks the observer losing

STRENGTHS AND LIMITATIONS

The observation method's main **STRENGTH** is that it studies behaviour as it actually happens, capturing real, spontaneous action rather than what people merely say they do. Its **LIMITATIONS** are real too: the observer's presence may change the

TOPIC

D

The experimental method

WORKED EXAMPLE

Identifying the IV and the DV

- 1 Research question: 'Does background music affect how well students memorise a word list?'
- 2 The INDEPENDENT variable (IV) is what the experimenter MANIPULATES — here, the presence or absence of background music (the assumed cause).
- 3 The DEPENDENT variable (DV) is what is MEASURED for change — here, the number of words correctly recalled (the assumed effect; it 'depends on' the IV).
- 4 Control: all other (extraneous) variables — room, time limit, difficulty of words — must be kept the SAME for both groups, so any difference in recall can be traced to the music alone.

TOPIC

How an experiment establishes cause and effect

WHAT AN EXPERIMENT IS

The experimental method is a controlled procedure in which the researcher deliberately **MANIPULATES** one variable to study its effect on another, while keeping all other relevant variables constant. It is the **ONLY** method that can establish a genuine **CAUSE-AND-EFFECT** relationship, because by

INDEPENDENT & DEPENDENT VARIABLES

Two variables sit at the heart of every experiment. The **INDEPENDENT** variable (IV) is the one the experimenter changes or manipulates — the assumed **CAUSE**. The **DEPENDENT** variable (DV) is the one the experimenter **MEASURES** — the assumed **EFFECT**,

CONTROL OF VARIABLES

For an experiment to prove cause and effect, all variables **OTHER** than the IV must be controlled. **RELEVANT** or **EXTRANEOUS** variables are any factors (besides the IV) that could also affect the DV — noise, time of day, the participants' ability, room temperature. If these are not held constant, a

EXPERIMENTAL & CONTROL GROUPS

An experiment usually compares two groups. The **EXPERIMENTAL** group is exposed to the independent variable — it receives the treatment or condition under study. The **CONTROL** group is treated in exactly the same way in every respect **EXCEPT** that it does **NOT** receive the

TRY IT · SOLVE BEFORE YOU PEEK

A researcher studies whether a new study technique improves exam scores. Name the IV, the DV, and say which group does NOT receive the new technique.

SOLUTION

ANSWER IV = the study technique (its presence or absence); DV = the exam score (what is measured); the CONTROL group is the one that does NOT receive the new technique and acts as the baseline for comparison.

TOPIC

E

Correlational research

THEOREM · LOAD-BEARING RESULT

Correlation does not imply causation

Correlational research measures the degree to which two variables vary **TOGETHER**, expressed as a positive, negative or zero correlation; but a correlation, however strong, can **NEVER** by itself prove that one variable **CAUSES** the other.

STATEMENT

POSITIVE correlation: both variables move in the **SAME** direction (more study -> higher marks). **NEGATIVE** correlation: they move in **OPPOSITE** directions (more absences -> lower marks).

WHY THIS MATTERS

- Correlational research is valuable because it lets us study relationships we cannot ethically or practically manipulate in an experiment, and it helps us make predictions even when we cannot establish cause.

WATCH OUT FOR

NOTE The famous trap: ice-cream sales and drowning deaths are positively correlated, but ice-cream does not cause drowning — a **THIRD** variable, hot weather, raises both. Only a controlled **EXPERIMENT** can establish causation; never write that a correlation 'proves' one thing causes another.

TOPIC

F

**Survey,
interview, case
study and
testing**

TOPIC

Other ways psychologists gather evidence

SURVEY METHOD

The SURVEY method gathers a LIMITED amount of information from a LARGE number of people, usually through questionnaires or structured questions, to find out their opinions, attitudes, beliefs or behaviour patterns. Its great strength is BREADTH: it can quickly reach many respondents

INTERVIEW

The INTERVIEW is a method of gathering information through direct, face-to-face (or verbal) interaction, where the interviewer asks questions and records the responses. Interviews can be STRUCTURED (fixed questions in a fixed order) or UNSTRUCTURED (flexible conversational

CASE STUDY

The CASE STUDY is an in-depth, detailed study of a SINGLE individual, group, or event over a period of time, drawing on many sources — interviews, observation, test scores and records. Its strength is DEPTH: it can reveal a rich, holistic picture and is invaluable for studying rare conditions or unique

PSYCHOLOGICAL TESTING

PSYCHOLOGICAL TESTING uses standardised, objective instruments to measure psychological attributes such as intelligence, aptitude, personality, interests and attitudes. A good psychological test is STANDARDISED (administered and scored the same way for everyone) RELIABLE

TOPIC

G

Analysis, limitations and ethics

TOPIC

Making sense of data and its boundaries

ANALYSIS OF DATA

Once data are collected they must be ANALYSED to draw meaningful conclusions.

QUANTITATIVE analysis uses numbers and statistics — calculating averages, percentages, and correlations, and presenting results in tables and graphs — to summarise and compare.

QUALITATIVE analysis

QUANTITATIVE VS QUALITATIVE

It is worth fixing the contrast clearly. QUANTITATIVE methods reduce information to NUMBERS and seek objective, comparable, statistically analysable results — good for testing how much, how often, how strongly. QUALITATIVE methods stay in WORDS and seek

LIMITATIONS OF ENQUIRY

Psychological enquiry faces real LIMITATIONS. Its subject matter — the mind and behaviour — is complex, variable and not directly observable, so measurement is harder than in physics or chemistry. People may behave differently when they know they are being studied (the presence of the observer changes

WHY METHOD CHOICE MATTERS

No single method is best for every question — each has its own strengths and weaknesses, so the researcher chooses the method that fits the problem. To establish CAUSE AND EFFECT, use an EXPERIMENT. To study a relationship you cannot manipulate, use

TOPIC

The ethical duties of every researcher

VOLUNTARY & INFORMED CONSENT

Participation in any psychological study must be **VOLUNTARY**: people must take part of their own free will and be free to withdraw at any time without penalty. Beyond mere willingness, researchers must obtain **INFORMED** consent — telling participants enough about the study's

AVOIDING HARM & DEBRIEFING

Researchers must protect participants from physical or psychological **HARM**, ensuring the study causes no lasting distress. **DEBRIEFING** is the duty to explain the true nature and purpose of the study to participants **AFTER** it is over — especially important when any

CONFIDENTIALITY

Whatever a participant reveals during a study must be kept **CONFIDENTIAL**: their personal information and individual responses must not be disclosed to others or used to identify them. Researchers typically report results in aggregate (group averages and trends) so that no single person can

SHARING RESULTS RESPONSIBLY

Ethical responsibility does not end when the data are collected. Researchers should **SHARE** the results of their work honestly — reporting findings accurately, including those that do not support their hypothesis, and not fabricating or distorting data.

TOPIC

Correlation and causation

TRAP → TRUTH

× **MISTAKE** If two things are correlated (e.g. ice-cream sales and drowning both rise together), then one must be causing the other.

✓ **CORRECT** Correlation tells us only that two variables vary TOGETHER; it does NOT tell us that one causes the other. Ice-cream sales and drownings rise together because of a THIRD variable — hot summer weather — not because ice-cream causes drowning. Only a controlled EXPERIMENT, which manipulates one variable while holding others constant, can establish cause and effect. 'Correlation does not imply causation' is the single most tested idea in this chapter.

TOPIC

Independent vs dependent variable

TRAP → TRUTH

× **MISTAKE** The independent variable is the one the participant controls, and the dependent variable is the one the experimenter controls.

✓ **CORRECT** It is the opposite. The INDEPENDENT variable (IV) is the one the EXPERIMENTER deliberately manipulates or changes (the assumed cause). The DEPENDENT variable (DV) is the one that is MEASURED and is expected to change as a result (the assumed effect); it 'depends on' the IV. Memory anchor: I change the Independent variable; I Detect the change in the Dependent variable.

TOPIC

Experimental vs control group

TRAP → TRUTH

- × **MISTAKE** Both groups in an experiment receive the treatment; the control group just has fewer people.
- ✓ **CORRECT** The EXPERIMENTAL group is exposed to the independent variable (the treatment/condition), while the CONTROL group is treated identically in every way EXCEPT that it does NOT receive the treatment. The control group is the baseline for comparison — any difference between the two groups can then be attributed to the IV. The two groups should be otherwise equivalent, which is why participants are usually assigned randomly.

TOPIC

Observation as a method

TRAP → TRUTH

- × **MISTAKE** Observation just means casually watching people, so it is not a real scientific method.
- ✓ **CORRECT** Scientific observation is **SYSTEMATIC**, planned and recorded objectively — the observer decides in advance what to observe, when, where and how to record it. It can be **NATURALISTIC** (in a real-life setting without interference) or **CONTROLLED** (in a structured/ laboratory setting). It is a legitimate, rigorous method; what makes it scientific is the planning and objective recording, not the absence of an experiment.

TOPIC

Survey vs case study

TRAP → TRUTH

- × **MISTAKE** A case study collects a little bit of information from a very large number of people.
- ✓ **CORRECT** It is the reverse. A SURVEY gathers a LIMITED amount of information from a LARGE number of people (breadth). A CASE STUDY collects DEEP, detailed information about a SINGLE individual or a small unit over time (depth). Survey = wide and shallow; case study = narrow and deep. Confusing the two is a common one-mark error.

TOPIC

Quantitative vs qualitative data

TRAP → TRUTH

- × **MISTAKE** Qualitative data is just 'bad' or less scientific than quantitative numerical data.
- ✓ **CORRECT** Both are valid forms of data with different purposes. QUANTITATIVE data is expressed in NUMBERS and analysed statistically (e.g. a memory-test score of 18/20). QUALITATIVE data is descriptive and captures meaning, themes and experience in WORDS (e.g. an interview transcript about how exam stress feels). Good psychology often uses BOTH; one is not inferior to the other — they answer different kinds of questions.

TOPIC

Ethics in research

TRAP → TRUTH

- × **MISTAKE** If a study is scientifically important, the researcher can deceive participants and skip taking their consent.
- ✓ **CORRECT** Scientific value never overrides ethics. Researchers must obtain VOLUNTARY and INFORMED consent, must NOT cause harm, must DEBRIEF participants afterwards (especially if any concealment was used), and must keep all information CONFIDENTIAL. Where some concealment is unavoidable, debriefing must fully explain the true purpose afterwards. Ethical safeguards protect the dignity and welfare of every participant.

TOPPER TEMPLATE · MARK-BY-MARK

3-4 mark question: 'What are the goals of psychological enquiry?' / 'Explain the goals of

- 1 LIST THE GOALS UPFRONT**
1 m
Open by naming all the goals together so the examiner sees the full set immediately: 'The goals of psychological enquiry are DESCRIPTION, PREDICTION, EXPLANATION and CONTROL, with the ultimate aim of APPLICATION for human welfare.' Listing them first earns the anchor mark even before you elaborate.
- 2 EXPLAIN EACH GOAL IN ONE LINE WITH AN EXAMPLE**
2 m
Then take each in turn: DESCRIPTION — accurately recording WHAT behaviour occurs (e.g. describing how children play); PREDICTION — forecasting WHEN/IF a behaviour will occur (e.g. predicting exam performance from study hours); EXPLANATION — identifying WHY a behaviour occurs, its causes; CONTROL — being able to bring about, sustain or stop a behaviour (e.g. reducing exam anxiety). One crisp example each converts recall into understanding marks.
- 3 CLOSE WITH APPLICATION / HUMAN WELFARE**
1 m
Finish by noting that the practical purpose tying all four goals together is APPLICATION — using the knowledge to improve the quality of human life and solve real problems. This closing sentence shows you grasp WHY psychology pursues these goals and lifts the answer to full marks.

TOPPER TEMPLATE · MARK-BY-MARK

5-mark question: 'Explain the experimental method' / 'Distinguish between IV and DV and

1 DEFINE THE EXPERIMENTAL METHOD**1 m**

Begin: 'The experimental method is a controlled procedure in which the researcher systematically **MANIPULATES** one variable to observe its effect on another, while holding all other (extraneous) variables constant. It is the only method that can establish a cause-and-effect relationship.' Stating that it alone proves causation earns the opening mark.

2 DEFINE IV, DV AND CONTROL OF VARIABLES**2 m**

Then the variables: the **INDEPENDENT** variable (IV) is the one the experimenter manipulates (the assumed cause); the **DEPENDENT** variable (DV) is the one measured for change (the assumed effect). All other **RELEVANT/EXTRANEIOUS** variables must be controlled so they do not confound the result. Use a clean example: 'To study whether noise affects concentration, noise level is the IV and the concentration-test score is the DV.'

3 EXPERIMENTAL VS CONTROL GROUP + CONCLUSION**2 m**

Finally the groups: the **EXPERIMENTAL** group receives the IV (the treatment); the **CONTROL** group is identical in every way but does **NOT** receive it, serving as the baseline. Because the two groups are otherwise equivalent (ideally by random assignment), any difference in the DV can be attributed to the IV. End by noting this comparison is what lets the experiment claim cause and effect.

TOPPER TEMPLATE · MARK-BY-MARK

4-6 mark case-study: a research problem is described and the student must NAME the

1 IDENTIFY THE CORRECT METHOD
1 m

Read the stem for the cue. 'Wants to establish whether X causes Y' -> EXPERIMENT; 'wants opinions of a large number of people' -> SURVEY; 'wants deep detail on one person' -> CASE STUDY; 'wants to see how X and Y vary together (without manipulating)' -> CORRELATIONAL; 'wants to watch behaviour in a real setting' -> NATURALISTIC OBSERVATION. Name the method first and clearly.

2 JUSTIFY WITH THE STEM + NAME THE VARIABLES
2 m

Give the method's one-line definition, then tie it to the passage: 'Because the researcher wants to test whether background music IMPROVES memory, an experiment is needed; the IV is the presence/absence of music and the DV is the memory-test score.' Linking the definition to the specific cue and naming IV/ DV (where relevant) is where the application marks live.

3 STATE AN ETHICAL SAFEGUARD OR LIMITATION
1 m

Finish with ethics or a limitation: 'The researcher must obtain informed consent, keep the participants' scores confidential, and debrief them afterwards.' Adding the ethical dimension (or one limitation of the chosen method) secures the final mark and shows mature, responsible understanding.

PYQ PATTERNS

Top PYQ patterns to drill

#1	State and explain the goals of psychological enquiry (description, prediction, explanation, control / application). (3-4 marks)	Almost every annual + SQP
#2	Distinguish between the independent variable and the dependent variable / explain the experimental method with experimental and control groups. (3-5 marks)	Annual + Pre-Board
#3	What is correlation? Explain that correlation does not imply causation, with positive and negative correlation examples. (3-4 marks)	SQP + School Annual
#4	Differentiate between naturalistic and controlled observation / participant and non-participant observation. (3 marks)	Annual + Pre-Board
#5	Describe any method (survey / interview / case study / psychological test) OR a case-study stem asking the student to NAME the appropriate method and explain the ethical issues involved. (4-6 marks)	SQP case-study + Annual

RECAP · MEMORISE THESE

5-line revision

1

Goals & method —
Goals: describe, predict, explain, control, apply.
Scientific method:
problem -> hypothesis
-> collect data ->
analyse -> conclude ->
revise.

2

Experiment & correlation —
Experiment:
manipulate IV,
measure DV, control
other variables,
compare experimental
vs control group ->
proves CAUSE.
Correlation (+/-/zero)
shows relationship
only; correlation \neq causation.

3

Other methods & ethics — Observation, survey (wide+shallow), interview, case study (narrow+deep), tests. Data is quantitative or qualitative. Ethics: informed consent, no harm, debriefing, confidentiality.

WHAT'S NEXT

What's next

- Chapter 3 — The Bases of Human Behaviour (the biological and cultural foundations that the methods of this chapter help us study).
- Sit the 15-MCQ Quick Drill (companion PDF) — under 20 minutes, target $\geq 12/15$.
- Then the full annual-pattern Paper — 30 marks, 60 minutes, real CBSE Class 11 pattern.

You now know HOW psychologists find things out.

Lock in IV vs DV, the correlation rule and the ethics, sit the drill, and beat the chapter.

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