FREE EDITION · NOTES + 3 SAMPLE MCQS

CUET · PSYCHOLOGY · CLASS XI · CODE 324

Methods of Enquiry in Psychology

CUET unit: Introduction to Psychology — Methods of Enquiry

By **UniDrill** · NCERT-grounded study material

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📌 Snapshot

- Establishes that psychology is a scientific endeavour because it uses formal, systematic observation to describe, predict, explain and control behaviour.
- Lays out the four-step scientific cycle (conceptualising a problem → collecting data → drawing conclusions → revising conclusions) plus the contrasting interpretive paradigm.
- Surveys six core methods — observation, experiment, correlational research, survey, psychological testing and case study — with their characteristic terminology (variables, IV/DV, control group, correlation coefficient, reliability, validity, norms).
- Closes with quantitative vs qualitative data analysis, three intrinsic limitations of psychological measurement, and the ethical principles every researcher must follow.
- CUET regularly tests definitions (variable, IV, DV, hypothesis, reliability, validity, norms), the correlation range, ethical principles (informed consent, debriefing), and method-matching scenarios.

📖 Detailed Notes

2.1 Core concepts

NCERT opens with the Buddha's line — "An idea that is developed and put into action is more important than an idea that exists only as an idea" — to set up the practical, methodological orientation (NCERT Introduction, p. 19). Because human-behaviour questions are numerous and no single method can capture them, psychologists rely on formal systematic observation through a variety of methods — **observation, experimental, correlational, survey, psychological testing and case study**.

Goals of Psychological Enquiry (NCERT §Goals, pp. 20–21) are five — description, prediction, explanation, control and application — all to be pursued objectively. **Description** records a behaviour or phenomenon "as accurately as possible" so as to distinguish a particular behaviour from other behaviours; the running example is the study of study habits in students (attending classes, submitting assignments, revising daily). **Prediction** establishes the relationship between behaviours/events so that future occurrence can be forecast within a margin of error — once a positive relationship is found between study time and achievement, a student devoting more time can be

predicted to get better marks; prediction becomes more accurate with the increase in the number of persons observed. **Explanation** is concerned with identifying causal factors or antecedent conditions ("why are some children more attentive than others?"), seeking cause-effect relationships. **Control** means making a behaviour happen, reducing it, or enhancing it — the classic example is **psychological therapy**, in which behaviour change is brought about. **Application** is the final goal: bringing positive changes in people's lives — yoga and meditation to reduce stress and increase efficiency are the illustration.

How does psychology achieve these goals? **Scientific method** has two defining features. First, **objectivity** — "if two or more persons independently study a particular event, both of them, to a great extent, should arrive at the same conclusion" (NCERT p. 21). Second, a **systematic procedure** with four steps shown in **Fig. 2.1** (p. 21): (1) **Conceptualising a Problem** — selecting a topic for study; (2) **Collecting Data** — decisions about participants, methods, tools and procedure; (3) **Drawing Conclusions** — using statistical methods (pie-chart, bar diagram, cumulative frequencies); (4) **Revising Research Conclusions** — restating existing hypothesis or formulating revised/new theory — and back to step 1. After identification of the problem, the researcher develops a **hypothesis** — a tentative answer (e.g., "greater the amount of time spent by children in viewing violence on television, higher is the degree of aggression displayed by them"). Research is a continuous process — if conclusions support the hypothesis it is confirmed; if not, the researcher revises the theory and tests again (NCERT pp. 22–23).

Alternative Paradigms of Research (NCERT p. 23) recognise that for much of the twentieth century psychology restricted itself to overt observable behaviour, modelling itself on physics and chemistry. In recent years a different method known as **interpretive** has emerged, emphasising understanding over explanation and prediction, holding that human behaviour is complex and variable, and that subjective meaning matters. For tsunami survivors or those suffering prolonged illness, "objective measurement is neither possible nor desirable" — everyone interprets reality in their own way based on past experiences and contexts.

Nature of Psychological Data (NCERT pp. 23–24): **data** (singular datum) relate to covert and overt behaviour, subjective experiences and mental processes. Data are not independent entities — they are located in a context, tied to method and theory; we behave differently when alone than in a group, at home than in office. NCERT lists four types: (i) **Demographic Information** (name, age, gender, birth order, siblings, education, occupation, marital status, locality, caste, religion, parental occupation, family income); (ii) **Physical Information** (ecological conditions — hilly/desert/forest, mode of economy, housing, room sizes, neighbourhood facilities, transportation); (iii) **Physiological Data** (height, weight, heart rate, fatigue level, Galvanic Skin Resistance/ GSR, EEG, blood oxygen, reaction time, duration of sleep, blood pressure, salivation, running and jumping rates for animal studies); (iv) **Psychological Information** (intelligence, personality, interest, values, creativity, emotions, motivation, psychological

disorders, illusions, hallucinations, delusions, perceptual judgment, thought processes, consciousness, subjective experiences).

Observational Method (NCERT §Observational Method, pp. 25–26) is a powerful tool of enquiry distinguished from day-to-day observing by three steps: **(a) Selection** — the psychologist selects a particular behaviour rather than observing everything; **(b) Recording** — using tallies, notes, short hand, symbols, photographs or video; **(c) Analysis of Data** — to derive meaning. A good observer knows what, whom, when and where to observe. Two classification axes are given. **Naturalistic vs Controlled Observation**: naturalistic is done in real-life settings (hospitals, homes, schools, day-care centres) where the observer makes no effort to control or manipulate; controlled laboratory observation is what we see in lab experiments (e.g., the smoke-filled room in Box 2.1). **Non-Participant vs Participant Observation**: in non-participant observation the observer watches from a distance (a video camera in a classroom; sitting unnoticed in the corner), with the danger that an outsider's presence may itself change behaviour; in participant observation the observer becomes part of the group, taking time to establish rapport so members accept her/him. The advantage of observation is studying behaviour as it occurs; the disadvantage is being labour intensive, time consuming and susceptible to observer's bias — "We see things as we are and not as things are" — so the observer should record at the time and interpret separately.

Experimental Method (NCERT §Experimental Method, pp. 26–28). An experiment establishes cause-effect relationships in a controlled setting by manipulating one factor and studying its effect on another while keeping other related factors constant. **Cause = independent variable; effect = dependent variable**. The **Concept of Variable**: "Any stimulus or event which varies, that is, it takes on different values (or changes) and can be measured is a variable." The pen is not a variable, but pens come in shapes, sizes and colours, all of which are variables. Intelligence is a variable (high/moderate/low). Variation can be in quality or quantity. **Independent Variable (IV)** is the one manipulated or altered by the researcher in strength or variety; **Dependent Variable (DV)** represents the phenomenon the researcher wishes to explain. **Box 2.1 — Latane and Darley (1970) smoke-in-the-room experiment**: students at Columbia University arrived individually to a waiting room while smoke filtered in through a wall vent; some sat alone, others with two persons or with confederates instructed to do nothing. 75 per cent of students reporting alone reported the smoke; in groups of three naive students only 38 per cent reported it; with two passive confederates only 10 per cent reported. **IV = presence or absence of others; DV = frequency of reporting smoke.**

Experimental and Control Groups (NCERT p. 27): the **experimental group** is exposed to the IV manipulation; the **control group** is treated identically except the manipulated variable is absent. In Latane & Darley there were two experimental groups (one without instructions, one with confederates) and one control group (alone). Participants are assigned **randomly** so that each person has equal chance of being in any group — otherwise gender or other differences could explain the results. **Three**

types of extraneous variables must be controlled: **organismic** (anxiety, intelligence, personality, motivation), **situational/environmental** (noise, temperature, humidity), and **sequential** (fatigue, practice effects when participants do several conditions). **Control techniques** (NCERT p. 28): **elimination** (sound-proof, air-conditioned room); **holding constant** when elimination is impossible; **matching** for organismic and background variables (rural/urban, caste, SES); **counter-balancing** to minimise sequence effect (half do tasks A then B, the other half B then A, or one person does A, B, B, A); and **random assignment** to eliminate any systematic differences. Limitations of laboratory experiments: low **external validity** (results may not generalise to real situations); ethical infeasibility (one cannot starve children to study nutrition); and difficulty identifying and controlling all relevant variables.

Field Experiments and Quasi Experiments (NCERT pp. 28–29): a **field experiment** is conducted in a natural setting (school, factory) with reduced control; control is lower and the method is more time-consuming and expensive. A **quasi experiment** ("as if" in Latin) is used when the IV cannot be manipulated — for example, an experiment on children who lost their parents in an earthquake. The IV is **selected**, not varied, and naturally occurring groups become experimental and control groups (e.g., earthquake-affected children who lost parents vs those who did not).

Correlational Research (NCERT pp. 29–30): determines whether two variables are associated for prediction purposes — but does not manipulate. "The strength and direction of the relationship between the two variables is represented by a number, known as **correlation coefficient**. Its value can range from **+1.0 through 0.0 to –1.0**." A **positive correlation** indicates that as one variable (X) increases, the other (Y) also increases (or as one decreases, the other decreases) — example, more study time, higher achievement (perhaps +0.85). A **negative correlation** indicates that as X increases, Y decreases — example, more study time, fewer hours in other activities. A **zero correlation** indicates no significant relationship — values close to zero (–.02 or +.03) indicate the variables are unrelated.

Survey Research (NCERT pp. 30–32) studies opinions, attitudes and social facts. Initially used to find existing realities (literacy rate, religious affiliations, income, attitude towards family planning, panchayati raj programme attitudes), it has evolved into a sophisticated technique for inferring causal relationships. **Box 2.2 — Outlook Saptahik happiness survey (Dec 2004)** illustrates the method: 817 persons aged 25–55 in eight cities — Mumbai, Delhi, Kolkata, Bangalore, Hyderabad, Ahmedabad, Jaipur, Ranchi — were asked on a 5-point happiness scale; about 47% extremely happy, 28% more or less happy; 80% felt money cannot buy happiness; peace of mind (52%) and family (40%) were the top happiness sources. Survey techniques include the following. **Personal Interviews** — two or more persons sit face-to-face; types include **structured/standardised** (questions in fixed sequence with little flexibility, often with close-ended responses specified in advance) and **unstructured/non-standardised** (flexibility in deciding questions, wording and sequence, with open-ended responses). Interview combinations include Individual-to-Individual, Individual-to-Group (a variant of

which is the **Focus Group Discussion (FGD)**), Group-to-Individuals (job interview), and Group-to-Group. **Questionnaire Survey** is "the most common, simple, versatile, and low-cost self-report method" with open-ended and closed-ended questions; closed-ended responses include Yes/No, True/False, Multiple choice, and rating scales of **3-, 5-, 7-, 9-, 11- or 13-point** (e.g., 3-point: Agree/Undecided/Disagree). Mailed questionnaires suffer from poor response. **Telephone Survey** reduces time but suffers from uncooperativeness, reluctance, and bias from non-responders.

Psychological Testing (NCERT pp. 32–34): "Technically speaking, a psychological test is a **standardised** and **objective** instrument which is used to assess an individual's standing in relation to others on some mental or behavioural characteristics." Two essential properties beyond objectivity: **Reliability** — consistency of scores when the same individual takes the same test on two occasions; computed as **test-retest reliability** (temporal stability — administer to a group, re-administer after ~20 days, find correlation between the two sets of scores) or **split-half reliability** (internal consistency — divide items into odd-numbered (1,3,5⋯) and even-numbered (2,4,6⋯) halves and compute correlation between scores). **Validity** answers "Does the test measure what it claims to measure?" — a maths achievement test should measure mathematical achievement, not language proficiency. **Norms** are the normal or average performance of the standardisation group, set on the basis of age, sex, place of residence; they enable comparison of an individual's score with others of the same group. **Types of tests**: by language — **verbal** (require literacy), **non-verbal** (items are symbols or pictures) and **performance** (require movement of objects); by mode of administration — **individual** (face-to-face, time consuming, useful for children and non-literates) or **group** (instructions on the test, easy to administer to large numbers, less time-consuming but responses may be less motivated); by difficulty/time — **speed test** (time limit, equal-difficulty items, evaluates accuracy under time pressure) vs **power test** (no time limit, items arranged in increasing difficulty, assesses underlying ability). Most tests combine both.

Case Study (NCERT pp. 34–35): in-depth study of a particular case — an individual with distinguishing characteristics, a small group with commonality (creative writers like **Rabindra Nath Tagore** and **Mahadevi Verma**), an institution, or a specific event (children exposed to tsunami devastation, vehicular pollution). Multiple methods are used — interview, observation, psychological tests — and case studies provide narrative or detailed descriptions. **Freud**'s insights leading to psychoanalytic theory and **Piaget**'s theory of cognitive development (based on observations of his three children) emerged from case studies. **Minturn and Hitchcock** conducted a case study of socialisation of children among Rajputs of Khalapur; **S. Anandalakshmy** studied childhood aspects in a weavers' community in Varanasi. Validity in a single case study is challenging — researchers should use multiple strategies and triangulate.

Analysis of Data (NCERT pp. 35–36) uses two complementary approaches. **Quantitative Method**: psychological tests, questionnaires and structured interviews contain close-ended scaled items (1 to 5, 7 or 11). The researcher assigns numbers

(normally 1 for right answers, 0 for wrong) and computes aggregate scores; central tendency (mean, median, mode), variability (range, quartile deviation, standard deviation), correlation coefficients and other statistical methods enable inferences. **Qualitative Method** captures complexity lost in numerical reduction — to understand a mother's loss of her child, one must "hear her story to understand how her experience is organised and what meaning she has given to her suffering." Two qualitative techniques are named: **Narrative Analysis** and **Content Analysis** (used for data not in scores — participant-observation field notes, photographs, taped interviews, informal talks — to extract thematic categories). The two methods are complementary, not contradictory.

Limitations of Psychological Enquiry (NCERT pp. 36–37) — three intrinsic problems: (1) **Lack of True Zero Point** — physical sciences begin from zero, but no person has zero intelligence; psychologists arbitrarily decide a zero point, so scores are relative not absolute. Even ranks (1st, 2nd, 3rd holders) hide unequal gaps (48-47-40). (2) **Relative Nature of Psychological Tools** — tests developed for urban students may demand familiarity with multistoried buildings, airplanes, metro; the same test is unsuitable for tribal-area children more familiar with flora and fauna. Western tests need modification for Indian context. (3) **Subjective Interpretation of Qualitative Data** — interpretations vary across researchers, so field work should be done by more than one investigator who together arrive at a meaning, ideally also involving respondents in meaning-making.

Ethical Issues (NCERT §Ethical Issues, pp. 37–38) — three principles: **respect for privacy and choice to participate**, **beneficence (protection from harm)**, and **justice (sharing of research benefits)**. Operationally these become five practices: (1) **Voluntary Participation** — freedom to decide whether to participate, without coercion or excessive inducement, and freedom to withdraw without penalty once begun; (2) **Informed Consent** — participants must understand what will happen before data collection so they make an informed decision; if obnoxious stimuli (e.g., electric shock) are used, this must be explained beforehand; (3) **Debriefing** — particularly important if **deception** was used; participants must leave in the same physical and mental state as when they entered, with reassurance and removal of anxiety; (4) **Sharing the Results of the Study** — the researcher has a moral duty to return to participants and share findings; (5) **Confidentiality of Data Source** — privacy must be safeguarded; code numbers go on the data sheet and the names-with-codes list is kept separately, then destroyed when research is over.

2.2 Definitions to memorise

Term	Definition	Page
Objectivity	Two or more independent researchers studying the same event arrive at the same conclusion	21
Hypothesis		22

Term	Definition	Page
	Tentative answer to the research problem, to be tested through data	
Data	Singular datum; information on covert/overt behaviour, subjective experience, mental processes; tied to context, persons, time	23–24
Interpretive paradigm	Emphasis on understanding subjective meaning rather than objective prediction	23
Variable	Any stimulus, event or attribute that varies and can be measured	26–27
Independent Variable (IV)	Variable manipulated/altered by the researcher; the cause	27
Dependent Variable (DV)	Variable on which the effect of the IV is observed; the effect	27
Experimental Group	Group exposed to manipulation of the independent variable	27
Control Group	Comparison group treated identically except the manipulated IV is absent	27
Random Assignment	Method ensuring each participant has an equal chance of being in any group	27–28
Organismic Variable	Extraneous variable within the person — anxiety, intelligence, personality	28
Counter-balancing	Technique to minimise sequence effect by interchanging task order	28
External Validity	Extent to which results generalise to real situations	28
Field Experiment	Experiment in a natural setting with IV manipulation but lower control	28–29
Quasi Experiment	Experiment where IV is selected, not manipulated; uses naturally occurring groups	29
Correlation Coefficient	Number from +1.0 through 0.0 to −1.0 indicating strength and direction of association	29
Positive Correlation	As X increases, Y also increases (or both decrease together)	29
Negative Correlation	As X increases, Y decreases	29–30
Zero Correlation	No significant relationship between the two variables	30
Structured Interview	Questions written in a fixed sequence, often with close-ended responses	31
Unstructured Interview	Flexibility in question, wording, sequence; open-ended responses	31

Term	Definition	Page
Focus Group Discussion	Variant of Individual-to-Group interview	31
Test-retest Reliability	Consistency of scores when same test is administered twice	33
Split-half Reliability	Internal consistency between odd-item and even-item halves	33
Validity	Whether the test measures what it claims to measure	33
Norms	Normal/average performance of the standardisation group	33
Speed Test vs Power Test	Speed = time-limited, equal difficulty; Power = no time limit, increasing difficulty	34
Case Study	In-depth study of a particular case using multiple methods	34
Narrative Analysis / Content Analysis	Qualitative methods for thematic interpretation of non-numerical data	36
Informed Consent	Participants receive information about the study before data collection so they can decide freely	37
Debriefing	Providing participants information after the study, especially when deception was used	37

2.3 Diagrams / processes to remember

- **Fig. 2.1 – Steps in Conducting Scientific Enquiry** (p. 21): a four-box cycle — (1) Conceptualising a Problem (selecting a topic) → (2) Collecting Data (participants, methods, tools, procedure) → (3) Drawing Conclusions (using statistical methods) → (4) Revising Research Conclusions (restating existing hypothesis or formulating revised/new theory) → back to (1).
- **Box 2.1 – Latane & Darley (1970) smoke-in-the-room experiment** (p. 26): Columbia University students arrived individually to a waiting room; some alone (control), some with two naive participants, some with two passive confederates. **IV = presence/absence of others; DV = frequency of reporting smoke.** Results: 75% alone reported; 38% in groups of three naive students reported; 10% with passive confederates reported.
- **Box 2.2 – Outlook Saptahik happiness survey** (p. 30): 5-point happiness scale across 8 Indian cities; 47% extremely happy; 80% money cannot buy happiness; top happiness sources peace of mind 52%, family 40%.
- **Correlation range line** (p. 29): −1.0 ←—— 0.0 ——→ +1.0; strength grows as the value moves away from zero in either direction.
- **Three-axes test classification** (pp. 33–34): Language (verbal / non-verbal / performance) × Administration (individual / group) × Difficulty-Time (speed / power).
- **Five-step ethical practice flow** (pp. 37–38): voluntary participation → informed consent → (study, possibly with deception) → debriefing → sharing of results → confidentiality.

2.4 Common confusions / NTA trap points

- Goals of enquiry: students confuse **prediction** (forecasting future behaviour) with **explanation** (identifying causes). Prediction needs only association; explanation needs causality.
- Students mix up IV and DV. Mnemonic: IV = "I varied it"; DV = "depends on what I varied".
- A **field experiment** still manipulates the IV in a natural setting, while a **quasi experiment** only selects an already-existing IV (e.g., earthquake survivors) — distractors often swap these.
- The **correlation coefficient is +1.0 to –1.0**, not 0 to +1 and not 0 to 100. Zero correlation ≠ "no data" — it means no significant relationship.
- **Reliability vs Validity:** reliability = consistency over time/items; validity = measuring the intended construct. A reliable test may still be invalid.
- **Test-retest vs Split-half reliability** — test-retest = same test administered twice, correlated; split-half = odd vs even items in one administration.
- **Naturalistic vs Participant** observation are different axes — a study can be naturalistic AND participant, or naturalistic AND non-participant.
- **Debriefing** is not the same as informed consent — consent happens before; debriefing happens after (especially when deception was used).
- **Speed test vs power test** — speed = time-bound, equal difficulty; power = no time limit, increasing difficulty.
- **Three extraneous variable types** — organismic / situational-environmental / sequential. NTA likes to ask which control technique fits which (matching for organismic; elimination/holding constant for situational; counter-balancing for sequential).
- **75% / 38% / 10%** — Latane & Darley figures appear as direct-recall distractors.

2.5 Thinkers / Theories cited in this chapter

Thinker / Construct	Theory or Concept	Where in NCERT
Gautam Buddha	Chapter epigraph on ideas put into action	p. 19
Bibb Latane and John Darley (1970)	Smoke-filled room experiment at Columbia University demonstrating bystander effect with IV = presence of others, DV = frequency of reporting smoke	Box 2.1, pp. 26–27
Outlook Saptahik (Jan 2005)	8-city happiness survey (817 respondents) — example of survey method with 5-point scale	Box 2.2, p. 30
Sigmund Freud	Psychoanalytic theory emerged from case studies — meticulous records of individual cases	p. 34
Jean Piaget		p. 34

Thinker / Construct	Theory or Concept	Where in NCERT
	Theory of cognitive development developed from case studies of his three children	
Minturn and Hitchcock	Case study of socialisation of children among Rajputs of Khalapur	pp. 34–35
S. Anandalakshmy	Case study of childhood aspects in a weavers' community in Varanasi	p. 35
Rabindra Nath Tagore and Mahadevi Verma	Cited as examples of creative writers who could be studied through case method	p. 34
Scientific paradigm (no individual named)	Predictable behaviour caused by internal/external forces; observed, measured, controlled	p. 23
Interpretive paradigm (no individual named)	Understanding subjective meaning in context — e.g., tsunami survivors	p. 23
Quantitative method tradition	Scaled close-ended responses; central tendency, variability, correlation	p. 35
Qualitative method tradition	Narrative analysis and content analysis for in-depth non-numerical data	p. 36

Note: NCERT does not name individual authors for the broader paradigms or for many methods themselves. Only thinkers and named studies cited in this chapter are listed.

🎯 Practice MCQs

📊 PYQ Alignment

This chapter is a heavy-weight CUET source, typically yielding 6–8 MCQs per cycle in the 2023–2025 papers. The most repeated formats are: direct definitions (variable, IV, DV, hypothesis, reliability, validity, norms), the correlation coefficient range, method-matching scenarios (which method suits which research question — Activity 2.5 style), the four ethical principles, and statement-based "which of the following is correct" items on observation types and experimental controls.

CUET 2024 — Actual PYQs from this chapter

Q.14 (CUET 2024) “How happy were you with your job on the whole?” Identify the type of question.

- A) Close-ended question B) Open-ended question C) Direct question D) Bipolar question **Tests:** Interview method — types of questions **Answer:** Not in extracted key