# Dement and Kleitman (1957)

Lesson 1.1.1 | Sleep and dreams | Cambridge 9990, 2027

Main idea: physiological recordings can help investigate dreaming, but dream experience is still inferred from what people remember and report.

## 1. Concepts and background

The biological approach explains behaviour, thoughts and emotions through the brain, hormones, genetics and evolution, interacting with other factors. This study linked eye movements and brain activity with dream reports; it did not directly test genes or hormones.

**REM:** rapid-eye-movement sleep, with characteristic EEG activity. **NREM:** non-rapid-eye-movement sleep; not uniformly deep sleep. **EEG:** brain electrical activity recorded through scalp electrodes. Eye electrodes record eye-movement-related potentials.

**Dreaming:** subjective experiences during sleep. **Dream recall:** remembering and reporting content after awakening. **Ultradian rhythm:** a biological cycle shorter than 24 hours, recurring within a day. Earlier research linked REM with dream reports; this study sought stronger, more objective evidence.

## 2. Three aims

1. Compare dream recall after REM and NREM awakenings.
2. Relate perceived dream duration to recorded REM duration.
3. Relate eye-movement patterns to visual dream content.

## 3. Sample and procedure

Nine adults: seven male, two female. Five were studied intensively; four provided limited confirmatory data. Total: 61 participant-nights and 351 awakenings. Recruitment was not reported; do not invent a sampling technique.

Participants ate normally but avoided alcohol and caffeine that day. They slept near their usual bedtime in a quiet, dark laboratory room. Scalp and eye electrodes recorded continuously; researchers monitored next door. A doorbell woke participants, who reported into a recorder before researcher questioning.

Recall criterion: a coherent, fairly detailed account of dream content. Saying "I dreamed" without content, or reporting only vague fragments, did not count as recall.

## 4. Research methods and controls

Experimental comparisons used repeated measures: the same people supplied different conditions. REM/NREM was the sleep-state IV; recall/no recall was the DV. In the duration test, the IV was 5/15 minutes of REM and the DV was judgement accuracy. Correlations and self-report/interviews were also used.

Participants were not told the current eye-movement state. Reporting before contact reduced suggestion. Awakening schedules varied: random-number tables, fixed patterns or researcher judgement. They were not identical for everyone.

# Three investigations: key evidence

Results, procedures and conclusions to remember

## 1. REM versus NREM dream recall

| Awakened from | Recall | No recall | Total |
|---|---|---|---|
| REM | 152 | 39 | 191 |
| NREM | 11 | 149 | 160 |

Recall occurred after about **80% of REM** awakenings versus **7% of NREM** awakenings. These are repeated awakenings, not different people. REM was strongly associated with recall; this does not establish REM-only dreaming or causation.

**Ultradian rhythm:** REM recurred about every 92 minutes on average; individual mean intervals were 70-104 minutes. Uninterrupted REM periods lasted 3-50 minutes (mean about 20), tending to lengthen later in the night. Many other periods were cut short experimentally.

## 2. Dream duration

After a randomly selected 5 or 15 minutes of REM, participants chose which duration matched their dream. Earlier attempts to estimate to the nearest minute were too difficult.

5 minutes: 45 correct, 6 incorrect (about 88% accurate).
15 minutes: 47 correct, 13 incorrect (about 78% accurate).

Judgements broadly matched recorded time, but were not always correct. Longer REM periods also tended to accompany longer reports, measured in words. These two measured variables are **co-variables**, not manipulated IVs.

Positive correlations: DN +0.60; IR +0.68; KC +0.40; WD +0.71; PM +0.53. Word count is a proxy: talkativeness, reporting style and forgotten details affect it. Neither correlation nor accurate forced choice establishes exact dream timing.

## 3. Eye-movement patterns and visual content

Participants were awakened after a predominant pattern lasted at least one minute, then described the dream just before awakening. There were 35 awakenings in this investigation.

| Pattern | Awakenings | Reported visual activity |
|---|---|---|
| Mainly vertical | 3 | Looking up/down: ladders or basketball. |
| Mainly horizontal | 1 | Watching two people throw tomatoes at each other. |
| Little/no movement | 10 | Watching distant activity or a fixed object. |
| Mixed movements | 21 | Nearby people/objects and varied activity. |

Some recorded patterns corresponded to dream imagery. Pure horizontal/vertical examples were rare, and content relied on subjective recall. The evidence does not support decoding every dream from eye movements.

# Evaluation and exam reminders

Explain how each study detail affects the evidence

## 1. Strengths

**Objective recording:** continuous brain/eye measurements reduced reliance on memory when identifying sleep state. Dream content itself remained subjective.
**Controls and replicability:** alcohol/caffeine restrictions, a controlled room and a consistent initial-report procedure reduced some unwanted influences and made replication easier.
**Repeated measures:** comparing conditions within the same people reduced stable individual differences. Quantitative counts supported comparisons; qualitative reports explained content.

## 2. Limitations

**Generalisability:** only nine adults, with most intensive data from five and an uneven sex distribution. Many awakenings do not create a large representative sample.
**Ecological validity:** electrodes, the laboratory and repeated awakenings may affect natural sleep and recall. However, REM regularity resembled earlier findings from uninterrupted sleep.
**Measurement and interpretation:** forgetting can produce no recall; word count depends on reporting style; matching dream content to eye patterns involves interpretation. Only one horizontal and three vertical observations weaken generalisation.

## 3. Ethics and issues/debates

Repeated awakenings raise welfare concerns; dream reports may contain private information. WD was told awakenings would occur only when recordings indicated dreaming, but REM/NREM awakenings were mixed: this involved deception.

Consider informed consent, withdrawal, confidentiality and debriefing as safeguards. The paper does not fully report these, so do not claim they were all present or absent.

Recurring REM supports a biological account, but nature and nurture were not directly compared. Individual rhythms varied, while laboratory conditions may also influence sleep. The method could help investigate stress or drugs, but this study demonstrated no treatment. It provides no direct evidence about children or non-human animals.

Common errors: no recall does not mean no dream; not every REM awakening produced recall; association does not prove causation; 351 awakenings do not mean 351 participants; report word count is not exact dream duration.

Hint: Build evaluation as point → specific study evidence → consequence for validity, reliability or generalisability.

# Hassett et al. (2008): Monkey toy preferences

Lesson 1.1.2 | Concepts and methods

## 1. Psychology and background

The biological approach explains behaviour through brain processes, hormones, genes and evolution, interacting with experience. **Socialisation** is learning expectations through social experience; **hormones** are chemical messengers. **Play** includes exploring and manipulating objects.

Children show sex differences in toy preferences, but biology and gendered socialisation overlap. Rhesus monkeys do not receive the same explicit human toy teaching. Earlier monkey work offered toys separately; simultaneous access permits a more direct preference comparison.

## 2. Aim and sample

Test sex differences in interaction with wheeled and plush toys, and compare the pattern with earlier human findings. No children were newly tested.

The established troop contained 135 monkeys. Fourteen with prenatal hormone-treatment histories and 39 newborn infants were excluded, leaving 82 eligible animals. The final analysed sample was **34: 11 males and 23 females**, after excluding animals with too little coded behaviour. This was an available captive group, not a random population sample.

## 3. Design and procedure

A field experiment with structured observation in the familiar enclosure. Toy type was within animals; sex was a natural between-animal comparison. DVs were frequency and duration of toy-directed behaviours.

Seven planned 25-minute trials offered one wheeled and one plush toy simultaneously, 10 metres apart. Positions were counterbalanced. Separate cameras recorded interaction; one trial ended seven minutes early when a plush toy tore.

Operationalisation: preference meant greater recorded interaction with one category. It did not mean that a monkey understood a toy as being "for boys" or "for girls".

# Hassett et al. (2008): Monkey toy preferences

Lesson 1.1.2 | Evidence and interpretation

## 1. Recording behaviour

A fixed checklist included touch, hold, sit on, carry, drag, manipulate, turn, sniff, mouth, destroy, jump away and throw. Continuous actions had start/end times; brief actions were counted. Two observers reached consensus on identity and behaviour.

Counts and durations were divided by each animal's number of participating trials, then combined across coded behaviours. Frequencies count occurrences; durations measure time. They are different outcomes.

## 2. Main findings

| Comparison | Frequency result |
|---|---|
| Males: wheeled versus plush | More interaction with wheeled toys. |
| Females: wheeled versus plush | No significant category preference. |
| Males versus females: wheeled | No significant frequency difference. |
| Males versus females: plush | Females interacted more frequently. |

| Mean duration (minutes) | Wheeled | Plush |
|---|---|---|
| Males | 4.76 | 0.53 |
| Females | 1.27 | 1.49 |

Males spent significantly longer with wheeled toys than plush toys. Females showed no significant duration preference. Between-sex duration differences for either toy type were not significant.

## 3. Individual variation and interpretation

Individual preferences: males 73% wheeled, 9% plush, 18% no significant preference; females 39% wheeled, 30% plush, 30% no preference (rounding applies). Group averages do not describe every animal.

Higher-ranking females interacted more; age did not show significant differences. Authors proposed biologically influenced activity preferences shaped by social experience. **Hormones were not manipulated in this toy study**; sex differences alone cannot establish a hormonal cause.

# Hassett et al. (2008): Monkey toy preferences

Lesson 1.1.2 | Evaluation and connections

## 1. Strengths

**Direct choice:** both categories were available together, improving the interpretation of relative preference.
**Systematic measurement:** video and operational definitions allowed actions to be revisited and coded consistently.
**Familiar setting:** animals remained within their established social environment, reducing some disruption.

## 2. Limitations

**Selective sample:** only sufficiently interactive animals contributed to the final analysis; one captive troop limits generalisation.
**Confounds:** toys differed in size, colour and shape as well as wheels/plush material. Rank and group access may affect opportunities to play.
**Reliability:** consensus is useful, but is not independent blind coding with a reported agreement coefficient.

## 3. Animal ethics

Reported care included group housing, outdoor and temperature-controlled indoor areas, continuously available water, normal food and approved oversight. Animals were not forced to approach toys. These details support welfare, but material safety and social access still need evaluation; the torn toy was a potential hazard, not proof of injury.

Consider replacement, species choice, justified numbers, harm/benefit and procedures. A human study cannot directly answer whether non-human preferences arise without explicit human toy teaching, but human transfer remains uncertain.

## 4. Debates and application

**Nature/nurture:** findings suggest a possible biological contribution, while social experience and preferences may interact. **Individual/situational:** sex and individual variation combine with group rank and access. The study can inform play research; it cannot prescribe toys for an individual child.

> Remember: 135 in the troop, 82 eligible, 34 analysed. "Females were more variable" is not the same as "females preferred plush toys".

Hint: State whether a result concerns frequency, duration, within-sex preference or a between-sex comparison before interpreting it.

# Hölzel et al. (2011): Mindfulness and brain scans

Lesson 1.1.3 | Concepts and methods

## 1. Psychology and aim

**Mindfulness:** awareness of the present moment with a compassionate, non-judgemental stance. **Localisation:** different brain regions contribute to different functions. **Neuroplasticity:** the nervous system can change with experience.

Earlier cross-sectional comparisons of meditators could reflect pre-existing differences. This study followed beginners to investigate gray-matter concentration changes after eight weeks of Mindfulness-Based Stress Reduction (MBSR). Hippocampus and insula were planned regions of interest; whole-brain analysis was exploratory.

## 2. Sample and design

| Final scan sample | MBSR | Waiting-list control |
|---|---|---|
| Participants | 16: 6 men, 10 women | 17: 11 men, 6 women |
| Mean age | 38 years | 39 years |

Healthy, medication-free volunteers aged 25-55 with little meditation experience. MBSR participants were recruited from existing courses, were right-handed and MRI-eligible. Groups were not randomly allocated.

A controlled longitudinal design: group was between participants; pre/post time was within participants. Outcome: regional gray-matter concentration measured using structural MRI and voxel-based morphometry (VBM). FFMQ self-report and home-practice records supplied additional data.

## 3. Procedure

MBSR involved eight weekly sessions of about 2.5 hours, a 6.5-hour day in week six, and body scan, mindful yoga and sitting meditation. Guided home practice was prescribed for 45 minutes daily, with informal mindful activities.

MRI scans occurred within two weeks before/after the course; controls were scanned at a comparable interval of about two months. VBM compared small units of brain images. Gray-matter concentration is an MRI-based tissue estimate. Structural MRI measures anatomy, not direct task performance.

# Hölzel et al. (2011): Mindfulness and brain scans

Lesson 1.1.3 | Evidence and interpretation

## 1. Brain results

| Analysis | Finding |
|---|---|
| Planned: left hippocampus | Gray-matter concentration increased after MBSR; controls showed no significant change in this cluster. |
| Planned: insula | No significant predicted increase. |
| Exploratory whole brain | Increases in posterior cingulate cortex, left temporo-parietal junction and cerebellar clusters, including a vermis/brainstem cluster. |

The hippocampus is discussed in relation to learning/memory; posterior cingulate to self-referential processing; temporo-parietal junction to perspective-taking; cerebellar areas to cognitive/emotional processes. These functional explanations are interpretations, not functions directly tested here.

## 2. Mindfulness and practice

The Five Facet Mindfulness Questionnaire (FFMQ) has 39 items rated 1-5: observing, describing, acting with awareness, non-judging and non-reactivity. Usable pre/post questionnaire data came from **14 people per group**, not the full scan sample.

Observing, acting with awareness and non-judging improved significantly in the MBSR group. Describing and non-reactivity did not show significant group-by-time effects.

| Practice measure | Reported amount |
|---|---|
| Prescribed formal practice | 45 minutes per day |
| Actual mean formal practice | 27 minutes per day |
| Mean total over eight weeks | 22.6 hours |

Reported practice time and changes in FFMQ scores were not significantly correlated with the identified brain changes. The study did not establish a simple more-practice/more-change dose relationship.

Conclusion: MBSR participation was associated with regional structural changes consistent with experience-dependent plasticity. Increased concentration in a memory-related region does not prove improved memory.

# Hölzel et al. (2011): Mindfulness and brain scans

Lesson 1.1.3 | Evaluation and connections

## 1. Strengths

**Longitudinal comparison:** the same people were scanned before and after, reducing the problem of relying only on pre-existing group differences.
**Objective measure:** standardised MRI/VBM reduces reliance on self-report for brain structure.
**Control interval:** a waiting-list comparison helps assess changes beyond time alone.

## 2. Limitations

**Selection:** motivated course volunteers were not randomly allocated; the small, healthy and educated sample limits generalisation.
**Inactive control:** group contact, expectations, exercise and other components were not matched by an alternative course.
**Interpretation:** MRI concentration is not a direct measure of memory, empathy or emotional regulation. No long-term scan follow-up established permanence.

## 3. Ethics

Written informed consent and ethics-board approvals were reported. MRI screening addressed safety. Two MBSR participants withdrew after discomfort during the first scan, demonstrating that discomfort can occur even with non-invasive methods. Brain images and questionnaires require confidentiality and privacy.

## 4. Debates and applications

**Nature/nurture:** experience-associated structural change shows that biological characteristics need not be fixed. It does not quantify genetic influence or prove genes irrelevant.
**Individual/situational:** motivation and self-selection may combine with the course environment and practice.
**Application:** findings motivate further study of training and plasticity; clinical effectiveness needs separate evidence.

> Remember the non-findings: no significant insula increase; no significant practice-time/brain-change correlation; no direct test of improved memory.

Hint: Separate the brain measurement, the psychological function associated with that region, and any actual behavioural test. Only the first was directly measured here.

# Andrade (2010): Doodling

Lesson 1.2.1 | Concepts and methods

## 1. Psychology and background

The cognitive approach assumes people share an input-process-output route, often compared with a computer. Individual differences in attention, language, thinking and memory help explain behaviour and emotion.

**Attention:** selecting and maintaining processing of relevant information. **Memory:** retaining and retrieving information. A boring task can encourage daydreaming, which may compete with processing the main message. A simple extra activity might regulate arousal or reduce mind-wandering.

## 2. Aim and participants

Test whether doodling helps or hinders monitoring and later recall of a monotonous message. Forty adults aged 18-55 were recruited opportunistically from an MRC participant panel after completing another experiment. Most were women.

Random allocation produced two groups of 20: doodling (3 men) and control (2 men). Opportunity sampling concerns recruitment; random allocation concerns assignment to conditions. They are not the same procedure.

## 3. Design and variables

Laboratory experiment with independent groups. **IV:** shade printed squares/circles while listening, or listen without shading. **Monitoring DV:** correct target names minus false alarms. **Recall DV:** correct names and places remembered later, minus false alarms.

## 4. Procedure and controls

Each person listened in a dull, quiet room to the same 2.5-minute mock telephone message, delivered monotonously at about 227 words per minute. Eight people would attend a party; other names, a cat and eight places were also mentioned.

Participants wrote names of definite/probable attendees. Doodlers shaded printed shapes, with no need for speed or neatness. After a one-minute conversation, a surprise test asked for names and places; recall order was counterbalanced.

Monitoring occurred during the message. Recall occurred afterwards. Shading supplied shapes standardised the extra task, but did not reproduce every type of spontaneous doodling.

# Andrade (2010): Doodling

Lesson 1.2.1 | Evidence and interpretation

## 1. Monitoring performance

| Mean monitoring measure | Doodling | Control |
|---|---|---|
| Correct names / 8 | 7.8 | 7.1 |
| Score adjusted for false alarms | 7.7 | 6.9 |

A false alarm is an incorrect response treated as a target. Subtracting these responses prevents inaccurate guessing from inflating performance. Consistent rules allowed plausible mishearings to count as correct.

## 2. Surprise recall

| Mean adjusted recall | Doodling | Control |
|---|---|---|
| Names | 5.1 | 4.0 |
| Places | 2.4 | 1.8 |
| Combined | 7.5 | 5.8 |

The reported relative recall advantage was **29%**. Both groups remembered the monitored names better than incidental places. The figures are group means, not the score of every person.

Doodlers shaded a mean of 36.3 shapes (range 3-110). Seven people suspected a memory test: three doodlers and four controls. Excluding them did not change the broad result.

## 3. What may explain the result?

**Reduced daydreaming:** a light secondary task might use resources that would otherwise support mind-wandering.
**Arousal regulation:** shading might maintain alertness during boredom.
Neither mechanism was directly measured, so the experiment does not establish which caused the performance difference.

> Conclusion: simple shape shading improved monitoring and recall in this short, monotonous auditory task. It does not establish that all drawing, or all multitasking, helps learning.

Hint: State which score you mean: correct monitoring, false-alarm-adjusted monitoring, names recall, places recall or combined recall.

# Andrade (2010): Doodling

Lesson 1.2.1 | Evaluation and connections

## 1. Strengths

**Random allocation:** reduces systematic differences between the two conditions.
**Standardisation:** one recorded message and consistent scoring improve comparability and replicability.
**Counterbalancing:** names-first/places-first recall reduces a consistent order effect.
**Surprise test:** assesses incidental memory rather than only deliberate rehearsal.

## 2. Limitations

**Restricted sample:** a mostly female adult panel sample may not represent children, students in a full lesson or people in different settings.
**Task validity:** shading provided shapes is different from creative drawing; a short audio message differs from complex learning.
**Mechanism:** attention was inferred from performance, while daydreaming and arousal were not measured directly.

## 3. Ethics

Participants were told they did not need to remember the material, allowing surprise recall to be tested. This misleading instruction limits fully informed consent. The researcher debriefed participants, explained the deception, apologised and asked about suspicion. The extra task was mild, but withdrawal and confidentiality still matter.

## 4. Application and debates

**Everyday application:** a low-demand concurrent activity might help during some dull listening tasks. The study did not test long-term grades, children's outcomes or unrestricted drawing.
**Individual/situational:** attention can differ between people; message monotony and the shading condition are situational factors.
**Nature/nurture:** changing the task altered performance, but the origins of individual attention differences were not tested.

> Common mistake: "Doodling prevented daydreaming" states an untested mechanism as a finding. Write "reduced daydreaming was a proposed explanation".

Hint: Evaluate an application by comparing the proposed activity, learners and learning outcome with the task actually tested.

# Baron-Cohen et al. (2001): The Eyes Test

Lesson 1.2.2 | Concepts and methods

## 1. Psychology and aims

**Theory of mind:** attributing mental states to oneself and others. **Mentalising** includes inferring beliefs, intentions and feelings. **Social sensitivity** involves noticing subtle mental-state cues. These are cognitive processes; one task does not measure every aspect of empathy.

The 1997 test had ceiling and discrimination problems. A revised test aimed to detect subtler differences, compare autistic adults with comparison groups, examine sex differences and test the relationship with Autism-Spectrum Quotient (AQ) scores. The paper used the historical diagnostic terms AS/HFA.

## 2. Improvements to the test

Twenty-five photographs became 36 scored items; two choices became four (chance success fell from 50% to 25%). Complex mental states, closer distractors, balanced male/female faces and removal of gaze-direction shortcuts improved discrimination. A glossary reduced vocabulary confusion.

## 3. Participants

| Group | Sample |
|---|---|
| 1: historical AS/HFA group | 15 adult men, support-group adverts; mean age 29.7, mean IQ 115. |
| 2: community comparison | 122 adults, classes/library users; mean age 46.5 for 88 with age data. |
| 3: students | 103 Cambridge undergraduates: 53 men, 50 women; mean age 20.8. |
| 4: IQ-matched comparison | 14 adults; mean age 28.0, mean IQ 116. |

## 4. Design and procedure

Independent-group comparisons used naturally occurring diagnosis and sex, not randomly assigned traits. The original paper describes individual quiet-room testing with a glossary. Participants selected the best mental-state word for each photograph of the eye region. Groups 1, 3 and 4 completed AQ; Group 1 also judged the faces' sex.

# Baron-Cohen et al. (2001): The Eyes Test

Lesson 1.2.2 | Evidence and interpretation

## 1. Test construction and measures

Eight pilot judges checked target words and distractors. Larger item analysis removed four of 40 candidate photographs, leaving 36. Each item offered four words; one target counted as correct. AQ is a self-report trait measure scored 0-50, distinct from the performance test.

## 2. Eyes Test scores

| Group | Mean / 36 | Standard deviation |
|---|---|---|
| 1: AS/HFA | 21.9 | 6.6 |
| 2: community | 26.2 | 3.6 |
| 3: students | 28.0 | 3.5 |
| 4: IQ-matched | 30.9 | 3.0 |

The historical AS/HFA group scored lower on average than the comparison groups. Members of every group varied; mean differences do not classify every individual.

## 3. AQ and other findings

| AQ group | Usable n | Mean / 50 |
|---|---|---|
| 1: AS/HFA | 14 | 34.4 |
| 3: students | 79 | 18.3 |
| 4: IQ-matched | 14 | 18.9 |

Higher AQ scores tended to accompany lower Eyes scores; the combined correlation was **-0.53**. IQ was not significantly correlated with Eyes performance in the available measured sample.

Female Eyes means were higher, but this was a non-significant trend. Student AQ means were 19.5 for men and 16.6 for women, a reported significant difference. Every AS/HFA participant scored at least 33/36 on sex recognition.

Conclusion: the revised task detected subtle social-cognitive differences. Successful sex recognition alongside harder mental-state judgements argues against a simple inability to process eye photographs, but does not measure all everyday social understanding.

# Baron-Cohen et al. (2001): The Eyes Test

Lesson 1.2.2 | Evaluation and connections

## 1. Strengths

**Systematic revision:** pilot criteria and item analysis improved sensitivity and reduced easy shortcuts.
**Comparisons:** the IQ-matched group addressed general intelligence as an alternative explanation.
**Glossary and control task:** reduced vocabulary misunderstanding and checked basic processing of the same stimuli.

## 2. Limitations

**Ecological validity:** static eye photographs and four supplied words omit voice, movement, body language and social context.
**Generalisation:** the AS/HFA group contained only 15 men, limiting transfer across sex, age and ability.
**Construct validity:** language, cultural knowledge and consensus-selected target words may influence scores. This is one component of mentalising, not a complete empathy assessment.

## 3. Ethics and interpretation

Diagnosis and social-cognition scores are sensitive; voluntary consent, respectful treatment and protection of identifiable data matter. Do not invent modern safeguards not described in the report. A group difference should not be framed as a judgement of a person's worth or entire social ability.

## 4. Application and debates

**Application:** the task can support research on social sensitivity; it is not a stand-alone diagnosis and no treatment was tested.
**Individual/situational:** cognitive characteristics differ, but restricted cues and word choices also shape performance.
**Nature/nurture:** diagnostic comparisons did not isolate genes, maturation or experience as the cause.

> Three distinctions: Eyes score is not AQ; a negative correlation is not causation; a female mean advantage was not a significant Eyes Test sex difference here.

Hint: Keep test sample sizes separate from usable AQ sample sizes. For procedure questions, the original study describes individual quiet-room testing rather than an online administration.

# Pozzulo et al. (2011): Line-ups

Lesson 1.2.3 | Concepts and methods

## 1. Psychology and aims

**Eyewitness testimony:** evidence based on a witness's memory. A **target** is the person/character originally seen; a **foil** is an alternative face. In a target-present line-up, correct identification means selecting the target. In a target-absent line-up, selecting any face is a false positive.

Children may choose a face because they think adults expect an answer, as well as because of memory limits. Familiar cartoons should make recognition easier. The aim was to investigate whether poor recognition alone explains children's target-absent errors.

## 2. Participants and design

| Sample | Children | Adults |
|---|---|---|
| Number | 59 | 53 |
| Ages | 4-7; mean 4.98 | 17-30; mean 20.54 |
| Sex | 21 female, 38 male | 36 female, 17 male |
| Recruitment | Three private schools | University psychology pool |

Laboratory-style experiment with age as a naturally occurring between-group factor. Participants encountered both cartoon and human targets. Target presence/absence was randomised across participants. Outcomes were correct identification and correct rejection, supplemented by interviews/questionnaires.

## 3. Materials and procedure

Four silent six-second clips showed Dora, Diego, a woman brushing her hair and a man putting on a coat; each included a 2-3-second close-up. Four-face arrays contained target plus three foils, or four foils. A silhouette allowed a "not there" response.

Children were tested individually at school after rapport-building crafts; interviews created an approximately two-minute delay, then children pointed to a choice. Adults completed the task in a laboratory and wrote responses. Adults supplied their own familiarity/demographic information; parents supplied children's information.

# Pozzulo et al. (2011): Line-ups

Lesson 1.2.3 | Evidence and interpretation

## 1. Controls

Instructions stated that the target might be absent and demonstrated the silhouette. Videos and arrays were standardised; clip order and target positions varied. Similar foils were selected using ratings. Child-testing researchers avoided uniforms/lab coats that might heighten authority cues.

## 2. Target-present: correct identification

| Target type | Children | Adults |
|---|---|---|
| Familiar cartoons | 99% | 95% |
| Unfamiliar humans | 23% | 66% |

When the cartoon target was present, children could identify it almost perfectly. Their unfamiliar-human identification was much lower than adults'. This supports a role for familiarity/recognition, with stimulus-type limits.

## 3. Target-absent: correct rejection

| Target type | Children | Adults |
|---|---|---|
| Familiar cartoons | 74% | 94% |
| Unfamiliar humans | 45% | 70% |

These percentages are **correct rejection**, not false positives. A lower rejection rate means more wrong face choices. Children rejected fewer absent line-ups correctly for both target types.

## 4. Interpretation

Near-perfect present-cartoon identification did not eliminate children's absent-cartoon errors. Poor recognition alone is therefore insufficient as an explanation. Perceived pressure to choose may contribute, alongside cognitive factors.

> Conclusion: recognition and social responding can interact. The experiment did not independently manipulate social pressure, so it cannot establish pressure as the sole cause of false positives.

Hint: Before describing a percentage, identify target presence/absence and whether accuracy means selecting a face or choosing the silhouette.

# Pozzulo et al. (2011): Line-ups

Lesson 1.2.3 | Evaluation and connections

## 1. Strengths

**Within-person target comparison:** each participant encountered cartoons and humans, reducing stable participant differences.
**Controlled presentation:** short clips, similar foils, standard instructions and varied order/position improved consistency.
**Multiple measures:** identification, rejection, recall and familiarity information helped distinguish possible explanations.

## 2. Limitations

**Confounded familiarity:** familiar cartoons differ from unfamiliar human photographs in more than familiarity.
**Group procedures:** children spoke/pointed at school, while adults wrote in a laboratory. Age was not the only difference.
**Ecological validity:** benign six-second clips and a short delay differ from a stressful crime and later identification.

## 3. Research with children

Written parental consent was obtained. Children were told they could change their minds without getting into trouble. Crafts built rapport; researchers monitored fatigue, anxiety and stress. Everyday clips reduced exposure to distressing material; crayons and a colouring book were given afterwards.

Parental permission does not replace the child's willing agreement or ongoing right to stop. Rewards and adult authority must not create pressure to participate. Developmentally suitable instructions improve both welfare and measurement validity.

## 4. Applications and debates

**Application:** make rejecting an absent target a clear and acceptable option in identification procedures. This study did not test every police practice.
**Individual/situational:** age-related cognition and familiarity combine with expectations in an adult-led task.
**Nature/nurture:** age differences do not separate maturation from accumulated experience.

> Do not confuse identifying a known target with rejecting a target-absent array. Being able to recognise someone does not guarantee freedom from false positives.

Hint: A developed evaluation links a concrete task difference to why it could change performance or limit transfer to real witnesses.

# Bandura et al. (1961): Aggression

Lesson 1.3.1 | Concepts and methods

## 1. Psychology and aims

The learning approach emphasises environmental experience and observable behavioural change through classical conditioning, operant conditioning and social learning. Its blank-slate assumption is an approach position, not proof that biology is irrelevant.

**Social learning:** learning by observing others. A **model** demonstrates behaviour; **imitation** reproduces it. This experiment tested whether aggressive behaviour was copied later in a different setting when the adult model was absent, and examined child/model sex and nonaggressive modelling.

## 2. Sample and allocation

Seventy-two Stanford nursery children: 36 boys and 36 girls, aged 37-69 months (mean 52 months). Prior aggression and inhibition informed matched triplets; children were then randomly allocated within triplets.

| Condition | Children |
|---|---|
| Aggressive model | 24: male/female models; boys/girls |
| Nonaggressive model | 24: same subdivisions |
| No-model control | 24 |

Laboratory experiment using matched groups. Factors: model behaviour, model sex and child sex (a natural characteristic). Outcomes: frequencies of specified aggressive and nonaggressive responses.

## 3. Three stages

**Exposure, 10 minutes:** the child did a separate activity. Aggressive adults sat on, punched, mallet-hit, tossed and kicked Bobo, with aggressive phrases; nonaggressive adults quietly used construction toys.
**Frustration:** attractive toys were removed after about two minutes, providing common instigation to aggression.
**Test, 20 minutes:** a fixed array of toys in another room; model absent; behaviour observed through a one-way mirror.

> Novel actions closely matching the model provide stronger evidence of imitation than general rough play with an inflatable doll alone.

# Bandura et al. (1961): Aggression

Lesson 1.3.1 | Evidence and interpretation

## 1. What was measured?

Observers used five-second intervals: 240 units per child. Categories included physical imitation, verbal imitation, partial imitation, nonimitative aggression and nonaggressive behaviour. A second observer scored half the children; agreement coefficients were in the .90s.

## 2. Mean physical imitation

| Children | Aggressive female model | Aggressive male model | No model |
|---|---|---|---|
| Girls | 5.5 | 7.2 | 1.2 |
| Boys | 12.4 | 25.8 | 2.0 |

Nonaggressive-model scores were much lower (0.0-2.5). These are mean scores, not percentages. Boys generally showed greater physical imitation, especially after the male aggressive model.

## 3. Mean verbal imitation

| Children | Aggressive female model | Aggressive male model | No model |
|---|---|---|---|
| Girls | 13.7 | 2.0 | 0.7 |
| Boys | 4.3 | 12.7 | 1.7 |

There was no overall boy/girl difference in verbal imitation. Model-sex patterns depended on the response: same-sex imitation was not a universal rule.

## 4. Main conclusions

Aggressive-model children reproduced more physical and verbal aggression than nonaggressive and control groups. Conditions did not significantly affect every aggressive response, including gun play or general Bobo punching. Quiet-male-model inhibition was clearer than quiet-female-model inhibition.

> Conclusion: children can learn novel aggressive responses observationally and express them with the model absent. The study tested immediate imitation, not lifelong violence or every form of media influence.

Hint: Specify physical imitation, verbal imitation or another category. Do not treat "aggression" as a single undifferentiated score.

# Bandura et al. (1961): Aggression

Lesson 1.3.1 | Evaluation and connections

## 1. Strengths

**Matching and allocation:** baseline aggression was considered before assignment, improving group comparison.
**Standardisation:** exposure time, test-room toy layout and observation intervals supported control and replication.
**Defined coding:** specific actions and high observer agreement improved measurement consistency.

## 2. Limitations

**Observer awareness:** the male model scored all children, knowing the condition when he had been their model; copied actions could also reveal condition.
**Artificiality:** attacking a doll after an adult demonstration may reflect invited play rather than ordinary interpersonal harm.
**Generalisation:** one university nursery, short testing and only one model of each sex limit broader conclusions. Model sex was confounded with the two adults' personal features.

## 3. Child ethics

Children saw aggressive actions/phrases and were deliberately frustrated by toy removal. Immediate imitation shows why exposure and possible later learning require careful welfare evaluation. Young children may find it difficult to resist adult expectations.

Consent, assent, easy withdrawal, distress monitoring and suitable debriefing/remedial care matter. The original paper does not fully describe modern safeguards or establish the absence of lasting effects. Missing detail does not prove that every safeguard was absent.

## 4. Applications and debates

**Application:** adults can consider the examples children observe. The study did not directly test long-term violence prevention.
**Nature/nurture:** behavioural change after exposure supports a learning influence; sex differences do not identify genetic causes.
**Individual/situational:** prior aggression and child sex were considered alongside modelling conditions.
**Children:** direct evidence about childhood learning must be weighed against exposure to harm.

> Avoid: "All boys copied men and all girls copied women." The reported patterns were qualified and differed between physical and verbal outcomes.

Hint: Link an ethical criticism to a specific procedure and explain the possible consequence, rather than writing only "the study was unethical".

# Fagen et al. (2014): Elephant learning

Lesson 1.3.2 | Concepts and methods

## 1. Learning concepts

**Operant conditioning:** consequences change the likelihood of behaviour. **Positive reinforcement** adds a rewarding consequence to increase a response. **Negative reinforcement** removes an aversive event to increase a response; it is not punishment. **Punishment** reduces behaviour.

**Primary reinforcer:** has unlearned reinforcing value, such as food. **Secondary reinforcer:** gains value through association. **Shaping:** reinforce closer approximations. **Chaining:** link learned actions into a sequence.

## 2. Aim and sample

Test whether secondary positive reinforcement could train working elephants to cooperate voluntarily with a trunk wash for tuberculosis testing. This was structured observation of learning, not an experiment comparing training methods.

Five selected female elephants in one Nepalese stable: four juveniles aged 5-7, and one adult estimated in her 50s. Staff selected docile, nonpregnant animals without a current calf. They had traditional training histories, but not this reward method.

## 3. Training procedure

A whistle was paired with chopped banana (a primary reinforcer), becoming a bridge/secondary reinforcer. Trainers captured existing actions, used lures and shaped approximations. Spoken cues were added; small sequences were linked into the full chain.

Tasks: **trunk here** (tip on a palm), **trunk up**, **bucket** (tip inside), **blow** (exhale) and **steady** (hold position). A syringe and fluid were introduced gradually towards 60 mL. Rewards and gradual exposure helped reduce aversion. Progress was tailored to each elephant; mahouts remained nearby without signalling.

## 4. Measures

Records included session time, number of offers/cues and behavioural performance tests, about every five sessions from session 10. Passing required at least 80% success. Completed full-sequence training ended for that elephant.

> An offer is an opportunity, not necessarily success. The trainer judged response quality; not-yet-taught tasks received 0%, and some components of passed chains received a default 90%.

# Fagen et al. (2014): Elephant learning

Lesson 1.3.2 | Evidence and interpretation

## 1. Completion results

| Elephant | Sessions to pass | Mean session minutes |
|---|---|---|
| 1 | 30 | 12.42 |
| 2 | 25 | 10.29 |
| 3 | 35 | 13.27 |
| 4 | 35 | 11.11 |
| 5: adult | Did not complete | Not a completion value |

Four of five elephants, all juveniles, completed within 35 sessions. Sessions averaged about 12 minutes overall; mean total training time across all five animals was 378 minutes. This is feasibility evidence for this group, not a comparison showing superiority over traditional methods.

## 2. Recorded learning progress

Mean recorded task success increased from **39.0% after 10 sessions to 89.3% after 35 sessions**. Successful animals had already stopped training, so only Elephants 3 and 4 remained in the session-35 mean. Scores also included defaults. This is not an identical pre/post test of all five.

| Task | Mean offers before first pass |
|---|---|
| Trunk here | 295.40 |
| Trunk up | 166.20 |
| Bucket | 61.40 |
| Blow into bucket | 54.25 |

## 3. Qualitative observations

For one elephant, replacing saline with water reduced drinking-related problems. The adult did not finish within the available time; calf distraction, a foot abscess and possible physical/vision issues complicate age explanations.

Some elephants completed the practical wash while failing a "steady" test requiring an unnecessary trunk-down position. Assessment criteria can understate functional competence.

Conclusion: reward-based training could establish a useful veterinary sequence in these juveniles. One adult's noncompletion does not show that adult elephants cannot learn.

# Fagen et al. (2014): Elephant learning

Lesson 1.3.2 | Evaluation and connections

## 1. Strengths

**Practical relevance:** the response served a real veterinary sampling purpose in a working stable.
**Detailed repeated records:** times, offers and performance tests documented learning rather than only final success.
**Adaptation:** shaping and gradual exposure allowed training to follow the individual learner's progress.

## 2. Limitations

**No comparison group:** superiority or welfare improvement relative to another method was not established.
**Measurement:** trainer judgements, default scores, some estimated times and changing membership of averages complicate interpretation.
**Generalisability:** five selected females in one stable, with only one adult, cannot represent all elephants or ages.

## 3. Animal welfare

The study used positive reinforcement during sessions without adding punishment. Elephants could turn or move away, but existing chains restricted their freedom. Training occurred in familiar stalls without changing normal husbandry; familiar conditions were not necessarily ideal.

Normal management restricted water mainly to grazing periods; water was also offered during training. The study did not impose extra deprivation to make rewards effective. Existing care, discomfort and the adult's health still require evaluation.

Evaluate replacement, species, justified numbers, housing, rewards/deprivation and pain/distress. Potential veterinary benefit is not the same as a directly measured improvement in welfare.

## 4. Applications and debates

**Application:** reward-based cooperation with husbandry and veterinary procedures.
**Nurture:** shaping/chaining illustrates learned behaviour, interacting with health, age and prior experience.
**Individual/situational:** differences between learners and training conditions were not separately isolated.
**Animals:** research can benefit the animals themselves, while still needing welfare safeguards.

> Remember: reinforcement increases behaviour; punishment decreases it. Positive/negative describe adding/removing consequences, not good/bad treatment.

Hint: State who remains in an average and how the score was assigned before describing a change as learning.

# Saavedra and Silverman (2002): Button phobia

Lesson 1.3.3 | Concepts and methods

## 1. Psychology and background

**Specific phobia:** persistent fear/avoidance of a particular object or situation, interfering with life. **Fear** concerns perceived threat; **disgust** is revulsion. Both can contribute to avoidance.

**Classical conditioning:** associations change the response to a stimulus. **Expectancy learning:** the object signals a feared negative outcome. **Evaluative learning:** the object itself becomes negatively evaluated, without requiring an expectation of objective danger.

**Operant links:** escaping buttons can remove distress and negatively reinforce avoidance. Rewarding contact can positively reinforce approach. Improved approach does not automatically mean disgust has disappeared.

## 2. Aim and case

Examine the role of disgust and evaluative learning in one child's button phobia and treatment. Longitudinal clinical case study of a nine-year-old Hispanic American boy referred with his mother to a university child-anxiety programme in Miami.

Avoidance had lasted about four years. At age five, a bowl of buttons reportedly spilled over him during a school art task. He later avoided buttoned clothing and contact, affecting uniform use and concentration. This retrospective history suggests a possible learning event, not a demonstrated cause.

## 3. Assessment and first treatment phase

Child/parent anxiety interviews, observed approach, a ranked distress hierarchy and the **Feelings Thermometer (0-8)** supplied different data. Sessions included about 30 minutes with the child and 20 with the child/mother.

Gradual real-life exposure progressed from easier to harder button tasks; his mother reinforced successful completion. After early behavioural improvement, persistent disgust prompted further imagery and cognitive work.

> A case study is an in-depth investigation of one participant. It is not a controlled experiment with a randomly assigned treatment and control group.

# Saavedra and Silverman (2002): Button phobia

Lesson 1.3.3 | Evidence and interpretation

## 1. Initial distress hierarchy

| Example stimulus/task | Distress / 8 |
|---|---|
| Large denim-jean buttons | 2 |
| Large coloured plastic buttons | 4 |
| Hugging mother wearing large plastic buttons | 5 |
| Medium clear plastic buttons | 6 |
| Small clear plastic buttons | 8 |

## 2. Approach improved before distress did

By session four, all tasks in the hierarchy had been completed. However, ratings rose between sessions two and four, sometimes exceeding initial distress. The child could approach buttons while still evaluating them negatively.

Further questioning revealed revulsion and unpleasant smell associations. The next seven sessions incorporated progressively harder imagery, such as buttons falling on him, alongside cognitive strategies targeting negative evaluations.

## 3. Imagery ratings

| Imagined event | Before | Midway | After |
|---|---|---|---|
| Hundreds of buttons falling on his body | 8 | 5 | 3 |
| Hugging mother in a shirt full of buttons | 7 | 4 | 3 |

These are one child's ratings during two exposures, not group means or separate experimental conditions.

## 4. Outcome and conclusion

After treatment, distress was minimal and the boy no longer met the study's DSM-IV specific-phobia criteria. He wore his school shirt with clear plastic buttons daily. Gains were maintained at six- and twelve-month follow-ups.

Conclusion: disgust was important in this case. Disgust-focused work accompanied improvement, but the combined, sequential treatment does not isolate one effective mechanism.

# Saavedra and Silverman (2002): Button phobia

Lesson 1.3.3 | Evaluation and connections

## 1. Strengths

**Depth:** interviews and a detailed history illuminated an unusual phobia.
**Multiple measures:** observation and subjective ratings revealed that approach and distress did not initially improve together.
**Longitudinal follow-up:** six-/twelve-month assessments checked maintenance beyond immediate treatment.

## 2. Limitations

**One selected case:** age, background and unusual symptoms restrict generalisation.
**No control:** time, expectations, family involvement and earlier exposure could also affect later change.
**Combined treatment:** reinforcement, in-vivo exposure, imagery and cognitive work were not independently compared.
**Retrospective history:** remembering the onset years later may involve reconstruction.

## 3. Child ethics

The boy and mother gave informed consent for assessment/treatment. The mother later provided written permission for the report and publication after follow-up. The child was not named; detailed clinical information still required confidentiality.

Exposure deliberately brings contact with distressing stimuli. Initial increases in ratings show why visible compliance cannot be the only welfare measure. Monitor distress, maintain assent/withdrawal and adapt treatment carefully. A positive eventual outcome does not erase the need to assess burdens.

## 4. Applications and debates

**Application:** assess emotional experience as well as observed avoidance; disgust may matter even when approach improves.
**Nature/nurture:** the learning account and changing responses support experience-related influences, without excluding biological predispositions.
**Individual/situational:** treatment was adapted to one child's responses and family context.
**Children:** direct clinical research can inform age-appropriate help, but consent and privacy need special care.

> Remember: reduced avoidance, reduced disgust and absence of a diagnosis are different outcomes. Do not use them interchangeably.

Hint: Separate evidence about how a phobia began from evidence about what happened during treatment. Neither automatically identifies a single cause.

# Milgram (1963): Obedience

Lesson 1.4.1 | Concepts and methods

## 1. Psychology and aim

The social approach explains behaviour, thoughts and emotions through social contexts and the actual, implied or imagined presence of others. **Obedience** is following instructions from a perceived authority. **Social pressure** can create conflict between instructions and personal conscience.

The study investigated how far people would obey commands to administer apparently harmful shocks. It challenged predictions that destructive obedience would be confined to very few people.

## 2. Sample and laboratory situation

Forty men aged 20-50 from New Haven and nearby communities volunteered through newspaper adverts/direct mail. Occupations and education varied. They received $4.50 simply for attending and could retain it regardless of what happened.

At Yale, a stern experimenter in a grey technician's coat presented a memory-and-learning cover story. A friendly learner was an accomplice. A rigged draw ensured the real participant became the teacher; the learner was strapped into a chair with electrodes.

## 3. Task and apparatus

The teacher read word pairs and tested matching words. Preset learner errors required increasing shock levels: 30 switches, 15-450 V in 15 V increments, with escalating danger labels. The participant received a real 45 V sample shock; the learner received no actual shocks.

**This exact condition had no learner voice feedback.** The learner pounded on the wall at 300 V and again at 315 V, then was silent. Missing answers were counted as errors and the teacher was instructed to continue.

## 4. Method

Controlled laboratory procedure with observation and interviews. The main study had **no manipulated IV or comparison condition**. Maximum shock delivered was the measure of obedience; visible tension and interview responses added evidence.

> Do not import spoken pain protests from other Milgram variations into this core study. The specified main condition used wall pounding and silence.

# Milgram (1963): Obedience

Lesson 1.4.1 | Evidence and interpretation

## 1. Prods and stopping

Standard prods progressed from a request to continue, to the experiment's requirement, absolute necessity and finally a statement denying choice. Special responses addressed concerns about permanent tissue damage. Persistent refusal ended the procedure.

## 2. Quantitative results

| Outcome | Result |
|---|---|
| Reached at least 300 V | 40 / 40 |
| Reached 450 V: fully obedient | 26 / 40 = 65% |
| Refused before 450 V | 14 / 40 = 35% |

Maximum settings among the 14 refusers: 300 V (5 men), 315 V (4), 330 V (2), 345 V (1), 360 V (1), 375 V (1).

Fourteen psychology students had predicted, on average, that only 1.2% would reach the top level. Participants rated the final shocks as very painful: mean 13.42 on a 14-point scale; mode 14.

## 3. Emotional observations

Sweating, trembling, stuttering, groaning and lip-biting showed strain. Fourteen displayed nervous laughter/smiling; three severe uncontrollable episodes were described. Some participants remained relatively calm. Continuing did not necessarily mean approving of, or enjoying, harm.

## 4. Interpretation

Yale's legitimacy, the scientific role, commitment and reassurance may help explain obedience. These influences were not separately manipulated in the original condition. Fourteen refusals and varied distress also show individual variation.

Conclusion: authority pressure could produce unexpectedly high destructive obedience and substantial conflict. The findings do not imply that all people always obey authority.

# Milgram (1963): Obedience

Lesson 1.4.1 | Evaluation and connections

## 1. Strengths

**Control:** preset learner responses and ordered prods supported a consistent procedure.
**Operationalisation:** maximum shock level defined obedience clearly and quantitatively.
**Multiple data:** behaviour, tension observations and interviews helped interpret the psychological conflict.

## 2. Limitations

**Sample:** 40 male volunteers from one US area do not represent every sex, culture or setting.
**Artificial task:** laboratory switches and a research cover story differ from many real authority situations; expectations could affect behaviour.
**No isolated causes:** the original study did not separately test Yale, payment, the coat or personality. Do not present these explanations as experimentally demonstrated causes here.

## 3. Ethics

**Deception/consent:** the real purpose, rigged allocation, learner and shocks were concealed or misrepresented.
**Harm:** believing one was harming another person caused marked distress even though the learner was safe.
**Withdrawal:** repeated prods, especially denial of choice, could undermine freedom to stop.

The report describes interviews, reassurance and reconciliation with the learner. These efforts matter, but debriefing does not automatically undo distress or fully restore prior informed choice.

## 4. Debates and application

**Situational:** a legitimate-seeming authority context accompanied high obedience. **Individual:** some refused and emotional responses differed; the causes of these differences were not isolated.
**Application:** findings can inform discussion of questioning harmful orders and routes to raise concerns. Training effectiveness was not tested.
**Nature/nurture:** the study did not separate inheritance from lifelong experience.

> Common mistake: calling this main condition a two-group experiment with an IV. The official core study specifies no IV in the main condition.

Hint: A situational explanation needs a specific social feature and a link to behaviour, while acknowledging whether that feature was actually manipulated.

# Perry et al. (2015): Personal space

Lesson 1.4.2 | Concepts and methods

## 1. Psychology and aim

**Personal space/interpersonal distance:** preferred spacing between people. **Empathy:** responses to others' experiences. **Oxytocin (OT)** is a hormone involved in social processes. The social-salience account proposes enhanced processing/importance of social cues, not universal friendliness.

Test whether OT affects preferred interpersonal distance differently for people with higher versus lower empathy. Predictions: closer distances with OT for higher empathy, greater distances for lower empathy.

## 2. Participants and design

Initially 54 male Haifa undergraduates, aged 19-32 (mean 25.29), received course credit/payment. Extreme IRI scores defined analysed empathy groups: **20 higher (at least 40), 20 lower (at most 33)**. Empathy was measured, not manipulated.

Mixed design: treatment within participants; empathy between groups. Participants attended twice, one week apart, at the same day/time, receiving 24 IU intranasal OT or saline placebo. Double blindness reduced expectations; task order was counterbalanced. A 45-minute wait preceded tasks.

## 3. Measures and tasks

The Interpersonal Reactivity Index (IRI) has 28 items across perspective-taking, empathic concern, personal distress and fantasy. It was completed online at the first appointment after administration.

**Experiment 1:** animated Comfortable Interpersonal Distance task. A friend, stranger, authority figure or ball approached along one of eight routes. Pressing the spacebar stopped approach at a comfortable point.

**Experiment 2:** choose between room pictures for an expected later personal conversation. Pairs varied chair distance/angle or table-plant distance/angle; 168 presentations. No actual conversation followed.

> CID scores are percentages of the route remaining: larger means farther away. Room-choice chair distances are centimetres. Do not mix the two units.

# Perry et al. (2015): Personal space

Lesson 1.4.2 | Evidence and interpretation

## 1. CID: stimulus mattered

| Approaching stimulus | Mean route remaining (%) |
|---|---|
| Stranger | 39.82 |
| Authority | 34.12 |
| Ball | 20.20 |
| Friend | 12.46 |

These means combine groups/treatments. Stranger distances were greatest; friend/ball did not differ reliably as a pair.

## 2. CID: treatment and empathy

| Group | Placebo (%) | OT (%) |
|---|---|---|
| Higher empathy | 26.11 | 23.29 |
| Lower empathy | 26.98 | 30.20 |

The means moved in predicted opposite directions, but the simple empathy-by-treatment interaction was not conventionally significant. A supported more complex interaction also involved stimulus type. Separate overall group drug effects were not significant.

## 3. Room choice: preferred chair distance

| Group | Placebo (cm) | OT (cm) |
|---|---|---|
| Higher empathy | 80.58 | 78.07 |
| Lower empathy | 78.33 | 80.14 |

One higher-empathy participant had technical problems, so Experiment 2 analysed **39 people**. The chair-distance interaction was supported; table-plant preferences did not show it. Neither empathy group alone showed a conventionally significant treatment difference.

Chair distances ranged 20-140 cm in 20 cm steps; table-plant distances 200-320 cm. Angles were 0°, 45° or 90°. Placebo task scores correlated modestly: r = +.278.

Conclusion: OT-related preferences depended on empathy and the social task/stimulus. Do not simplify to "OT significantly made every high-empathy person closer" or "OT makes everyone sociable".

# Perry et al. (2015): Personal space

Lesson 1.4.2 | Evaluation and connections

## 1. Strengths

**Placebo and double blindness:** reduced treatment expectations and experimenter cues.
**Within-person treatment comparison:** each participant served as his own comparison, reducing stable individual differences.
**Task controls:** standardised stimuli, counterbalanced task order and a non-interpersonal furniture condition improved interpretation.

## 2. Limitations

**Restricted sample:** male undergraduates and extreme IRI groups limit transfer to other people or the middle of the empathy range.
**Indirect behaviour:** computer figures and pictured chairs do not reproduce live encounters fully.
**Complex evidence:** modest samples and uncertain simple effects require careful interpretation. Significant interactions are not the same as significant separate drug effects in each group.

## 3. Ethics

Written consent, screening and institutional approvals were reported. No significant physical, local or systemic side effects were observed. Participants expected a later personal conversation that did not occur, involving deception; the study's purpose was explained after both visits.

Biological administration requires screening and monitoring. Questionnaire and personal-preference data require confidentiality. An absence of reported side effects does not replace these safeguards.

## 4. Debates and application

**Person and situation:** measured empathy, changed treatment and social stimulus jointly matter. This is a clear interaction example.
**Nature/nurture:** a biological treatment is not a test of genetic inheritance; the origins of empathy were not established.
**Application:** consider individual/context differences in social-space research. The study did not test a treatment or establish one ideal seating distance.

> Remember the sample sequence: 54 recruited; 40 in extreme-empathy comparisons; 39 in the room-choice analysis. Keep the denominators attached to the result.

Hint: An interaction means the relationship between one factor and the outcome depends on another factor. State the factors and the evidence, not just the word "interaction".

# Piliavin et al. (1969): Subway Samaritans

Lesson 1.4.3 | Concepts and methods

## 1. Psychology and aims

**Bystander apathy:** failing to help someone in need. **Diffusion of responsibility:** each witness may feel less personal responsibility when others could act. A visible emergency with limited escape may differ from earlier laboratory emergencies that were only heard.

Investigate effects of victim condition/race, a helping model and observed group size on helping frequency and speed in a real setting.

## 2. Participants and setting

About 4,450 unsolicited New York subway passengers across 103 staged collapses, weekdays 11 a.m.-3 p.m., April-June 1968. Express journeys between 59th and 125th Streets lasted about 7.5 minutes. Cars averaged 43 passengers, about 8.5 in the critical area.

Four student teams each had a male victim, male model and two unobtrusive female observers. Victims were three White men and one Black man, aged 26-35; White models were 24-29.

## 3. Field experiment and procedure

Victim condition: apparently ill with a cane (65 trials), or smelling of alcohol with a bottle in a paper bag (38 trials). Race varied with actor; group size was observed, not set. DVs included help, latency, helper characteristics, movement and comments.

About 70 seconds after departure, the victim collapsed and remained on his back until helped. Clothing/position/collapse were kept similar. Models could help from the critical/adjacent area, early (about 70 seconds) or late (about 150 seconds after collapse), or have no scheduled intervention.

Observers recorded passengers, first response time, helpers, movement and remarks. If still needed, the model assisted before the next stop. Conditions were unequal and not perfectly alternated; a strike interrupted the study.

A trial receiving help, the number of helpers, spontaneous help and further help after a model are different measures.

# Piliavin et al. (1969): Subway Samaritans

Lesson 1.4.3 | Evidence and interpretation

## 1. Spontaneous help before the model acted

| Victim condition | Trials with help | Proportion |
|---|---|---|
| Cane | 62 / 65 | About 95% |
| Drunk | 19 / 38 | 50% |

Median response latency on **non-model trials**: cane 5 seconds; drunk 109 seconds. Nonresponses were coded as 400 seconds. These medians do not describe every model condition.

## 2. Helpers and modelling

About 90% of spontaneous first helpers were men, compared with about 60% of critical-area passengers. More than one person helped on about 60% of the 81 spontaneous-help trials. Same-race helping was more apparent with drunk victims, but that specific trend was not significant.

In the small drunk-condition model comparison, further help followed 9/9 early interventions versus 3/7 late interventions. Model location showed no reliable effect; few cane model trials were available.

## 3. Other responses and group size

Thirty-four passengers left the critical area across 21 trials. Moving away and comments were more common with delay and in drunk trials. Remarks concerned discomfort, uncertainty or perceived ability to lift the victim.

The expected slowing of help with larger groups did not appear here. Visible need and restricted escape may matter. Group size was not experimentally allocated; the finding does not disprove diffusion in all situations.

## 4. Arousal and cost-reward explanation

An emergency may create unpleasant arousal. Helping, obtaining help, moving away or reinterpreting the victim may reduce it. Helping can cost effort, embarrassment or risk but bring approval; not helping can preserve one's activity but bring guilt or criticism.

Conclusion: victim cues and context related to helping. The cost-reward account is a proposed explanation, not a set of mechanisms separately demonstrated by this experiment.

# Piliavin et al. (1969): Subway Samaritans

Lesson 1.4.3 | Evaluation and connections

## 1. Strengths

**Ecological validity:** passengers encountered an apparently genuine emergency during ordinary travel.
**Repeated trials:** comparable staged collapses supported condition comparisons.
**Mixed evidence:** counts/times were complemented by movement and comments, enriching interpretation.

## 2. Limitations

**Confounds:** one Black versus three White victims confounded race with actor identity. Unequal cane/drunk trials and imperfect alternation weakened balance.
**Uncontrolled groups:** passenger composition varied; some could have appeared on more than one trial. Observed group size does not establish its causal effect.
**Generalisation:** a daytime New York express train with limited exit differs from an open street, remote emergency or other culture/time.

## 3. Ethics

Passengers did not give prior informed consent and were deceived into seeing a staged collapse. They might feel distress or attempt physical assistance. The moving train restricted withdrawal; the report does not describe full passenger debriefing.

Realistic field evidence has value, but realism does not cancel the obligation to assess welfare, consent, privacy and exit options. Public observation and a staged emergency pose different ethical burdens.

## 4. Debates and applications

**Individual/situational:** helper characteristics may matter alongside victim cues, model behaviour and the train setting. A victim's appearance is part of the helper's social situation.
**Application:** findings can inform discussion of visible need and perceived costs, but do not establish how every emergency should be handled.
**Nature/nurture:** more male first helpers does not establish an innate sex difference in helpfulness.

> Common error: "62 people helped cane victims." The 62 counts cane trials receiving spontaneous help; there could be multiple helpers in a trial.

Hint: Attach each statistic to its condition, time window and unit: trials, people, seconds or proportions.

# Application of psychology to everyday life

Lesson 1.5.1 | Concepts and methods

## 1. What is an application?

An application uses psychological knowledge to inform a practical decision, intervention or design. It needs a clear connection between a finding, a proposed action and an intended benefit. A plausible suggestion is not the same as an intervention demonstrated to work.

Hint: Use finding → who changes what → intended benefit → evidence needed to check that benefit.

## 2. From evidence to a usable proposal

**Finding:** identify the actual behaviour measured, participants and conditions.
**Mechanism:** explain why the finding makes the proposed action plausible, distinguishing a tested process from speculation.
**Action:** say who would do what, rather than simply stating that the study is useful.
**Outcome:** define the practical improvement, such as retained information or safer animal cooperation.

## 3. Three important distinctions

**Research instrument versus treatment:** the Eyes Test measures a component of social cognition; this study did not test therapy.
**Biological measurement versus functional benefit:** brain structural change after MBSR does not establish better memory.
**Possible use versus tested use:** Milgram can inform authority training, but did not test whether training prevents harmful obedience.

## 4. Applications differ in closeness to the evidence

Fagen trained the veterinary sequence itself, providing direct feasibility evidence for that activity. Saavedra and Silverman followed an actual treatment, but only in one child. A recommendation about classroom doodling extends beyond Andrade's short adult listening task.

The stronger the change in target population, setting, task or outcome, the more evidence transfer requires. A controlled experiment may have strong internal validity yet still offer limited evidence about an everyday intervention.

## 5. Avoid stereotypes

Group averages do not prescribe what every individual needs. Monkey toy preferences cannot determine a child's toys; personal-space means cannot establish an ideal distance for every person. Applications should respect individual variation and avoid unfair labelling.

# Application of psychology to everyday life

Lesson 1.5.1 | Evidence and interpretation

## 1. Biological and cognitive applications

| Study | Possible use and boundary |
|---|---|
| Dement and Kleitman | Objective sleep/dream-recall investigation; not proof of a universal sleep treatment. |
| Hassett | Investigate activity preferences and socialisation; not rules about children's toys. |
| Hölzel | Study training-related plasticity; clinical and functional benefits need separate tests. |
| Andrade | Try low-demand activity during dull listening; not all drawing or multitasking. |
| Baron-Cohen | Research social sensitivity; not stand-alone diagnosis or complete empathy assessment. |
| Pozzulo | Make line-up rejection clear and acceptable; real police procedures need direct evaluation. |

## 2. Learning and social applications

| Study | Possible use and boundary |
|---|---|
| Bandura | Consider models children observe; no direct proof of lasting violence prevention. |
| Fagen | Reward-based veterinary cooperation; no comparison proving superior welfare. |
| Saavedra and Silverman | Assess disgust as well as avoidance; one combined-treatment case limits generalisation. |
| Milgram | Discuss harmful authority pressure and speaking up; workplace training was not tested. |
| Perry | Consider individual/context differences in spacing; no universal OT or seating prescription. |
| Piliavin | Consider visible need and perceived costs; no universal crowd or emergency rule. |

Each proposal must remain attached to its evidence. For example, Andrade's combined adjusted recall was 7.5 versus 5.8; the tested activity was shading supplied shapes during a monotonous message, not unrestricted drawing in a complex lesson.

# Application of psychology to everyday life

Lesson 1.5.1 | Evaluation and connections

## 1. Evaluating validity and generalisation

**Construct validity:** does the outcome measure the intended real-life benefit? Liking an activity is not evidence of better retention.
**Population:** do adults, children, clinical cases or selected animals match the proposed users?
**Task and setting:** does a laboratory response resemble the everyday problem?
**Time:** was the outcome immediate or maintained over months?

## 2. Evaluating feasibility and ethics

Consider time, training, resources and accessibility. A useful intervention may be impractical at scale or benefit only some users. Weigh likely benefits against distraction, distress, privacy costs or unfair treatment. Biological or diagnostic findings require careful, respectful interpretation.

Animal-care applications need welfare checks as well as successful task completion. Rewards do not automatically resolve housing, restricted movement or health concerns. A human application must protect voluntary choice and confidential data.

## 3. How to test a proposed application

Define the target population and a relevant outcome. Compare the proposed approach with normal practice or a suitable alternative; use allocation and controls where possible. Measure benefits, unintended effects and persistence, rather than relying only on impressions.

For a doodling proposal, compare clearly defined listening activities, measure later retained information and check distraction. Extending to children requires age-appropriate procedures and consent/assent, rather than assuming an adult result transfers unchanged.

## 4. Writing an application answer

A developed answer links a named study detail to a realistic action and explains why it might help. If evaluation is required, identify a specific difference between research and proposed use and explain its consequence.

> Hint: Replace "this improves education" with a precise user, action and outcome. Then identify what the study did and did not demonstrate.

Example reasoning: stronger recall during simple shading makes a low-demand listening aid plausible. However, complex drawing could compete for attention, so the result cannot justify all classroom multitasking.

# Individual and situational explanations

Lesson 1.5.2 | Concepts and methods

## 1. Individual explanations

An individual explanation focuses on the person: abilities, personality, biological characteristics, beliefs or prior experiences. It can explain why people differ in the same broad setting. Individual does not mean inherited, permanent or impossible to change.

Examples include empathy scores in Perry, prior aggression in Bandura and one child's button-related disgust. Learned experiences can become individual characteristics.

## 2. Situational explanations

A situational explanation focuses on circumstances: social roles, other people, instructions, rewards, available choices and task conditions. It can explain why one person behaves differently across contexts. A situation includes implied authority or an expected conversation, not only a physical place.

| Individual focus | Situational focus |
| --- | --- |
| Empathy or beliefs | Who approaches; social relationship |
| Age, ability, prior experience | Instructions, task demands, cues |
| Baseline aggression | Adult modelling condition |
| A learned fear | Current exposure and rewards |

## 3. Not the same as nature versus nurture

Nature/nurture asks about innate/inherited influences and environmental experience. Individual/situational asks where an explanation focuses. A learned fear is individual but experience-related. An administered hormone is biological yet part of a changed current condition.

## 4. Whose behaviour is being explained?

For the subway helper, the victim's cane or apparent drunkenness is a cue in the helper's social situation. The helper's own perceived lifting ability is an individual factor. Naming the person whose behaviour is explained prevents inconsistent classification.

Hint: Identify the behaviour, the person and the proposed influence before labelling an explanation individual or situational.

# Individual and situational explanations

Lesson 1.5.2 | Evidence and interpretation

## 1. Social studies

| Study | Evidence and interpretation |
|---|---|
| Milgram | 26/40 reached 450 V in an authority setting; 14 refused. The setting mattered, but neither personality nor individual authority cues were isolated. |
| Piliavin | 62/65 cane trials versus 19/38 drunk trials received spontaneous help. Victim cues and the train context matter; helper differences and varying passengers also matter. |
| Perry | Measured empathy combined with OT/placebo and task/stimulus differences. Conditional results support considering person and situation together. |

## 2. Cognitive and learning studies

| Study | Individual and situational factors |
|---|---|
| Andrade | Individual attention may vary; shading and a monotonous message changed task circumstances. |
| Baron-Cohen | Natural diagnostic/cognitive differences; static eyes and supplied words shaped performance. |
| Pozzulo | Age-related cognition; target type, presence and adult-led expectations. |
| Bandura | Prior aggression and child sex; changed adult modelling conditions. |
| Fagen | Age, health and history; reinforcement, cues and distractions. |
| Saavedra and Silverman | One child's responses; changed exposure and family reinforcement. |

## 3. Biological examples

Dement and Kleitman examined sleep physiology with individual rhythm/recall differences in a controlled laboratory. Hassett combined sex/preferences with group access and rank. Hölzel combined motivated self-selection with an experience-based course. Biological research is not automatically a personality explanation.

# Individual and situational explanations

Lesson 1.5.2 | Evaluation and connections

## 1. Strengths of individual explanations

They account for different responses within similar settings and can guide personalised support. Perry illustrates why an average treatment account may hide different directions of response. Saavedra and Silverman show the value of assessing the specific person's feelings rather than only visible behaviour.

## 2. Risks of individual explanations alone

They can overlook authority pressure, task demands or unequal opportunities. Calling obedient participants simply "bad people" ignores Milgram's social setting and distress. Group differences also do not establish the cause of individual differences.

## 3. Strengths and risks of situational explanations

Situational accounts identify conditions that could potentially be changed, such as modelling or instructions. Controlled changes can support causal interpretation when design and measures are sound. However, a situation-only account may overlook variation in abilities, beliefs or prior experience.

Milgram's original condition did not separately manipulate Yale, clothing or payment. Piliavin's group size was observed. A named situational feature is not automatically an experimentally established cause.

## 4. Interaction

An interaction means a factor's relationship with behaviour depends on another factor. In Perry, treatment-related distance patterns depended on empathy and the task/stimulus. An interaction account must show how the combination matters; merely listing person and environment is insufficient.

## 5. Build a balanced explanation

Identify a study-specific result; link it to the proposed factor; distinguish manipulated conditions from natural group differences or correlations. Then explain what remains unresolved. Do not claim that one study has removed every competing explanation.

> Hint: Use "the result supports..." with a concrete link. Avoid "proves personality" or "proves the situation" when the proposed cause was not isolated.

Useful judgement: both person and context can matter, but their relative contributions require evidence. A balanced answer is precise about what was measured, changed and left uncontrolled.

# Nature versus nurture

Lesson 1.5.3 | Concepts and methods

## 1. Nature

Nature refers to innate or inherited influences, including genetic contributions and biological predispositions. Brain systems and hormones may express such influences. However, observing a biological difference is not automatically evidence of inheritance: experience can affect biological systems too.

## 2. Nurture

Nurture refers to environmental experience, including socialisation, education, models, reinforcement, associations and life events. Learning can change behaviour and may also be associated with brain change. Nurture is not limited to deliberate teaching.

| Nature emphasis | Nurture emphasis |
| --- | --- |
| What inherited predisposition may contribute? | What experience or learning may contribute? |
| What biological constraints or biases may matter? | What consequences, models or opportunities may matter? |
| What evidence separates inheritance from experience? | What changed following environmental experience? |

## 3. Interaction

Biological characteristics can influence what captures attention or is rewarding; experience then changes opportunities, behaviour and development. Experience can also alter biological structure. Nature and nurture need not be competing complete explanations.

Hassett proposed biologically influenced preferences sculpted by social experience. Hölzel linked an experience-based programme to structural change. Together, these examples challenge a simple opposition between biology and learning.

## 4. Keep the debates distinct

An individual characteristic may be learned, while a current situational manipulation can involve a biological substance. Nature/nurture concerns origins and development; individual/situational concerns the focus of an explanation.

Hint: Ask whether a study measured physiology, compared natural groups, manipulated experience or directly investigated inheritance. These are different forms of evidence.

# Nature versus nurture

Lesson 1.5.3 | Evidence and interpretation

## 1. Biological studies

**Hassett:** male monkeys preferred wheeled toys without explicit human gendered toy teaching, suggesting a possible biological predisposition. Prenatal hormones were not manipulated here; monkey social experience, rank and access remained relevant.

**Hölzel:** eight weeks of MBSR were associated with changes in regional gray-matter concentration. This supports experience-related plasticity, but self-selection, inactive control and multiple programme components limit causal claims. It did not quantify genetic contribution.

**Dement and Kleitman:** sleep physiology was linked with dream recall. This supports a biological account of sleep but did not compare inherited influences with learning histories.

## 2. Learning studies

| Study | Evidence relevant to nurture | What remains unresolved |
|---|---|---|
| Bandura | Different modelling exposure changed later imitation. | Origins of every child/sex difference; long-term effects. |
| Fagen | Rewards, shaping and chaining established a new sequence. | Inherited capacity and other factors; no control method. |
| Saavedra and Silverman | Responses changed during exposure and later imagery/cognitive work. | Initial cause and the effective treatment component. |

## 3. Other studies

Perry manipulated a hormone, not genes; biological treatment is not genetic proof. Baron-Cohen's group differences did not establish inherited causes. Pozzulo's age differences may combine maturation and experience. Andrade changed a task, not genetic attention differences.

Milgram and Piliavin highlight social environments associated with behaviour, but did not partition inherited characteristics and lifelong experience. Use them for qualified social influences rather than an exclusive nurture verdict.

# Nature versus nurture

Lesson 1.5.3 | Evaluation and connections

## 1. Evaluating a nature emphasis

**Contribution:** draws attention to biological predispositions, variation and constraints that a purely social account might miss.
**Risk:** treating a biological association as fixed or genetic can overlook learning, context and change. Sex differences alone cannot identify a hormonal or inherited cause.

## 2. Evaluating a nurture emphasis

**Contribution:** identifies experiences and conditions that might be changed, including models and reinforcement.
**Risk:** learning evidence does not establish that all biology is irrelevant. Small samples, no comparison group or combined treatments can make the source of change uncertain.

## 3. Evaluating interaction

Interaction can explain why the same experience affects learners differently and why experience leaves biological traces. It is more informative than a forced either/or judgement, but needs evidence about how influences combine. Simply saying "both matter" does not explain a result.

## 4. Common reasoning errors

**"Brain measure = nature":** Hölzel measured change after experience.
**"Hormone administration = inheritance":** Perry did not manipulate genes.
**"Sex difference = innate":** social histories and other characteristics can differ.
**"Age difference = maturation only":** experience and testing circumstances also change.
**"Treatment worked = original cause known":** reducing symptoms does not identify how they began.

## 5. Writing with evidence

Define and label nature and nurture explicitly. Choose a precise result that supports the relevant influence, then state the methodological boundary. A manipulated experience, natural group comparison and correlation permit different strengths of conclusion.

> Hint: Use the sequence: define the side → identify a study detail → explain the link → qualify what the design cannot establish.

Example: imitation after changed model exposure supports environmental learning. It does not show that all aggression is learned, nor explain the origins of every child difference.

# Use of children in psychological research

Lesson 1.5.4 | Concepts and methods

## 1. Why study children directly?

Child research can investigate development when it occurs, compare ages, improve understanding of learning and eyewitness decisions, and address distress affecting daily life. Adults' memories or animal findings cannot substitute for every question about children's current behaviour.

| Core study | Child participants | Main value |
|---|---|---|
| Bandura | 72; 37-69 months | Imitation after adult modelling. |
| Pozzulo | 59; ages 4-7 | Child/adult line-up comparison. |
| Saavedra and Silverman | One nine-year-old boy | Detailed clinical assessment and follow-up. |

## 2. Comprehension and measurement

Language, attention and developmental understanding affect responses. Instructions, questions and rating scales must suit the child. A wrong answer may reflect misunderstanding rather than poor memory or the intended psychological process.

Pozzulo used familiar cartoons, clear instructions and a demonstrated silhouette. Saavedra used a simple distress scale alongside observations. Multiple measures can reveal differences that visible compliance alone hides.

## 3. Social pressure

Children may try to please adults, assume a correct answer must be supplied or comply with authority. Task demands can therefore affect validity as well as ethics. Pozzulo's absent-line-up errors were consistent with social influences, but pressure was not separately manipulated.

## 4. Developmental variation

Children are not one uniform group. A four-year-old and a teenager differ in language, experience and understanding. Age differences do not isolate maturation from learning. A single nursery, private-school sample or clinical case restricts wider generalisation.

A child-friendly task may protect welfare and improve understanding, while reducing similarity to stressful real-world events. Evaluate both effects.

# Use of children in psychological research

Lesson 1.5.4 | Evidence and interpretation

## 1. Human ethical principles applied to children

| Guideline | What it requires in practice |
|---|---|
| Minimise harm; maximise benefit | Consider fear, frustration, shame and possible later learning, not only physical injury. Monitor and adapt/stop. |
| Valid informed consent | Suitable parent/guardian permission and information the child can understand; check willing assent. |
| Right to withdraw | Make stopping clear and practical; notice reluctance, not only a formal verbal request. |
| Avoid deception | Do not assume a child can evaluate misleading purposes or hidden expectations. |
| Privacy | Avoid unnecessary intrusion into personal experiences or observations. |
| Confidentiality | Protect identifiable responses, clinical details and recordings. |
| Debriefing | Explain in suitable language, correct misunderstandings and check welfare. |

## 2. Consent is an ongoing process

A parent's signature does not remove the child's right to disagree or stop. Silence, compliance or accepting a reward does not establish freely given assent. School authority, praise or incentives should not make refusal feel unsafe.

## 3. Scientific and ethical quality overlap

Distress or pressure can alter behaviour and weaken measurement. Comfortable participation and understandable tasks can improve evidence. However, welfare safeguards are needed even when researchers think the data would be useful.

Hint: Separate a documented safeguard, a potential risk and an unreported detail. Missing reporting does not prove that every safeguard was absent.

# Use of children in psychological research

Lesson 1.5.4 | Evaluation and connections

## 1. Bandura: knowledge and concern

Direct child participation showed novel imitation after modelling. Children also observed aggression and experienced deliberate frustration. Possible learning beyond the session and later welfare require attention; the original report does not establish that lasting effects were absent.

Modern consent, assent, withdrawal and remedial/debriefing arrangements are not fully detailed. Do not invent a reported procedure to remove learned aggression.

## 2. Pozzulo: documented safeguards

Parents gave written consent. Children were told they could change their minds without trouble. Craft activities built rapport; fatigue, anxiety and stress were monitored. Everyday clips avoided a real traumatic crime; small gifts followed participation.

This supported comfort and task understanding. The same benign clips and short delay limit transfer to stressful eyewitness events, while cartoons/humans differed in more than familiarity.

## 3. Saavedra and Silverman: benefit and burden

The boy and mother consented to assessment/treatment; the mother later gave written publication permission. Distress declined and gains persisted at six/twelve months. Nevertheless, initial ratings rose despite improved approach, showing why the child's emotional report mattered.

Exposure required careful monitoring, and detailed clinical publication required confidentiality. One case cannot establish the same outcome for every child.

## 4. Balanced judgement

Study children when their participation is necessary for a worthwhile question with suitable protection. Weigh the specific knowledge gained, method suitability, welfare burden, reported safeguards and remaining uncertainty. Do not conclude simply that children should always or never be studied.

> Hassett tested monkeys, not children. Adult or animal comparisons can inform hypotheses, but cannot directly establish an individual child's preference, cognition or welfare.

Hint: Develop a point using research value or risk → exact study detail → consequence for understanding, validity or child welfare.

# Use of animals in psychological research

Lesson 1.5.5 | Concepts and methods

## 1. Why use animals?

Animal behaviour is worth understanding in its own right. Comparative research can investigate whether a pattern requires a specifically human experience. Applied research can improve husbandry and veterinary cooperation. The question must justify the species and method.

| Study | Animals | Purpose |
|---|---|---|
| Hassett | 34 analysed rhesus monkeys: 11 males, 23 females | Wheeled/plush toy preferences. |
| Fagen | Five female elephants: four juveniles, one adult | Reward-based trunk-wash training. |

## 2. Scientific advantages

Different environmental histories allow some questions to be examined without explicit human teaching. Video and behavioural definitions support direct measurement. Repeated exposure or training can document behaviour across time.

Hassett offered both toy types in a familiar group enclosure. Fagen recorded offers, times and performance while training a useful sequence. These methods addressed different questions: comparative preferences versus practical learning.

## 3. Scientific limitations

**Species differences:** similar actions may have different meaning or causes in different species.
**Internal experience:** animals cannot give the same verbal explanation or rating as humans.
**Anthropomorphism:** assigning human motives or gender meanings to animal actions can mislead.
**Sampling/control:** a captive troop or five selected animals may not represent other populations.

## 4. Generalisation needs evidence

Hassett's findings do not prove that human toy preferences are genetically fixed. Fagen's adult noncompletion does not prove that older elephants cannot learn. Evaluate what the sample and task actually establish before extending to another species or age.

> Behavioural cooperation or approach is not human informed consent. Some ability to avoid a task can still matter for welfare, with its practical limits stated.

# Use of animals in psychological research

Lesson 1.5.5 | Evidence and interpretation

## 1. Official animal ethical guidelines

| Guideline | Questions to ask |
|---|---|
| Minimise harm; maximise benefit | Does expected knowledge or practical benefit justify physical and psychological welfare costs? |
| Replacement | Could existing records, models or another method answer without live animals? |
| Species | Does the species suit the question, and are its care needs understood? |
| Numbers | Use enough animals for meaningful evidence without unnecessary use. |
| Procedures | Consider pain, suffering/distress, housing, rewards, deprivation and aversive stimuli. |

## 2. Procedures need specific evaluation

**Pain and distress:** monitor injury, fear, discomfort and social stress; use suitable stopping criteria.
**Housing:** assess space, social contact, temperature, enrichment and handling. Familiar housing may reduce disruption but is not necessarily ideal.
**Rewards/deprivation:** reward use does not justify restricting normal nutrition or water.
**Aversive stimuli:** assess necessity and alternatives to unpleasant stimulation.

## 3. Reinforcement is not punishment

Positive reinforcement adds a consequence to increase behaviour; negative reinforcement removes an aversive event to increase behaviour. Punishment reduces behaviour. A food reward may support cooperation but does not, by itself, resolve all welfare concerns.

## 4. Balancing numbers and alternatives

An extremely small sample can fail to answer the question, wasting welfare cost; unnecessary large samples also needlessly use animals. Human participants cannot directly reveal whether monkeys show a pattern without human toy teaching. Veterinary feasibility in elephants requires relevant animal evidence, while alternatives should still be considered.

# Use of animals in psychological research

Lesson 1.5.5 | Evaluation and connections

## 1. Hassett: care and remaining concerns

Monkeys remained in their established social group with indoor/outdoor housing, continuously available water and normal food. An approved enrichment/management protocol and animal-care guidance were reported. Toy approach was not forced.

Group access and rank could affect interaction. A plush toy tore, and the trial ended early; loose material was a possible hazard, not a documented injury. Temporary indoor holding and safe toy selection still required monitoring. Selective participation and uncertain human transfer limit scientific justification.

## 2. Fagen: potential benefit and restrictions

Reward-based sessions trained four juveniles for a veterinary sampling sequence without adding aversive training. Some disengagement was possible by turning/moving away. Normal food was not withheld to make rewards work; no extra study-imposed deprivation was reported.

Existing chains limited choice. Normal management restricted water mainly to grazing, with water also offered in training. The study did not create these conditions, but existing housing and care remain relevant to welfare judgement. No comparison directly established improved welfare over another method.

## 3. Balanced arguments

**For carefully justified use:** relevant comparative knowledge or direct animal-care benefits can support limited, well-designed research.
**Concern:** inability to consent and risks of suffering may make some procedures unacceptable, even with potential benefits.
A judgement must weigh the particular species, alternatives, numbers, procedures, evidence quality and expected benefit.

## 4. Human safeguards do not transfer unchanged

Animals cannot sign informed consent or receive a verbal debriefing. Welfare monitoring and species-appropriate care must address their actual needs. Avoidance opportunities matter but should not be overstated when movement is restricted.

> Hint: Name the guideline → use a reported animal-care or research detail → explain its welfare or scientific consequence. Distinguish a potential hazard from a reported harm.

Connect arguments to exact study evidence rather than treating all animal research as one identical procedure. Ethical evaluation depends on both the animal experience and the quality of knowledge gained.

# Experiments: laboratory and field

Lesson 2.1.1 | AS research methodology

## Core ideas

Experiments investigate cause-and-effect by changing an independent variable and measuring a dependent variable.

Laboratory experiments take place in controlled settings, so procedures can be standardised and repeated more easily.

Field experiments take place in real-world settings, so behaviour may be more natural but harder to control.

Experimental and control conditions help researchers compare what changes when the independent variable is present or absent.

Random allocation, counterbalancing and clear instructions reduce bias and order effects.

Strong evaluation considers reliability, validity, ethics and whether findings transfer to real behaviour.

# Experiments: laboratory and field

Lesson 2.1.1 | AS research methodology

## Key terms

**Experiment:** A research method that changes one variable to see its effect on another.

**Independent variable:** The factor the researcher changes or compares.

**Dependent variable:** The behaviour or outcome the researcher measures.

**Laboratory experiment:** An experiment carried out in a controlled setting.

**Field experiment:** An experiment carried out in a real-world setting.

**Control condition:** A comparison condition without the key experimental change.

**Random allocation:** Putting participants into conditions by chance.

**Ecological validity:** How well a study reflects real-life behaviour.

## Further detail and evidence

A field experiment still manipulates an IV; a naturalistic observation only records behaviour. Control means reducing alternative explanations, not merely using a laboratory. An active comparison or placebo can help distinguish the intended change from attention or expectations.

# Experiments: laboratory and field

Lesson 2.1.1 | AS research methodology

## Applying the ideas

Andrade randomly allocated adults to shape-shading or control conditions while keeping the recorded message constant. Better recall therefore supports the particular task comparison. Piliavin changed victim cues on a real train: realism increased, while passenger composition and actor differences were harder to control.

**Worked example:** Use the terms independent variable and dependent variable in a simple memory experiment. A researcher could change whether participants revise in silence or with background music; this is the independent variable. The researcher could then measure how many words each participant recalls from a list; this is the dependent variable. Comparing the recall scores helps test whether background music affected memory.

**Worked example:** Assess one strength and one weakness of laboratory experiments compared with field experiments. A strength of laboratory experiments is control: researchers can standardise instructions, reduce extraneous variables and repeat the procedure, which can improve reliability. A weakness is that the setting may feel artificial, so behaviour may not reflect real life as well as in a field experiment. This means laboratory experiments can gain control but lose ecological validity.

## Evaluation and connections

Evaluate internal validity and ecological validity separately. A controlled task can identify an effect but transfer poorly to real life; a realistic field task can still contain confounds. Random allocation reduces systematic differences on average, but does not guarantee identical small groups. Covert field work can raise consent, withdrawal and debriefing concerns.

# Experimental designs and controls

Lesson 2.1.2 | AS research methodology

## Core ideas

Independent measures designs use different participants in each condition, which avoids order effects but can create participant-variable differences.

Repeated measures designs use the same participants in every condition, which controls participant variables but can create practice or fatigue effects.

Matched pairs designs pair similar participants before putting one member of each pair into each condition.

Order effects occur when doing one condition affects performance in another condition.

Counterbalancing changes the order of conditions across participants to reduce order effects.

Controls such as random allocation, standardised instructions and control groups make comparisons fairer.

# Experimental designs and controls

Lesson 2.1.2 | AS research methodology

## Key terms

**Experimental design:** The way participants are arranged across conditions.

**Independent measures:** Different participants are used in each condition.

**Repeated measures:** The same participants take part in every condition.

**Matched pairs:** Similar participants are paired before being split between conditions.

**Order effects:** Changes in performance caused by the order of conditions.

**Counterbalancing:** Varying the order of conditions to reduce order effects.

**Random allocation:** Putting participants into conditions by chance.

**Extraneous variable:** An unwanted factor that could affect the dependent variable.

## Further detail and evidence

Independent measures uses different people in each condition; repeated measures uses the same people; matched pairs matches relevant characteristics and allocates pair members to different conditions. A control condition is the comparison treatment, not an experimental design in itself.

# Experimental designs and controls

Lesson 2.1.2 | AS research methodology

## Applying the ideas

For a silence/music memory study, repeated measures could use equivalent word lists and counterbalanced AB/BA orders. Different lists must be comparable. In matched pairs, match baseline recall before allocating one person to each condition. Bandura used matched triplets because there were three modelling conditions.

**Worked example:** Choose a suitable design for testing whether background music affects memory, and justify the choice. A repeated measures design could be suitable because the same participants could complete a memory task in silence and with background music. This controls participant variables such as natural memory ability. The researcher should counterbalance the order of the two conditions so practice or fatigue does not unfairly affect one condition.

**Worked example:** Assess one control that could make an experiment fairer. Random allocation can make an experiment fairer by placing participants into conditions by chance instead of by researcher preference. This reduces allocation bias and makes it less likely that one condition contains stronger or more motivated participants. It does not remove every extraneous variable, but it improves the fairness of the comparison.

## Evaluation and connections

Counterbalancing distributes order effects rather than removing learning that cannot be reversed. Independent measures avoids carry-over but may need more participants. Matching reduces only measured differences and can be time-consuming; it does not make people identical. Explain which design best fits the actual task.

# Self-reports: questionnaires and interviews

Lesson 2.1.3 | AS research methodology

## Core ideas

Self-reports gather data directly from participants by asking them questions.

Questionnaires can collect data from many people efficiently, especially when questions are standardised.

Interviews allow follow-up questions and richer detail, but they take more time and may be affected by the interviewer.

Closed questions are easier to score and compare, while open questions can reveal more detailed answers.

Participants may give inaccurate answers because of social desirability, memory problems or misunderstanding questions.

Good self-report design uses clear wording, appropriate response options and ethical handling of personal information.

# Self-reports: questionnaires and interviews

Lesson 2.1.3 | AS research methodology

## Key terms

**Self-report:** A method where participants answer questions about themselves.

**Questionnaire:** A written or online set of questions completed by participants.

**Interview:** A spoken question-and-answer method.

**Closed question:** A question with fixed response options.

**Open question:** A question that lets participants answer in their own words.

**Social desirability:** Answering in a way that seems acceptable or impressive.

**Response bias:** A pattern of answers that reduces accuracy.

**Standardised question:** A question asked in the same way to every participant.

## Further detail and evidence

Questionnaires may use paper-and-pencil or online techniques. Both can contain open and closed questions; technique and question format are different decisions.

A structured interview uses a fixed set/order of questions; an unstructured interview develops flexibly; a semi-structured interview uses prepared questions with follow-up prompts. Interviews may be face-to-face or by telephone.

Questionnaire technique (paper/online), question format (open/closed), interview format (structured/semi-structured/unstructured) and interview technique (face-to-face/telephone) are separate decisions. State example wording, response options and how answers will be scored or interpreted.

# Self-reports: questionnaires and interviews

Lesson 2.1.3 | AS research methodology

## Applying the ideas

A closed item might ask how many nights last week a person slept fewer than seven hours. An open item can ask what made sleep difficult. A structured interview asks the same prepared questions; a semi-structured interview can probe an unusual answer. Numerical scores and thematic descriptions can be combined.

**Worked example:** Choose either a questionnaire or an interview for researching exam stress, and justify the choice. A questionnaire would be suitable if the researcher wanted data from many students quickly. It could use closed rating-scale questions such as how often students feel stressed before exams, making answers easy to compare. A limitation is that students may underreport stress because of social desirability or because fixed options do not capture their full experience.

**Worked example:** Compare one strength of closed questions with one strength of open questions. Closed questions are useful because fixed options make answers quicker to complete and easier to score across many participants. Open questions are useful because participants can explain their views in their own words, giving richer qualitative detail. The best choice depends on whether the researcher values easy comparison or depth of response more.

## Evaluation and connections

Clear wording avoids leading questions, double-barrelled items and unclear time periods. Pilot the questionnaire to check comprehension. Anonymous collection may reduce socially desirable responses but prevents some follow-up checks. Interviews allow clarification but may introduce tone, prompting or interviewer expectations.

# Case studies

Lesson 2.1.4 | AS research methodology

## Core ideas

Case studies focus on one individual, group or situation in much more detail than many other methods.

They often combine evidence from interviews, observations, tests, documents or background history.

Rich qualitative data can reveal unusual behaviour, rare conditions or complex real-life experiences.

Triangulation strengthens a case study by comparing evidence from more than one source or technique.

Case studies can have low generalisability because one case may not represent a wider population.

Evaluation should consider depth, validity, researcher bias, ethics, confidentiality and difficulty repeating the research.

# Case studies

Lesson 2.1.4 | AS research methodology

## Key terms

**Case study:** An in-depth investigation of one person, group, organisation or situation.

**Qualitative data:** Non-numerical data such as descriptions, explanations or interview comments.

**Triangulation:** Using more than one source or method to check evidence.

**Generalisability:** How far findings apply beyond the case studied.

**Researcher bias:** When a researcher's expectations influence interpretation.

**Confidentiality:** Protecting private information about participants.

**Validity:** How accurately research measures or represents what it claims to study.

**Longitudinal evidence:** Information collected over an extended period of time.

## Further detail and evidence

A case study investigates one participant or defined unit in detail; the unit may be a person, family or organisation. It can combine interviews, observations, tests and documents. Triangulation compares different evidence, rather than simply collecting several copies of the same account.

# Case studies

Lesson 2.1.4 | AS research methodology

## Applying the ideas

Saavedra and Silverman combined the boy's history, child/parent interviews, observed button contact, distress ratings and follow-ups. Improved approach alongside initially rising distress showed why one measure could miss an important change. One case can generate a hypothesis for later controlled testing.

**Worked example:** Use a case-study method to investigate a rare phobia, and describe two sources of data. A psychologist could investigate one person with a rare phobia using interviews to gather the person's own account of fear, triggers and history. The psychologist could also use observations or rating scales during controlled exposure to record visible anxiety responses. Using more than one source would give richer evidence and support triangulation.

**Worked example:** Assess one strength and one limitation of case studies. A strength of case studies is depth because they can collect detailed qualitative information about a complex person or situation. A limitation is low generalisability because one case may not represent other people or contexts. This means case studies can be very informative, but conclusions should be made carefully.

## Evaluation and connections

Rich contextual detail supports understanding of an unusual case, but researcher interpretation and selective recall can affect validity. One case need not represent a population. Detailed publication can reveal identity even without a name; protect privacy and obtain appropriate consent. Repeating the unique life history exactly is usually impossible.

# Observations

Lesson 2.1.5 | AS research methodology

## Core ideas

Observations collect data by watching and recording behaviour rather than asking participants to report it.

Naturalistic observations take place in ordinary settings, while controlled observations happen in arranged situations.

Overt observations are open to participants, while covert observations are hidden from them.

Participant observers join the group being studied; non-participant observers watch without joining in.

Behavioural categories help observers record behaviour consistently and reduce vague descriptions.

Inter-observer reliability improves when more than one observer records the same behaviour and their records agree.

# Observations

Lesson 2.1.5 | AS research methodology

## Key terms

**Observation:** A method where researchers watch and record behaviour.

**Naturalistic observation:** Observation in a real-world setting where behaviour normally occurs.

**Controlled observation:** Observation in a structured or arranged setting.

**Overt observation:** Observation where participants know they are being watched.

**Covert observation:** Observation where participants do not know they are being watched.

**Participant observation:** Observation where the researcher joins the group or activity.

**Behavioural category:** A clear behaviour label used when recording observations.

**Inter-observer reliability:** Agreement between observers recording the same behaviour.

## Further detail and evidence

Structured observation uses predefined behavioural categories; unstructured observation records behaviour more openly. A category must describe observable behaviour clearly enough for different observers to apply it consistently.

**Observation classifications can combine:** an observation may be overt, non-participant, naturalistic and structured. Structured recording uses operationalised categories; unstructured recording keeps more open notes. The setting and the observer's participation are different dimensions.

# Observations

Lesson 2.1.5 | AS research methodology

## Applying the ideas

Define a queue-cutting objection as a spoken protest directed at the intruder, rather than a vague "negative reaction". Two observers independently code the same events, compare agreement and refine ambiguous categories. Video can allow rechecking, with appropriate consent and privacy protection.

**Worked example:** Choose one type of observation for studying playground helping behaviour, and justify the choice. A naturalistic observation would be suitable because helping behaviour could be watched in the playground setting where it normally happens. The researcher could use behavioural categories such as offering help, sharing equipment or calling an adult. This would give realistic data, although consent and privacy would need careful handling.

**Worked example:** Assess one way to improve reliability in an observational study. Inter-observer reliability can improve confidence in the data because two observers independently record the same behaviour and compare their records. If they agree often, the behavioural categories are probably clear and consistent. If they disagree, the categories or observer training may need to be improved.

## Evaluation and connections

Observation measures visible behaviour rather than private motives. Overt observation can change behaviour; covert observation may reduce reactivity but compromises prior consent. Category overlap or missed events can reduce reliability. Agreement between observers does not establish that a category validly measures aggression, discomfort or another construct.

# Correlations

Lesson 2.1.6 | AS research methodology

## Core ideas

A correlation shows whether two measured variables are related.

A positive correlation means both variables tend to increase together.

A negative correlation means one variable tends to increase as the other decreases.

A correlation coefficient shows the direction and strength of the relationship, from -1 to +1.

Scattergraphs help students see patterns, outliers and whether the relationship is strong or weak.

Correlation does not prove causation because a third variable or reverse direction could explain the relationship.

# Correlations

Lesson 2.1.6 | AS research methodology

## Key terms

**Correlation:** A relationship between two measured variables.

**Positive correlation:** A relationship where both variables tend to increase together.

**Negative correlation:** A relationship where one variable increases as the other decreases.

**No correlation:** No clear relationship between the two variables.

**Scattergraph:** A graph showing paired scores for two variables.

**Correlation coefficient:** A number from -1 to +1 showing direction and strength.

**Third variable:** Another factor that may explain a relationship between two variables.

**Causation:** One factor directly producing a change in another.

## Further detail and evidence

Co-variables are the two measured variables in a correlation. Operationalise each precisely, such as minutes of sleep recorded in a diary and number of words correctly recalled; neither variable is manipulated in a correlational study.

**The correlation coefficient describes linear association:** its sign gives direction and its absolute size gives strength. A coefficient near zero means little linear association, not proof that no possible relationship exists. Inspect a scatter graph for unusual points or non-linear patterns.

# Correlations

Lesson 2.1.6 | AS research methodology

## Applying the ideas

Longer REM periods accompanied longer dream reports in Dement and Kleitman. Both REM minutes and report word count were measured. Talkativeness or forgetting can influence report length. Do not relabel the measured co-variables as manipulated IV and DV.

**Worked example:** Interpret a correlation coefficient of +0.72 between revision time and test score. A coefficient of +0.72 suggests a fairly strong positive correlation. Students who revise for longer tend to have higher test scores, because the plus sign shows the variables move in the same direction. However, this does not prove revision caused the higher scores because other factors, such as prior knowledge or motivation, could also affect performance.

**Worked example:** Assess one limitation of using a correlation to study stress and sleep. A limitation is that a correlation may show that higher stress is connected with less sleep, but it cannot prove which variable caused the other. Stress might reduce sleep, poor sleep might increase stress, or a third variable such as workload could affect both. This makes correlations useful for spotting relationships but limited for explaining cause and effect.

## Evaluation and connections

Correlations permit prediction and study variables that cannot ethically be manipulated. They do not establish direction of cause or eliminate third variables. A positive correlation is not automatically desirable, and a negative one is not automatically harmful. Keep the operational definitions attached to the relationship.

# Longitudinal studies

Lesson 2.1.7 | AS research methodology

## Core ideas

Longitudinal studies follow the same participants or groups across more than one time point.

They are useful for studying development, change, stability and long-term effects.

Repeated measurement can show patterns that a single snapshot study would miss.

Attrition happens when participants drop out, which can make later data less representative.

Repeated testing may change behaviour because participants become familiar with the task.

Evaluation should consider depth over time, cost, time, ethics, sample loss and whether findings still apply later.

# Longitudinal studies

Lesson 2.1.7 | AS research methodology

## Key terms

**Longitudinal study:** A study that collects data over an extended period of time.

**Repeated measurement:** Measuring the same participants or variables more than once.

**Attrition:** Loss of participants from a study over time.

**Development:** Change in behaviour, ability or experience over time.

**Snapshot study:** A study collecting data at one point in time.

**Cohort effect:** An influence linked to the particular generation or group studied.

**Follow-up:** A later stage of data collection after the first measurement.

**Representativeness:** How well a sample reflects the wider group it is meant to show.

## Further detail and evidence

A longitudinal design repeatedly follows the same participants or unit. It can form part of an experiment, case study or observational study; "longitudinal" does not itself specify whether a variable was manipulated. State interval, task, scoring and re-contact arrangements.

# Longitudinal studies

Lesson 2.1.7 | AS research methodology

## Applying the ideas

Hölzel obtained structural scans before and after an eight-week course and used a comparison group. Saavedra and Silverman followed treatment with six- and twelve-month checks. Repeated measurement distinguishes immediate change from evidence that gains persist.

**Worked example:** Choose a longitudinal design for studying exam anxiety, and describe how data could be collected. A researcher could measure the same students' exam anxiety at the start of the course, before mock exams and before final exams. They could use the same anxiety questionnaire at each follow-up so scores can be compared across time. This would show whether anxiety changes as exams get closer, although some students might drop out before the final measurement.

**Worked example:** Assess one strength and one limitation of longitudinal studies. A strength is that longitudinal studies can show how behaviour changes over time, which a one-off snapshot study may miss. A limitation is attrition because participants may drop out, leaving a smaller or less representative sample. This means longitudinal evidence can be rich, but it can also be expensive, slow and affected by sample loss.

## Evaluation and connections

Attrition threatens interpretation if dropouts differ from retained participants. Practice, changing instruments, life events and historical change can also influence results. Use suitable equivalent tasks and stable procedures where appropriate. A long follow-up can improve understanding while increasing cost and privacy burdens.

# Aims and hypotheses

Lesson 2.2.1 | AS research methodology

## Core ideas

An aim states the general purpose of a study in clear, student-friendly terms.

A hypothesis is a testable prediction about what the researcher expects to find.

A directional hypothesis predicts the direction of a difference or relationship.

A non-directional hypothesis predicts a difference or relationship without saying which way it will go.

A null hypothesis predicts no significant difference or relationship between the variables.

Good hypotheses use clear, measurable variables so the study can be tested and interpreted.

## Key terms

**Aim:** The general purpose or question of a study.

**Hypothesis:** A testable prediction about the expected result.

**Directional hypothesis:** A prediction that states which way a difference or relationship will go.

# Aims and hypotheses

Lesson 2.2.1 | AS research methodology

*Continued*

**Non-directional hypothesis:** A prediction that states there will be a difference or relationship but not its direction.

**Null hypothesis:** A prediction that there will be no significant difference or relationship.

**Variable:** A factor that can change or be measured.

**Prediction:** A statement about what is expected to happen.

**Testable:** Written so evidence can be collected to check it.

## Further detail and evidence

A directional alternative hypothesis is also called one-tailed; a non-directional alternative hypothesis is also called two-tailed. Recognise both forms and the null hypothesis; statistical-test calculations are outside the 2027 syllabus.

An aim states what will be investigated. An alternative hypothesis predicts a difference or association; directional/one-tailed specifies its direction, while non-directional/two-tailed does not. A null predicts no population effect or relationship, with observed sample differences attributable to chance variation.

# Aims and hypotheses

Lesson 2.2.1 | AS research methodology

## Applying the ideas

**Directional:** adults listening in silence will recall more target words than adults hearing the specified background music. Non-directional: recall scores will differ between the conditions. Null: there will be no difference in recall scores between conditions beyond chance. Define the listening conditions and correct-word score clearly.

**Worked example:** Write a directional hypothesis for a study on sleep and memory. Participants who sleep for eight hours before a memory test will recall more words than participants who sleep for four hours. This is directional because it predicts which sleep group will have the higher memory score. It is testable because sleep duration and number of words recalled can be measured.

**Worked example:** Compare an aim with a hypothesis using a simple example. An aim could be to investigate whether background music affects concentration. A hypothesis is more specific, such as: students who work in silence will complete more concentration-task items correctly than students who work with background music. The aim gives the broad purpose, while the hypothesis predicts a measurable result.

## Evaluation and connections

Use "relationship" for a correlation and "difference" for a comparison. Avoid vague predictions such as "music affects people". Hypotheses are general methods content and required in Paper 4 plans; the 2027 Paper 2 planning task does not require aims or hypotheses.

# Independent variables and dependent variables

Lesson 2.2.2 | AS research methodology

## Core ideas

The independent variable is the factor the researcher changes or compares.

The dependent variable is the outcome or behaviour the researcher measures.

In experiments, researchers look for whether changes in the independent variable affect the dependent variable.

The independent variable should have clear conditions, such as silence versus background music.

The dependent variable should be measurable, such as recall score, reaction time or rating-scale score.

Confusing the IV and DV can make aims, hypotheses and conclusions unclear.

# Independent variables and dependent variables

Lesson 2.2.2 | AS research methodology

## Key terms

**Independent variable:** The factor the researcher changes or compares.

**Dependent variable:** The behaviour or outcome the researcher measures.

**Condition:** A version or level of the independent variable.

**Measure:** A way of recording the dependent variable.

**Experiment:** A method that tests whether one variable affects another.

**Outcome:** The result recorded from participants.

**Cause-and-effect:** A claim that one factor produces a change in another.

**Variable:** A factor that can change or be measured.

## Further detail and evidence

An IV needs identifiable conditions; a DV needs a score, count, time or other defined outcome. Naturally occurring participant differences are not randomly assigned manipulations. Correlational studies instead have two measured co-variables. Not every study has an IV.

**Operationalise both variables:** identify precisely what changes between conditions and how the outcome is scored. A clear label alone is not enough for another researcher to reproduce the manipulation or measurement.

# Independent variables and dependent variables

Lesson 2.2.2 | AS research methodology

## Applying the ideas

**Andrade:** IV = shading supplied shapes versus listening without shading; DV = adjusted recall of names/places. In a new study, "music" is too vague: define track, volume and duration. "Memory" is too vague: define the number of correct words recalled after a stated interval.

**Worked example:** Identify the IV and DV in a study testing whether caffeine affects reaction time. The independent variable is caffeine intake, such as no caffeine compared with a set dose of caffeine. The dependent variable is reaction time, measured by how quickly participants respond to a stimulus. This is clear because caffeine intake is the factor being compared and reaction time is the outcome recorded.

**Worked example:** Compare the role of the independent variable with the role of the dependent variable. The independent variable is what the researcher changes or compares to create conditions in a study. The dependent variable is what the researcher measures to see whether the independent variable made a difference. For example, background music could be the IV and number of words recalled could be the DV.

## Evaluation and connections

Milgram's main 1963 condition measured maximum shock without manipulating a comparison IV. Naming an outcome does not turn any study into an experiment. A group difference supports a causal account only when design, allocation, controls and measurement justify it.

# Operational definitions

Lesson 2.2.3 | AS research methodology

## Core ideas

An operational definition states exactly how a variable is measured or manipulated in a study.

Vague concepts such as stress, memory or aggression need clear observable indicators.

Operationalising an independent variable means defining the exact conditions being compared.

Operationalising a dependent variable means defining the exact score, count or behaviour being recorded.

Clear operational definitions make studies easier to repeat and reduce disagreement between researchers.

A poor operational definition can weaken validity if it does not really capture the concept being studied.

# Operational definitions

Lesson 2.2.3 | AS research methodology

## Key terms

**Operational definition:** A precise statement of how a variable is measured or manipulated.

**Operationalise:** Turn a broad idea into a clear research measure or condition.

**Observable behaviour:** Behaviour that can be seen or recorded directly.

**Measure:** A specific way of recording data.

**Manipulation:** The exact change made to an independent variable.

**Replication:** Repeating a study to check whether similar results are found.

**Validity:** How well a measure captures what it claims to measure.

**Reliability:** How consistent a measure or procedure is.

## Further detail and evidence

Operationalisation turns an abstract construct into a reproducible manipulation or measurement. Specify units, materials, timing, scoring and category boundaries. A precise measure can still lack validity if it captures only a poor substitute for the intended concept.

# Operational definitions

Lesson 2.2.3 | AS research methodology

## Applying the ideas

Operationalise helping as approaching and physically assisting within a stated observation period, recording latency in seconds. Operationalise questionnaire stress as the total on named items over a specified week. These measure different aspects of behaviour and experience; neither automatically captures everything relevant.

**Worked example:** Write an operational definition for stress in a study of students before exams. Stress could be operationalised as each student's score on a 20-item exam-anxiety questionnaire completed one week before the exam. This is measurable because every participant receives a numerical score using the same items. It is clearer than simply saying students are 'stressed' because researchers know exactly what data to record.

**Worked example:** Assess why operational definitions matter when studying aggression. Operational definitions matter because aggression is a broad idea that different observers might interpret differently. If researchers define aggression as the number of hits, kicks and shouted insults in a set time, observers can record the same behaviours more consistently. A limitation is that this definition may miss less visible forms of aggression, so validity still needs checking.

## Evaluation and connections

A broad aggression category may be ambiguous; an overly narrow one may miss important acts. Pilot categories with independent observers. Word count is a reproducible report-length measure but not exact dream duration. Evaluate the link between the indicator and the construct as well as consistency.

# Control of variables and standardisation

Lesson 2.2.4 | AS research methodology

## Core ideas

Control of variables means reducing unwanted factors that could affect the dependent variable.

Extraneous variables are possible influences that are not the main focus of the study.

Standardisation means keeping instructions, materials and procedures the same for all participants where possible.

Control groups or comparison conditions help researchers judge whether the independent variable made a difference.

Random allocation can reduce bias by assigning participants to conditions by chance.

Strong evaluation balances control and reliability against artificiality and ecological validity.

# Control of variables and standardisation

Lesson 2.2.4 | AS research methodology

## Key terms

**Control of variables:** Managing unwanted factors so comparisons are fairer.

**Standardisation:** Keeping procedures the same across participants or conditions.

**Extraneous variable:** An unwanted factor that could affect the dependent variable.

**Control group:** A comparison group that does not receive the key experimental treatment.

**Comparison condition:** A condition used to compare against another condition.

**Random allocation:** Putting participants into conditions by chance.

**Procedure:** The planned steps followed in a study.

**Ecological validity:** How well a study reflects real-life behaviour.

## Further detail and evidence

Participant variables include abilities and previous experience; situational variables include noise, instructions and time. An extraneous variable becomes a confound when it systematically varies with the IV and offers an alternative explanation of the DV difference.

# Control of variables and standardisation

Lesson 2.2.4 | AS research methodology

## Applying the ideas

Keep a memory test's word list, exposure time, delay and instructions constant, while changing only the defined music condition. Random allocation distributes participant differences. Counterbalancing distributes order; matched pairs addresses selected baseline characteristics. A placebo can control expectations about receiving treatment.

**Worked example:** Choose two controls for a memory experiment and explain why they matter. A researcher could give every participant the same word list and the same amount of time to learn it. These controls matter because differences in word difficulty or learning time could affect recall scores instead of the independent variable. Keeping these parts standardised makes the comparison fairer.

**Worked example:** Assess one strength and one limitation of standardising a procedure. A strength of standardisation is that it improves reliability because the study can be repeated using the same instructions, materials and timing. A limitation is that a highly standardised setting may feel artificial, so behaviour may not fully match real life. Standardisation helps consistency, but ecological validity still needs evaluation.

## Evaluation and connections

Standardisation applies to relevant procedures, not to making the intended IV identical. Excessive control can create artificiality. Blinding reduces some expectation effects, but may be impossible when a treatment is obvious. Name a plausible unwanted influence and explain how the proposed control reduces it.

# Quantitative and qualitative data

Lesson 2.3.1 | AS research methodology

## Core ideas

Quantitative data are numerical, such as scores, counts, times, percentages or ratings.

Qualitative data are descriptive, such as interview comments, written explanations or observation notes.

Quantitative data are useful for comparisons, summaries, graphs and statistical analysis.

Qualitative data can give richer detail about meanings, experiences and reasons for behaviour.

Some studies collect both types of data to balance measurement with depth.

Evaluation should consider objectivity, detail, ease of analysis, interpretation and whether the data answer the research question.

# Quantitative and qualitative data

Lesson 2.3.1 | AS research methodology

## Key terms

**Quantitative data:** Numerical data such as scores, counts or times.

**Qualitative data:** Descriptive data such as words, explanations or observations.

**Numerical score:** A number used to record a response or performance.

**Descriptive detail:** Information that explains behaviour or experience in words.

**Rating scale:** A scale that turns a judgement into a number.

**Statistical analysis:** Using numerical methods to summarise or compare data.

**Theme:** A repeated idea or pattern found in qualitative data.

**Interpretation:** Making meaning from data after it is collected.

## Further detail and evidence

Quantitative and qualitative describe the form of data, not whether it is true or unbiased. A numerical distress rating remains subjective. Qualitative observation can use systematic procedures. Converting comments into counts loses some context while allowing comparisons.

# Quantitative and qualitative data

Lesson 2.3.1 | AS research methodology

## Applying the ideas

Piliavin recorded response times and counts, alongside passenger comments. Saavedra and Silverman combined a 0-8 distress score with descriptions and observation. The methods complement one another: an average can reveal a pattern while detailed accounts suggest why or how it occurred.

**Worked example:** Classify two pieces of data from a memory study as quantitative or qualitative. A score of 16 words recalled out of 20 is quantitative because it is numerical and can be compared across participants. A participant's comment that the word list felt confusing because the words were unrelated is qualitative because it gives descriptive detail in words. The two types of data answer different questions about performance and experience.

**Worked example:** Assess one strength of using qualitative data alongside quantitative data. Using qualitative data alongside quantitative data can add depth to numerical results. For example, test scores may show that one group performed worse, while interview comments may suggest they felt distracted or anxious. This combination can make interpretation richer, although qualitative data can take longer to analyse and may be more subjective.

## Evaluation and connections

Numerical data are often economical to summarise, but can hide variation or meaning. Qualitative material provides detail but takes time and involves interpretation. Mixed data do not automatically guarantee validity; explain how each measure answers the actual research question.

# Subjective and objective data

Lesson 2.3.2 | AS research methodology

## Core ideas

Subjective data depend on personal opinion, interpretation or judgement.

Objective data are recorded in a way that is less dependent on personal judgement.

Self-reports often produce subjective data because participants describe their own feelings or experiences.

Objective measures can include reaction times, recall scores, counts of behaviour or physiological readings.

Subjective data can give insight into personal experience, but may be affected by bias or social desirability.

Objective data can improve reliability, but may miss meanings or feelings that are important to the research question.

# Subjective and objective data

Lesson 2.3.2 | AS research methodology

## Key terms

**Subjective data:** Data influenced by personal opinion, judgement or interpretation.

**Objective data:** Data recorded with less dependence on personal judgement.

**Self-report:** A method where participants answer questions about themselves.

**Rating scale:** A numerical scale used to record a judgement or feeling.

**Behaviour count:** Recording how often a specific behaviour occurs.

**Physiological measure:** A body-based measure such as heart rate or brain activity.

**Bias:** A factor that can distort data or interpretation.

**Interpretation:** Making meaning from data after it is collected.

## Further detail and evidence

Objective recording is less dependent on personal judgement; subjective data express an experience or interpretation. This distinction differs from numerical/descriptive form. Instrument readings can be objective while their interpretation as a psychological state remains uncertain.

# Subjective and objective data

Lesson 2.3.2 | AS research methodology

## Applying the ideas

An eye electrode records a physiological signal; the dream report describes subjective experience. A numerical pain score is quantitative but subjective. A bottle-opening time is objectively recorded, but opening does not prove medication ingestion. Identify the measure and the construct separately.

**Worked example:** Classify two data examples from a stress study as subjective or objective. A student's rating of how stressed they feel from 1 to 10 is subjective because it depends on the student's personal judgement. A heart-rate reading during the same task is more objective because it is recorded by equipment and is less dependent on opinion. Both can be useful because they show different sides of stress.

**Worked example:** Assess one reason to collect both subjective and objective data. Collecting both types can give a fuller picture. For example, a participant may show a high heart rate during a task, but their self-report can reveal whether they actually felt anxious or excited. The objective data can support reliability, while the subjective data adds meaning, although the two may not always agree.

## Evaluation and connections

Subjective information can be essential when the construct is pain or feeling distressed. Objective indicators may improve reproducibility without capturing personal meaning. Neither type is inherently perfect; assess calibration, reporting bias, inference and fitness for the question.

# Samples, populations and sampling techniques

Lesson 2.3.3 | AS research methodology

## Core ideas

A population is the wider group the researcher wants to understand.

A sample is the smaller group of participants who actually take part in the study.

Representative samples make it easier to generalise findings to the wider population.

Opportunity sampling uses people who are available, making it practical but often biased.

Random sampling gives each member of the population an equal chance of selection if a full sampling frame is available.

Sampling technique affects bias, ethics, time, cost and how confidently findings can be applied beyond the study.

## Key terms

**Population:** The wider group the researcher wants to draw conclusions about.

**Sample:** The participants who actually take part in a study.

**Sampling technique:** The method used to choose participants.

**Representative sample:** A sample that reflects important features of the wider population.

**Opportunity sample:** A sample chosen because participants are available.

# Samples, populations and sampling techniques

Lesson 2.3.3 | AS research methodology

*Continued*

**Random sample:** A sample where each population member has an equal chance of selection.

**Sampling bias:** A sample problem that makes some people more likely to be included than others.

**Generalisability:** How far findings apply beyond the sample studied.

**Volunteer sampling:** Recruiting participants who choose to respond to an invitation; also called self-selecting sampling.

## Further detail and evidence

Volunteer (self-selecting) sampling recruits people who respond to an invitation or advertisement. It is practical and participants may be motivated, but volunteers may differ from non-volunteers, limiting generalisability.

Random sampling selects from the target population by chance. Random allocation instead assigns already-recruited participants to experimental conditions; these are separate procedures.

Define the target population and the sampling frame. Random sampling selects people from that frame; opportunity sampling recruits available people; volunteer/self-selection sampling uses responses to an invitation. Random allocation happens later and assigns participants to conditions.

# Samples, populations and sampling techniques

Lesson 2.3.3 | AS research methodology

## Applying the ideas

Milgram recruited volunteers through advertisements/direct mail. Andrade recruited available panel members after another experiment, then randomly allocated them. A school sample may be practical but exclude children who do not attend those schools. Large numbers alone do not remove selection bias.

**Worked example:** Choose a sampling technique for a quick school stress survey and justify it. Opportunity sampling would be practical for a quick school stress survey because the researcher could ask students who are available at lunch or in a common area. This would save time and make data collection easier. A limitation is sampling bias because available students may not represent all students in the school.

**Worked example:** Compare a sample with a population using a psychology example. If a researcher wants to understand exam anxiety in all Year 12 students at a school, that full group is the population. If 40 Year 12 students complete the questionnaire, those 40 students are the sample. The sample is easier to study, but conclusions are stronger if it represents the wider population well.

## Evaluation and connections

A random sample can still be affected by nonresponse or an incomplete frame. Volunteers may differ in motivation and relevant traits. Generalisation depends on the sample, target population, setting and task. Describe the actual recruitment information rather than assuming a technique not reported.

# Measures of central tendency and spread

Lesson 2.3.4 | AS research methodology

## Core ideas

Measures of central tendency describe a typical score in a set of data.

The mean is calculated by adding all scores and dividing by the number of scores.

The median is the middle score when scores are placed in order.

The mode is the most frequent score in a data set.

The range shows spread by subtracting the lowest score from the highest score.

Outliers can distort the mean and range, so the median may sometimes be a better summary.

## Key terms

**Central tendency:** A summary of the typical or middle value in a data set.

**Mean:** The total of all scores divided by the number of scores.

**Median:** The middle score when values are ordered.

**Mode:** The most common score in a data set.

**Range:** The highest score minus the lowest score.

# Measures of central tendency and spread

Lesson 2.3.4 | AS research methodology

*Continued*

**Outlier:** An unusual score that is far from most other scores.

**Data set:** A collection of scores or values.

**Spread:** How far apart or varied the scores are.

**Standard deviation:** A measure of the dispersion of scores around their mean; larger values indicate greater variability.

## Further detail and evidence

Standard deviation describes how dispersed scores are around the mean: a smaller standard deviation means scores are more closely clustered; a larger one means greater variability. Compare it with the mean rather than treating it as a measure of the average.

Two groups can have the same mean but different standard deviations. If both mean recall scores are 10, SD 1 indicates more consistent scores than SD 4; it does not mean the first group has higher average recall.

Mean summarises all scores; median is the middle ordered score; mode is most frequent. Range is the highest minus lowest score. Standard deviation describes dispersion around the mean: smaller values indicate tighter clustering. Know how these measures are found and interpret them.

# Measures of central tendency and spread

Lesson 2.3.4 | AS research methodology

## Applying the ideas

Two conditions can both have a mean recall score of 10, while SD 1 versus SD 4 indicates different consistency, not a difference in average recall. A very high outlier can raise the mean and range while having less effect on the median. Compare groups meaningfully, keeping units clear.

**Worked example:** Calculate the mean and range for the scores 4, 6, 6, 8 and 11. The mean is 7 because the total is 35 and there are 5 scores, so 35 divided by 5 equals 7. The range is 7 because the highest score is 11 and the lowest score is 4, so 11 minus 4 equals 7. These two measures summarise a typical score and the spread of scores.

**Worked example:** Assess why a researcher might report the median instead of the mean. A researcher might report the median when a data set contains an outlier. For example, if most reaction times are close together but one participant is extremely slow, the mean could be pulled upward and become less representative. The median is less affected by the extreme score, so it may better show the typical performance.

## Evaluation and connections

A mean without spread can conceal important variation. The mode suits the most common category; a mean is not meaningful for arbitrary category labels. The 2027 syllabus does not require candidates to perform calculations or interpret unspecified inferential tests. Optional arithmetic practice must not be presented as an extra exam requirement.

# Tables, bar charts, histograms and scatter graphs

Lesson 2.3.5 | AS research methodology

## Core ideas

Tables organise data in rows and columns so values can be read accurately.

Bar charts compare separate categories, such as two conditions or participant groups.

Histograms show the distribution of continuous data using touching bars.

Scatter graphs show the relationship between two measured variables.

Graphs should have clear titles, labelled axes and suitable scales.

Choosing the wrong graph can make patterns harder to interpret or misrepresent the data.

## Key terms

**Table:** A display of data arranged in rows and columns.

**Bar chart:** A graph with separate bars used to compare categories.

**Histogram:** A graph with touching bars used for continuous data intervals.

**Scatter graph:** A graph showing paired scores for two variables.

**Axis:** A labelled line on a graph showing what is measured.

**Scale:** The numbered intervals used on an axis.

**Category:** A separate group or condition in the data.

**Continuous data:** Numerical data that can take values along a scale.

# Tables, bar charts, histograms and scatter graphs

Lesson 2.3.5 | AS research methodology

## Further detail and evidence

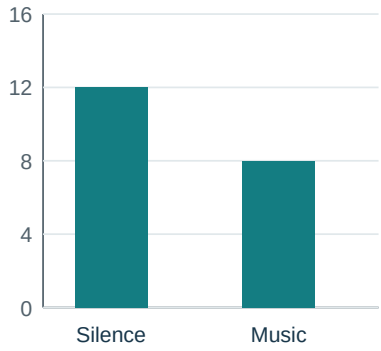
2027 graph skills include naming, recognising, drawing, changing and interpreting bar charts, histograms and scatter graphs, and presenting/interpreting tables. Reading a graph alone does not cover the drawing and representation requirements.

Bar charts compare categories with separated bars. Histograms show grouped continuous scores with adjoining bars; equal-width intervals are simplest to interpret. A scatter graph plots one point per paired observation. A table needs clear headings, units and totals where relevant.

## Choosing a graph

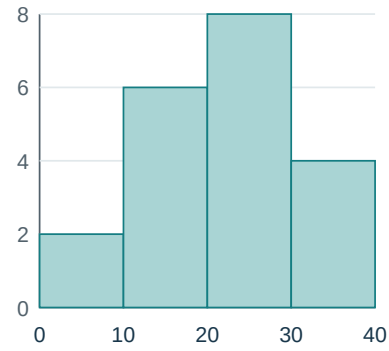
Illustrative data: these figures are not results from a named study.

**Bar chart**



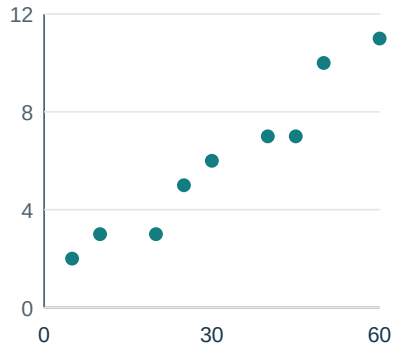

Mean recalled words

**Histogram**




Response time (s)
Vertical axis: frequency

**Scatter graph**




Study time (min)
Vertical axis: recall

# Tables, bar charts, histograms and scatter graphs

Lesson 2.3.5 | AS research methodology

## Applying the ideas

A bar chart could compare mean recall in silence/music conditions. A histogram could show the distribution of response times. A scatter graph could plot each person's sleep minutes against recall score. Choose the form from the research question and data, rather than treating every graph as interchangeable.

**Worked example:** Choose the best graph for showing the relationship between revision time and test score, and justify it. A scatter graph would be best because revision time and test score are two measured variables for each participant. Each point could show one student's revision time and score, making it possible to see whether there is a positive, negative or no correlation. A bar chart would be less suitable because the aim is to show a relationship, not compare separate categories.

**Worked example:** Assess why clear graph labels and scales matter in psychological research. Clear labels and scales matter because readers need to know what each axis shows and how the values are spaced. If a scale is misleading or an axis is not labelled, the pattern may be misread, such as exaggerating a small difference between conditions. Good presentation makes the data easier to interpret accurately.

## Evaluation and connections

Graph skills include recognising, drawing, changing representations and interpreting. Label axes and units, use an appropriate consistent scale, and keep category gaps distinct from continuous intervals. A truncated or inconsistent scale can exaggerate a difference. A scatter trend supports association, not causation.

# Human ethical guidelines

Lesson 2.4.1 | AS research methodology

## Core ideas

Ethical guidelines help researchers treat human participants responsibly and respectfully.

Informed consent means participants should understand what they are agreeing to before taking part.

The right to withdraw means participants can leave a study without pressure or penalty.

Protection from harm means researchers should avoid unnecessary physical or psychological risk.

Confidentiality means personal information should be protected and not reported in an identifiable way.

Debriefing explains the study afterwards, especially if deception was used or participants may feel concerned.

# Human ethical guidelines

Lesson 2.4.1 | AS research methodology

## Key terms

**Ethical guideline:** A principle for conducting research responsibly.

**Informed consent:** Agreement to take part after understanding the study.

**Right to withdraw:** The right to leave a study without pressure or penalty.

**Protection from harm:** Avoiding unnecessary physical or psychological risk.

**Confidentiality:** Protecting personal information from being identified.

**Deception:** Misleading participants or withholding the full aim.

**Debriefing:** Explaining the study and addressing concerns afterwards.

**Privacy:** Respecting a person's personal space, information and choices.

## Further detail and evidence

Human ethics includes valid informed consent, right to withdraw, minimising harm and maximising benefit, lack of deception, confidentiality, privacy and debriefing. Privacy concerns access to a person or their behaviour; confidentiality concerns protection of identifiable information.

Privacy concerns access to the person, behaviour or personal experiences; confidentiality concerns protecting identifiable data. Avoid deception where possible, explain participation accurately, minimise harm while maximising benefit, maintain withdrawal, and give an appropriate debrief.

# Human ethical guidelines

Lesson 2.4.1 | AS research methodology

## Applying the ideas

Milgram involved concealed aims and apparent shocks, visible distress and pressure from prods. Pozzulo documented parental consent, children's freedom to stop and distress monitoring. These examples support specific ethical analysis instead of assuming every laboratory study has the same risks.

**Worked example:** For a study using a stressful memory task, name two ethical safeguards and say how each would work. Researchers should protect participants from harm by stopping the task if someone becomes distressed and by avoiding unnecessarily upsetting materials. They should also give the right to withdraw by telling participants they can leave at any point without penalty. These steps reduce risk while still allowing the memory task to be studied.

**Worked example:** Why should participants be debriefed after a study that used deception? Deception can mean participants did not fully understand the true aim or procedure when they agreed to take part. A debriefing can explain what really happened, why deception was used, and give participants a chance to ask questions or withdraw their data. This does not make deception automatically acceptable, but it helps reduce harm and restore informed understanding.

## Evaluation and connections

Consent is ongoing, and a signature does not remove later withdrawal. Children need suitable guardian permission and willing assent. Debriefing does not automatically undo harm. Distinguish documented safeguards, plausible risks and details not reported; absence of reporting is not proof that every safeguard was absent.

# Animal ethical guidelines

Lesson 2.4.2 | AS research methodology

## Core ideas

Animal research must balance possible scientific or practical value against harm to the animals involved.

Replacement means using a non-animal method where a suitable alternative exists.

Reduction means using the fewest animals needed to answer the research question properly.

Refinement means improving housing, handling and procedures to reduce pain, stress or restriction.

Researchers should consider species-specific needs, including social behaviour, diet, space and enrichment.

Ethical evaluation should include welfare, consent limitations, procedure severity, long-term effects and whether the findings justify the cost.

# Animal ethical guidelines

Lesson 2.4.2 | AS research methodology

## Key terms

**Animal welfare:** The physical and psychological well-being of an animal.

**Replacement:** Using non-animal alternatives where possible.

**Reduction:** Using the fewest animals needed for useful evidence.

**Refinement:** Changing procedures or care to reduce harm and improve welfare.

**Species-specific need:** A requirement linked to the natural behaviour or biology of a species.

**Enrichment:** Features that support natural behaviour and stimulation.

**Procedure severity:** How much pain, stress or restriction a procedure may cause.

**Scientific value:** The usefulness of research for knowledge or practical benefit.

## Further detail and evidence

The 2027 animal-ethics checklist explicitly includes replacement, suitability of species, the number of animals, and procedures covering pain/suffering/distress, housing, rewards, deprivation and aversive stimuli. Judge these against the scientific value and minimisation of harm.

The official checklist includes harm/benefit, replacement, species, numbers and procedures. Procedures include pain/suffering/distress, housing, rewards, deprivation and aversive stimuli. Reduction/refinement are useful supporting ideas, but do not replace the explicit checklist.

# Animal ethical guidelines

Lesson 2.4.2 | AS research methodology

## Applying the ideas

Hassett maintained group housing and normal provisioning, but toy damage required monitoring. Fagen used rewards without adding aversive training in sessions, while pre-existing chains restricted movement. An animal's ability to turn away matters, but is not informed human consent.

**Worked example:** A researcher wants to study learning in animals. Which two of the 3Rs should shape the plan? Replacement should be considered first, because the researcher should ask whether a simulation, existing data or non-animal method could answer the question. Reduction should also shape the plan by using only the number of animals needed for reliable evidence. Together, these principles reduce unnecessary animal use before the study begins.

**Worked example:** How could refinement improve welfare in an animal-learning study? Refinement could involve using positive reinforcement instead of punishment, providing suitable housing and enrichment, and keeping procedures short enough to reduce stress. The researcher should also monitor animals for signs of distress and stop or adjust the procedure if welfare is affected. This keeps the research more humane while still allowing behaviour to be studied.

## Evaluation and connections

Justify species and sample size for a worthwhile question. Too few animals can produce unusable evidence; unnecessary animals increase welfare cost. Existing husbandry remains relevant even when the study did not introduce it. Potential veterinary benefit is different from a measured welfare improvement.

# Validity and ecological validity

Lesson 2.4.3 | AS research methodology

## Core ideas

Validity asks whether a study or measure accurately represents the behaviour or concept being investigated.

Ecological validity asks whether findings reflect real-life behaviour outside the research setting.

A task can be well controlled but still lack validity if it does not measure the intended behaviour well.

Artificial materials, unusual settings and demand characteristics can reduce ecological validity.

High ecological validity can make findings more realistic, but may reduce control over extraneous variables.

Strong evaluation explains the specific validity issue rather than only saying a study is artificial.

# Validity and ecological validity

Lesson 2.4.3 | AS research methodology

## Key terms

**Validity:** How well research measures or represents what it claims to study.

**Ecological validity:** How well findings reflect real-life behaviour.

**Task validity:** How well a task measures the behaviour or ability it is meant to measure.

**Demand characteristics:** Clues that may make participants guess the aim and change behaviour.

**Artificial setting:** A research setting that differs from everyday life.

**Realism:** How closely a study resembles normal experience or behaviour.

**Extraneous variable:** An unwanted factor that could affect the result.

**Generalisability:** How far findings apply beyond the sample or setting studied.

## Further detail and evidence

Validity concerns whether a measure or conclusion captures the intended concept. Ecological validity concerns relevance to everyday behaviour. Demand characteristics can alter responses when participants infer expectations. Generalisability extends to populations and contexts, not only the physical setting.

# Validity and ecological validity

Lesson 2.4.3 | AS research methodology

## Applying the ideas

Bobo attacks may represent invited toy play rather than ordinary violence. A computerised personal-space choice is controlled but indirect. A line-up silhouette permits rejection, yet benign cartoons differ from a stressful crime. Identify the construct and the exact task before explaining the limitation.

**Worked example:** A memory study uses a list of random words. What validity issue could this create? A random word list may reduce ecological validity because real memory often involves meaningful information, conversations, routes or events rather than isolated words. The task may still be controlled and easy to score, but it may not fully represent everyday memory. The researcher should be careful when applying the findings to real-life remembering.

**Worked example:** Why might a field study improve ecological validity but reduce control? A field study may improve ecological validity because behaviour is observed in a more natural setting where people behave normally. However, the researcher may have less control over extraneous variables such as noise, crowding or other people's actions. This means the findings may be more realistic but harder to interpret as clear cause and effect.

## Evaluation and connections

A realistic field task can have confounds; a laboratory task can still investigate a meaningful process. Objectivity does not ensure construct validity, and reliability does not ensure correctness. Evaluate the specific link between procedure, score and intended claim.

# Reliability and replicability

Lesson 2.4.4 | AS research methodology

## Core ideas

Reliability is about consistency in procedures, measures or findings.

A reliable measure gives similar results when used in the same way under similar conditions.

Inter-observer reliability checks whether different observers record behaviour in similar ways.

Test-retest reliability checks whether a measure gives similar results across time when the target should be stable.

Replicability means a study can be repeated to see whether similar findings are found again.

High reliability supports confidence in evidence, but a reliable measure still needs to be valid.

## Key terms

**Reliability:** Consistency of a measure, procedure or finding.

**Replicability:** The ability to repeat a study and check whether similar findings occur.

**Inter-observer reliability:** Agreement between observers recording the same behaviour.

# Reliability and replicability

Lesson 2.4.4 | AS research methodology

*Continued*

**Test-retest reliability:** Consistency of scores when the same measure is used again later.

**Standardised procedure:** A procedure kept the same across participants or repeats.

**Consistency:** Similarity across measurements, observers or occasions.

**Measurement error:** Inaccuracy or variation caused by the measuring process.

**Validity:** How well a study or measure captures what it claims to study.

## Further detail and evidence

Inter-rater reliability is agreement between people judging or scoring the same material; inter-observer reliability applies to observers recording behaviour. Describe how agreement would be checked and improve unclear categories if agreement is poor.

Inter-rater reliability is agreement between people scoring the same material; inter-observer reliability concerns behaviour recording. Test-retest reliability assesses consistency across time when the target should be stable. Replicability requires enough procedural detail for another researcher to repeat the study.

# Reliability and replicability

Lesson 2.4.4 | AS research methodology

## Applying the ideas

Train independent observers using the same category definitions and compare coding of the same events. If agreement is poor, identify ambiguous categories and recheck after refinement. For a stable questionnaire construct, repeat the same measure after a suitable interval while considering memory effects.

**Worked example:** A playground observation uses two observers. How could they check reliability? The observers could independently record the same playground behaviour using the same behavioural categories, then compare how often their records match. High agreement would suggest good inter-observer reliability. If agreement is low, the categories may need clearer definitions or the observers may need more training.

**Worked example:** Why is a replicable study more useful than a one-off finding? A replicable study is more useful because other researchers can repeat the procedure and check whether similar results occur again. If findings appear across repeated studies, psychologists can have more confidence that the result was not just chance, bias or a one-time mistake. Replicability strengthens evidence, although the original measure still needs to be valid.

## Evaluation and connections

**Agreement does not establish validity:** two observers may share the same flawed interpretation. Change across time can be genuine rather than unreliability. Standardised instructions and scoring support consistency; reporting only "it is reliable because it is a lab" does not explain a check or its result.

# Planning studies for Paper 2

Lesson 2.4.5 | AS research methodology

## Core ideas

Paper 2 Section B contains a planning question worth 14 marks in total. Use the information given and plan the missing parts of an investigation, then evaluate practical/methodological issues, validity and reliability.

Include the procedure, how the plan supports validity and reliability, and the type of data. Give method-specific details that make the proposed investigation usable, rather than listing definitions.

For experiments, specify the operationalised IV and DV, controls/standardisation and experimental design; for a field experiment also specify the location. For self-reports, specify question format, example questions, scoring/interpretation, and questionnaire technique or interview format and technique.

For a case study, identify the participant/unit, information collected, at least two data-collection techniques and analysis/interpretation/triangulation. For observation, specify overt/covert, participant/non-participant, naturalistic/controlled and structured behavioural categories or unstructured recording.

For correlation, specify two co-variables, how each is measured and the proposed relationship/scatter graph. For a longitudinal study, specify tests/tasks, scoring, frequency/interval, how participants are re-contacted and controls/standardisation.

**Paper 2 scope:** aims and hypotheses are not expected in the plan. Candidates are not expected to evaluate sample/generalisability or ethics of the plan. Ethics remains required elsewhere in the course; these limits apply specifically to this planning task.

# Planning studies for Paper 2

Lesson 2.4.5 | AS research methodology

## Key terms

**Planning:** Describing a usable proposed investigation and explaining the choices relevant to the question.

**Triangulation:** Comparing information from at least two sources or techniques to check an interpretation.

## Further detail and evidence

For the 2027 Paper 2 plan, give procedure, validity, reliability and data type, plus the required details of the named method. Experiments need defined IV/DV, controls and design; field experiments also need location. Correlations need both co-variables, their measures and the proposed relationship/scatter graph.

## Applying the ideas

A memory plan can specify a fixed word list, timed exposure, defined delay and a correct-word recall score. State the music/silence conditions and how allocation/design works. Then explain how equal materials reduce a named confound and how standard scoring supports consistency. Follow any features supplied in the question.

# Planning studies for Paper 2

Lesson 2.4.5 | AS research methodology

*Continued*

**Worked example:** Plan a naturalistic observation of helping in a school common area. Specify what will be recorded and explain one way to improve reliability. Use non-participant observation in the normal common area during a fixed ten-minute period. Define helping as picking up and returning a dropped object, and count each completed act using a structured checklist. Use two observers trained on the same definition to record the same period independently, then compare their records and clarify categories where they disagree. Keep observation periods and the checklist consistent.

**Worked example:** Plan a longitudinal self-report study of exam stress over a school term. Give the timing, measure, scoring and re-contacting procedure. Use the same short questionnaire at the start, midpoint and end of term. Include an identical item such as "During the past seven days, how often have you felt worried about school tests?" with ordered responses from never to very often, scored consistently from 0 to 4. Assign a participant code and use agreed reminders to re-contact the same participants at each interval. Keep the wording, reference period and instructions unchanged, and compare scores for the same codes over time.

## Evaluation and connections

Do not add aims/hypotheses as expected Paper 2 plan features. The specific planning evaluation does not require sample/generalisability or ethics, although these remain examinable methods content elsewhere. Case studies need at least two collection techniques and triangulation; longitudinal plans need interval, scoring and re-contact arrangements.

Hint: follow the method and supplied details in the question. Write the missing procedure precisely and connect each proposed control to validity or reliability; a generic claim that a plan is reliable earns less useful explanation.

# Diagnostic criteria for schizophrenia

Lesson 3.1.1 | Clinical psychology

## Core ideas

Schizophrenia is diagnosed using patterns of symptoms, duration and impact on daily functioning.

Positive symptoms are added experiences or behaviours, such as hallucinations, delusions or disorganised speech.

Negative symptoms involve a reduction or loss of typical functioning, such as reduced emotional expression or motivation.

Diagnosis is not based on one symptom alone; clinicians consider combinations of symptoms and rule out other explanations.

Evaluation should consider reliability, validity, cultural interpretation, symptom overlap and the effect of labels.

ICD-11 schizophrenia requires at least two characteristic symptoms present most of the time for a month or longer; at least one must be delusions, hallucinations, disorganised thinking, or experiences of influence/passivity/control. Consider exclusions such as substances and medical conditions.

## Key terms

**Schizophrenia:** A psychotic disorder involving symptoms that can affect perception, thought, emotion and functioning.

**Diagnostic criteria:** Rules or features used to decide whether a diagnosis applies.

**Positive symptom:** An added experience or behaviour, such as hallucinations or delusions.

**Negative symptom:** A reduction or loss of typical functioning.

**Hallucination:** A perception, such as hearing a voice, without an external stimulus.

**Delusion:** A strongly held belief that is not supported by reality.

**ICD:** An international classification system used for health conditions, including mental disorders.

**Persecutory ideation:** Thoughts that others intend harm; the severity and context matter.

# Diagnostic criteria for schizophrenia

Lesson 3.1.1 | Clinical psychology

*Continued*

**ICD-11:** WHO International Classification of Diseases, eleventh revision; the terminology used by Cambridge 9990 where applicable.

**Passivity experience:** An experience that one's thoughts, actions or feelings are being controlled externally.

## Further detail and evidence

Delusions can concern persecution, reference, grandeur or control: for example, interpreting an ordinary conversation as a planned attack illustrates persecutory content. Negative symptoms include reduced motivation and emotional expression; they are not simply unusual experiences added to normal functioning.

Illustrative published case - O'Reardon et al. (2024) described a man with prolonged untreated psychosis, paranoid delusions, auditory hallucinations and disorganised speech, together with flat affect, apathy and reduced speech. Use this to distinguish positive from negative symptoms and discuss differential diagnosis and functioning; it is an example case, not a designated Cambridge key study.

Key study - Freeman et al. (2003): building on cognitive explanations of persecutory beliefs, the pilot tested whether neutral virtual people elicited persecution thoughts, and whether paranoia/emotional distress predicted these interpretations.

**Freeman:** 24 nonclinical volunteers, equally divided by sex, were recruited through University College London advertisements; 21 were students and three administrative staff. They explored a neutral virtual library containing five avatars for five minutes. Half completed questionnaires before and after VR; half only afterwards, checking possible priming.

**Freeman:** symptom/paranoia/anxiety questionnaires and a semi-structured interview assessed reactions. For the claim that avatars talked behind their back, 13/24 agreed at least a little. Interpersonal sensitivity and anxiety correlated with VR persecution; sensitivity was the strongest predictor. Many other interpretations were friendly.

**Delusion types:** persecution means being targeted or harmed; reference means neutral events have a special personal message; grandeur means exceptional power or importance; control concerns an external force governing thoughts or actions. A culturally shared belief is not automatically a delusion.

# Diagnostic criteria for schizophrenia

Lesson 3.1.1 | Clinical psychology

*Continued*

Disorganised thinking may be inferred from speech that is difficult to follow. Negative symptoms include avolition (reduced motivation), alogia (reduced speech) and blunted affect (reduced emotional expression). Positive/negative labels describe additions or losses, not good or bad behaviour.

Other characteristic features can include markedly disorganised behaviour and psychomotor disturbances, including catatonic features. Diagnosis uses a symptom pattern over time and exclusions, rather than treating each listed feature as sufficient on its own.

## Applying the ideas

**Apply the distinction:** hearing an absent voice is a hallucination; believing that a television presenter sends personal threats concerns a delusion of reference/persecution. Reduced spontaneous speech is a negative symptom. A clinician checks persistence and exclusions rather than diagnosing from this short description alone.

## Evaluation and connections

**Freeman evaluation:** identical avatar behaviour improves control, while questionnaire/interview agreement supports convergent evidence. Correlations do not establish causation. A small university volunteer sample limits generalisations to clinical schizophrenia. Withholding the precise purpose reduced priming but raises consent/deception issues; distress monitoring supported participant welfare.

Diagnostic reliability means agreement when the same evidence is assessed; validity asks whether the classification captures the intended disorder. Standard criteria improve shared communication, but symptom overlap and cultural interpretation can still affect judgement. A laboratory measure of suspicious interpretation can inform a cognitive explanation without being a diagnostic test.

Hint: distinguish persecutory ideation in a nonclinical sample from a diagnosed delusion. The study supports a method of investigating interpretation; it did not show that all participants had schizophrenia.

# Explanations of schizophrenia

Lesson 3.1.2 | Clinical psychology

## Core ideas

The dopamine hypothesis links unusual dopamine activity with symptoms such as hallucinations and delusions.

Genetic explanations suggest risk can run in families, but genes do not make schizophrenia inevitable.

Cognitive explanations focus on unusual thought processes, attention, interpretation and monitoring of inner speech.

A strong explanation should account for different symptoms, individual differences and evidence from more than one method.

Compare genetic explanations, the biochemical dopamine hypothesis and cognitive explanations. Family resemblance can support genetic vulnerability but shared environments prevent a simple genes-only conclusion.

The dopamine hypothesis proposes that disturbed dopamine transmission contributes to psychotic symptoms. Evidence that dopamine-blocking medication helps symptoms is relevant, but a treatment effect alone cannot prove a single original cause.

# Explanations of schizophrenia

Lesson 3.1.2 | Clinical psychology

## Key terms

**Biological explanation:** An explanation based on genes, brain activity or body processes.

**Dopamine hypothesis:** The idea that unusual dopamine activity contributes to schizophrenia symptoms.

**Genetic vulnerability:** Inherited risk that may increase the chance of developing a disorder.

**Cognitive explanation:** An explanation based on thinking, attention or interpretation processes.

**Inner speech:** Internal verbal thought that may be misinterpreted in some explanations.

**Reductionism:** Explaining a complex disorder too narrowly through one factor only.

## Further detail and evidence

Cognitive accounts explain how difficulties monitoring internal events or interpreting evidence can lead to voices or threatening interpretations. Evaluate these accounts using individual differences, nature/nurture, reductionism/holism and determinism/free will.

Genetic evidence compares biological relatives with different degrees of shared genes. Higher concordance among identical than non-identical twins is compatible with genetic vulnerability. Concordance below 100% shows that inherited similarity is insufficient as a complete explanation; shared upbringing and assessment must also be considered.

# Explanations of schizophrenia

Lesson 3.1.2 | Clinical psychology

*Continued*

**Dopamine account:** altered dopamine signalling, particularly excessive activity in some pathways, is linked with positive symptoms. The relationship is more complex than all brain areas having too much dopamine. Cognitive accounts propose faulty source monitoring: an internally generated thought may be experienced as an external voice.

## Applying the ideas

A threatening interpretation of an ambiguous glance illustrates cognitive appraisal. A dopamine-blocking treatment reducing voices is consistent with biochemical involvement, but reducing a symptom does not identify its sole original cause. Genetic risk and learned interpretations can operate at different explanatory levels.

## Evaluation and connections

Biological explanations allow objective investigation and targeted treatments, but can be reductionist or deterministic. Cognitive explanations address the meaning of individual experiences but may rely on retrospective reports. A correlation between unusual cognition and symptoms cannot establish which came first. Compare what each theory explains about both positive and negative symptoms.

# Treatment and management of schizophrenia

Lesson 3.1.3 | Clinical psychology

## Core ideas

Antipsychotic medication can reduce symptoms by affecting neurotransmitter activity, especially dopamine systems.

Medication may help many people manage positive symptoms, but side effects and adherence can limit usefulness.

Cognitive behavioural therapy can help people test beliefs, cope with voices and reduce distress linked to symptoms.

Management often combines medication, psychological therapy, social support and practical care planning.

A strong evaluation considers effectiveness, relapse, side effects, access, patient choice and whether treatment fits the person's symptoms.

**Drug comparison:** typical antipsychotics, such as chlorpromazine, principally block dopamine D2 receptors. Atypical antipsychotics, such as clozapine, have broader receptor effects. Compare benefits with movement-related and metabolic side effects; avoid claiming that either group is universally better.

# Treatment and management of schizophrenia

Lesson 3.1.3 | Clinical psychology

## Key terms

**Antipsychotic:** Medication used to reduce psychotic symptoms such as hallucinations or delusions.

**Dopamine antagonist:** A drug that reduces dopamine activity by blocking dopamine receptors.

**CBT:** A talking therapy that helps people examine thoughts, beliefs and coping strategies.

**Relapse:** A return or worsening of symptoms after improvement.

**Adherence:** How far a person follows a treatment plan.

**Side effect:** An unwanted effect of a treatment.

**Management plan:** A coordinated plan for treatment, support and daily functioning.

**Typical antipsychotic:** A first-generation antipsychotic, commonly acting through dopamine D2 blockade.

**Atypical antipsychotic:** A second-generation antipsychotic with a different receptor-action profile from typical drugs.

**ECT:** Electro-convulsive therapy: a medically controlled seizure treatment under anaesthesia.

## Further detail and evidence

Electro-convulsive therapy (ECT) is explicitly in the 2027 syllabus. A controlled electrical stimulus produces a seizure under general anaesthesia and muscle relaxation. Evaluate possible short-term symptom relief against cognitive/memory effects, consent and individual circumstances.

**Clinical context:** NICE does not recommend ECT for general management of schizophrenia; it can be an option for severe catatonia under specified circumstances. Inclusion in the examination syllabus is not a claim that it is routine treatment for every patient.

# Treatment and management of schizophrenia



*Continued*

**Psychological therapy:** CBT examines distressing interpretations and coping responses through collaborative questioning and behavioural tests. Illustrative study - Sensky et al. (2000) randomly compared CBT with befriending in 90 people with persistent medication-resistant schizophrenia; both improved during treatment, but CBT participants continued to improve at follow-up.

**Drug mechanisms:** typical antipsychotics reduce dopamine transmission through receptor blockade. Atypical drugs also act on other receptor systems; clozapine may help treatment-resistant cases but requires blood monitoring because of potentially serious adverse effects. Movement effects, sedation, weight gain and metabolic changes can affect adherence.

CBT does not simply tell someone that a belief is false. Therapist and client consider alternative interpretations, test predictions safely and develop coping responses. Sensky used befriending as an active comparison, helping separate specific CBT techniques from supportive contact.

## Applying the ideas

**Evaluation example:** a fall in symptom ratings during both CBT and befriending could reflect common therapeutic attention. Further improvement in the CBT group after sessions ended strengthens the case for learned coping skills. Random allocation supports the comparison while participants knowing their therapy leaves expectancy effects possible.

## Evaluation and connections

**Judge outcomes separately:** fewer symptoms, less distress, daily functioning and lower relapse need not change equally. Medication can work without changing a person's interpretation; CBT can improve coping without removing every voice. ECT requires careful consent and monitoring; its syllabus inclusion should be distinguished from routine clinical use.

# Diagnostic criteria for mood disorders

Lesson 3.2.1 | Clinical psychology

## Core ideas

Mood disorders involve significant disturbance in mood that affects thinking, behaviour and daily functioning.

Depressive disorder is linked with persistent low mood, loss of interest and changes in sleep, appetite, energy or concentration.

Bipolar I requires mania or a mixed episode; depression may also occur. Bipolar II involves hypomania and depressive episodes, without mania.

Mania can involve unusually elevated or irritable mood, increased energy, reduced need for sleep and risky behaviour.

Diagnostic systems use criteria such as symptom pattern, duration, severity and impact on functioning.

Diagnosis can be difficult because symptoms overlap with grief, stress, substance use and other mental disorders.

## Key terms

**Mood disorder:** A disorder involving significant disturbance in mood and functioning.

**Depressive disorder:** A mood disorder involving persistent low mood or loss of interest.

**Bipolar disorder:** A mood disorder involving mania or hypomania, with depressive episodes depending on its type.

**Mania:** A state of unusually elevated or irritable mood with increased energy or activity.

# Diagnostic criteria for mood disorders

Lesson 3.2.1 | Clinical psychology

*Continued*

**Hypomania:** A less severe manic state that still changes mood, energy and behaviour.

**Anhedonia:** Reduced interest or pleasure in activities.

**Impairment:** Difficulty in daily functioning caused by symptoms.

**Episode:** A period of symptoms lasting long enough to meet diagnostic criteria.

**BDI:** Beck Depression Inventory, a self-report measure of depressive symptom severity.

## Further detail and evidence

ICD-11 depressive episodes normally require at least five characteristic symptoms for two weeks, including depressed mood or loss of interest, with distress/impairment and appropriate exclusions. Distinguish depressive disorder from a depressive episode within bipolar disorder.

A manic episode features marked mood and energy/activity change; bipolar I can involve mania or a mixed episode without any previous depressive episode. Bipolar II involves hypomania and depression, without mania. Do not define all bipolar illness as requiring both depression and mania.

**Measure:** the Beck Depression Inventory (BDI) is a standardised self-report measure of depressive symptom severity. Evaluate response bias, cultural interpretation, validity and reliability; it supports assessment and monitoring but is not a standalone diagnostic decision.

Unipolar depression has depressive episodes without a history of mania/hypomania that changes the diagnosis. Symptoms can include worthlessness, hopelessness, disturbed sleep/appetite, low energy and concentration difficulties. An episode is more persistent and impairing than ordinary short-lived sadness.

# Diagnostic criteria for mood disorders

Lesson 3.2.1 | Clinical psychology

*Continued*

Mania is a marked disturbance with elevated, expansive or irritable mood and increased activity/energy, often with reduced need for sleep and impaired judgement. Hypomania is less severe and does not meet manic severity. Assess the whole history, including medicines and substance effects.

**BDI structure:** respondents choose graded statements describing depressive symptoms; item scores are summed to indicate severity. The original BDI and later revisions differ, so identify the version before using a cutoff. Repeated use can monitor change; a total cannot establish whether low mood is unipolar or bipolar.

A manic episode generally lasts at least a week unless severity shortens the duration requirement; hypomania persists for several days with a less severe change. The commonly used BDI versions contain 21 symptom items scored 0-3, with a 0-63 total; version and clinical context matter when interpreting severity.

## Applying the ideas

Someone sleeping little while feeling unusually energetic, spending recklessly and becoming markedly overactive needs assessment for mania, rather than having sleep loss treated as proof of depression. A high BDI score signals symptom burden; a full clinical interview provides duration, context and episode history.

## Evaluation and connections

Self-report permits access to private feelings and standard comparisons. Recall, social desirability and reading comprehension can affect scores. Overlap with physical illness complicates somatic items. Cultural differences in expressing distress may affect validity; consistent scoring alone does not resolve this.

# Explanations of depressive disorder

Lesson 3.2.2 | Clinical psychology

## Core ideas

Genetic risk can make depressive disorder more likely, but it does not mean a person will definitely develop depression.

Cognitive explanations link depression with negative beliefs, biased interpretation and patterns such as the negative triad.

A strong explanation uses evidence carefully and recognises that different people may have different pathways into depression.

**Biochemical account:** neurotransmitter processes, including serotonin and noradrenaline, may contribute to depressive symptoms. Evaluate reductionism: variation in mood is not explained adequately by simply labelling everyone as having a chemical imbalance.

Beck's cognitive theory includes negative views of the self, world and future, dysfunctional beliefs and biased information processing. Learned helplessness proposes that perceived lack of control discourages attempts to change outcomes; a pessimistic attributional style explains bad events as internal, stable and global.

Illustrative evidence - Seligman et al. (1988) investigated explanatory-style change during cognitive therapy for unipolar depression. Connect changing interpretations to symptoms and consider whether an association between changes establishes the direction of causation.

# Explanations of depressive disorder

Lesson 3.2.2 | Clinical psychology

## Key terms

**Biological explanation:** An explanation based on genes, brain chemistry, hormones or body processes.

**Genetic vulnerability:** Inherited risk that can increase the chance of developing depression.

**Neurotransmitter:** A chemical messenger involved in communication between neurons.

**Cognitive bias:** A pattern of thinking that interprets information in a distorted or negative way.

**Negative triad:** Negative views of the self, the world and the future.

**Attributional style:** A habitual way of explaining why events occur.

**Genetic association:** A statistical relationship between a genetic variant and a characteristic; it does not itself establish causation.

## Further detail and evidence

Key study - Oruc et al. (1997): the researchers tested associations between bipolar I and variants of the serotonin receptor 5-HT2C and serotonin transporter genes. DNA from 42 bipolar I patients and 40 healthy controls was compared; this was an association design, not random assignment to genetic conditions. Patients came from two Zagreb hospitals; diagnosis used a lifetime psychiatric interview (SADS-L) reviewed by a second psychiatrist, and the gene analysis used blood-derived DNA.

**Oruc results:** there was no significant association in the full patient sample. Exploratory sex-specific analyses suggested only weak possible associations in women; small subgroups and multiple comparisons limit confidence. The results do not show a single gene determining illness. Inferential probabilities are not a required recall item for this study.

# Explanations of depressive disorder

Lesson 3.2.2 | Clinical psychology

*Continued*

**Beck:** negative schemas bias attention and interpretation. An ordinary setback can activate the triad: "I am inadequate" (self), "others are hostile" (world), and "nothing will improve" (future). Selective attention and overgeneralisation can maintain mood.

Learned helplessness follows experience of uncontrollable outcomes. Attributional reformulation asks why the person thinks bad events occur: internal explanations blame the self, stable explanations predict persistence, and global explanations spread the problem across life areas. These are explanatory dimensions rather than three separate symptoms.

## Applying the ideas

After failing one test, "I always fail at everything because I am useless" is internal, stable and global. "This test was difficult and my revision method needs changing" is more specific and changeable. Seligman's therapy evidence relates improvement in explanatory style to reduced depression; the association alone cannot isolate the mechanism.

## Evaluation and connections

**Oruc evaluation:** objective genetic analysis aids replicability, but small subgroups, multiple comparisons, population differences and gene-environment interaction limit conclusions. Critically, the original study concerned bipolar I, although Cambridge places it in the mood-disorder explanations section labelled depressive disorder. Do not relabel its participants as unipolar-depression patients.

**Use Oruc accurately:** objective DNA comparison tests a proposed association, but its main null result does not support a simple gene explanation. Sex-specific exploratory findings require replication. Biological influences can interact with stress and cognition; do not infer a universal serotonin deficiency from antidepressant effectiveness.

# Treatment and management of mood disorders

Lesson 3.2.3 | Clinical psychology

## Core ideas

Antidepressant medication aims to reduce depressive symptoms by affecting neurotransmitter systems linked with mood.

Medication can help some people, but side effects, delayed improvement and adherence problems can limit usefulness.

Cognitive behavioural therapy targets negative thoughts and behaviour patterns that may maintain low mood.

Management plans may combine medication, psychological therapy, social support, monitoring and relapse-prevention strategies.

Treatment decisions should consider severity, risk, patient preference, availability and whether symptoms are depressive or bipolar.

Required antidepressant classes are tricyclics, monoamine oxidase inhibitors (MAOIs) and selective serotonin reuptake inhibitors (SSRIs). Compare how they influence neurotransmitter availability, together with adverse effects, interactions, delayed response and adherence.

# Treatment and management of mood disorders

Lesson 3.2.3 | Clinical psychology

## Key terms

**Antidepressant:** Medication used to reduce symptoms of depressive disorder.

**SSRI:** A common type of antidepressant that affects serotonin signalling.

**CBT:** A talking therapy that works on thoughts, beliefs and behaviour.

**Adherence:** How far a person follows a treatment plan.

**Relapse prevention:** Planning to reduce the chance of symptoms returning.

**Side effect:** An unwanted effect of a treatment.

**MAOI:** An antidepressant class that inhibits monoamine oxidase, an enzyme involved in neurotransmitter breakdown.

**REBT:** Ellis's rational emotive behaviour therapy; it challenges irrational beliefs linking events to emotional consequences.

## Further detail and evidence

Beck's cognitive restructuring identifies automatic negative thoughts, examines evidence and develops more balanced interpretations. Ellis's rational emotive behaviour therapy (REBT) uses the activating event-belief-consequence model and disputes irrational beliefs.

# Treatment and management of mood disorders

Lesson 3.2.3 | Clinical psychology

*Continued*

Tricyclic antidepressants reduce reuptake of monoamines such as serotonin/noradrenaline, but have wider receptor effects and adverse effects. MAOIs inhibit the enzyme that breaks down monoamines, increasing their availability; food and drug interactions require careful management. SSRIs selectively reduce serotonin reuptake, but can still cause side effects and delayed improvement.

Beck's restructuring uses thought records, evidence for/against automatic thoughts and behavioural tests to build more balanced conclusions. Ellis's REBT separates A (activating event), B (belief) and C (emotional/behavioural consequence); disputing rigid irrational beliefs can change C even when A cannot be changed.

## Applying the ideas

A: receiving criticism. B: "Everyone must approve of me or I am worthless." C: intense despair and withdrawal. REBT questions the absolute demand; restructuring tests the evidence for the global negative conclusion. A revised belief can acknowledge disappointment without treating one criticism as a judgement of the whole person.

## Evaluation and connections

Drugs can be accessible and useful for symptoms but do not directly change learned beliefs. Therapy builds skills but requires time, engagement and trained staff. Compare appropriate patient groups, follow-up, relapse and adverse effects. Treating bipolar illness requires distinguishing episode type; do not assume a unipolar antidepressant plan fits every mood disorder.

# Diagnostic criteria for impulse control disorders

Lesson 3.3.1 | Clinical psychology

## Core ideas

Impulse control disorders involve repeated difficulty resisting urges or drives even when the behaviour has harmful consequences.

Diagnosis looks for a pattern over time, not a single impulsive act or ordinary risk-taking.

Many descriptions include rising tension or urge before the behaviour and relief or gratification during or after it.

The behaviour must cause distress, impairment, danger or serious consequences for daily life or relationships.

Clinicians consider whether the behaviour is better explained by another disorder, substance use, a medical condition or the social context.

Careful diagnosis separates moral judgement from clinical assessment by focusing on symptoms, context, harm and functioning.

## Key terms

**Impulse:** A strong urge to act quickly without full consideration of consequences.

**Impulse control:** The ability to resist or delay an urge.

**Urge:** A strong feeling that pushes a person toward a behaviour.

**Tension:** A build-up of pressure or arousal before an impulsive act.

**Gratification:** A feeling of pleasure or relief linked with carrying out the behaviour.

**Impairment:** Difficulty in daily functioning caused by symptoms.

# Diagnostic criteria for impulse control disorders



*Continued*

**Exclusion criterion:** A rule that checks whether another cause better explains the behaviour.

**Clinical significance:** A level of distress, harm or impairment that makes symptoms clinically important.

**K-SAS:** Kleptomania Symptom Assessment Scale, a measure of symptom severity.

**Kleptomania:** Recurrent failure to resist stealing urges, not explained simply by a need for the objects.

**Pyromania:** Recurrent urge-driven fire-setting, with interest or fascination in fire.

## Further detail and evidence

2027 examinable examples are kleptomania, pyromania and gambling disorder. Kleptomania concerns recurrent urges to steal objects without a practical need; pyromania concerns recurrent deliberate fire-setting driven by urges and fascination, rather than ordinary gain or revenge.

Gambling disorder involves impaired control, increasing priority and persistence despite harmful consequences. Cambridge groups it here for teaching, while ICD-11 classifies it among disorders due to addictive behaviours; retain that distinction.

**Measure:** the Kleptomania Symptom Assessment Scale (K-SAS) assesses the severity of urges, thoughts, behaviour and related distress. Self-report measures permit comparison over time but depend on honest and accurate reporting.

**Apply the 2027 methods/debates to diagnosis:** questionnaires and case studies can provide different evidence; quantitative severity scores and qualitative accounts should be evaluated for objectivity, validity and generalisability.

# Diagnostic criteria for impulse control disorders



*Continued*

Kleptomania involves recurrent failure to resist stealing without a need for the objects' use or value; tension/urge and relief may surround the act. Pyromania involves repeated intentional fire-setting linked to tension and fascination, rather than financial gain, revenge or another clear external motive.

Gambling disorder involves impaired control, gambling taking priority over other activities, and continuation despite consequences. Financial losses alone do not establish the diagnosis. The pattern and significant impairment matter, including occupational, family and social functioning.

K-SAS uses graded symptom ratings over a defined recent period, producing a severity score. Repeated administration can track urges and distress as well as behaviour; limited opportunity to steal can reduce recorded acts without removing an urge.

K-SAS has 11 graded items, each scored 0-4, covering a recent week; its total runs from 0 to 44. A total summarises severity and change, while interview evidence is still needed to establish the nature and motive of the behaviour.

## Applying the ideas

Stealing an expensive item solely for resale is not sufficient evidence of kleptomania. Repeated urge-driven theft of unneeded objects is more consistent with the clinical description, but exclusions still need assessment. Similarly, accidental fire-setting is different from recurrent deliberate urge-related behaviour.

## Evaluation and connections

These behaviours carry stigma and possible legal consequences, which can reduce honest disclosure. Confidential interviews and multiple measures improve understanding. A severity scale offers a common metric but cannot by itself distinguish motives or establish every diagnostic exclusion. Explain classification separately from moral judgement.

# Explanations of impulse control disorders

Lesson 3.3.2 | Clinical psychology

## Core ideas

Behavioural explanations suggest relief, pleasure or reduced tension can reinforce the impulsive act and make it more likely to happen again.

The required biological explanation focuses on dopamine and reward processes. A rewarding experience can increase the incentive to repeat an act; this does not mean dopamine levels alone explain every case.

Positive reinforcement strengthens behaviour when an act produces pleasure or another valued outcome. Distinguish it from negative reinforcement, where removing tension or distress strengthens the behaviour.

Miller's feeling-state theory proposes that an intense positive feeling becomes associated with a particular behaviour, creating a feeling-behaviour link that later triggers urges to repeat it. Evaluate whether this explanation accounts for individual differences and harmful persistence.

# Explanations of impulse control disorders

Lesson 3.3.2 | Clinical psychology

## Key terms

**Inhibition:** The ability to stop or delay a response.

**Reward pathway:** Brain systems involved in pleasure, motivation and reinforcement.

**Dopamine:** A neurotransmitter involved in reward and motivation.

**Negative reinforcement:** A behaviour becoming more likely because it removes an unpleasant feeling.

**Positive reinforcement:** A behaviour becoming more likely because it produces pleasure or reward.

**Cognitive distortion:** A biased or inaccurate way of thinking about a situation.

**Trigger:** A cue or situation that increases the urge to act.

**Feeling-state theory:** Miller's account in which an intense positive feeling becomes linked with a behaviour and motivates its repetition.

# Explanations of impulse control disorders

Lesson 3.3.2 | Clinical psychology

## Further detail and evidence

Dopamine is involved in reward prediction and incentive motivation. Cues previously associated with rewarding acts can gain motivational value. A biological account can explain compelling urges without showing that every person has the same neurotransmitter abnormality.

**Reinforcement account:** obtaining excitement, pleasure or a desired object is positive reinforcement. Relief from tension is negative reinforcement because an unpleasant state is removed. Either consequence can strengthen repetition even when later consequences are harmful.

**Feeling-state account:** an intense positive emotional state becomes linked with a behaviour and aspects of the self, such as feeling powerful or successful. Later cues reactivate the link, encouraging repetition to recreate that state. This differs from simply overestimating the odds of winning.

## Applying the ideas

A gambling win may provide excitement (positive reinforcement), while gambling to escape worry can be maintained by temporary relief (negative reinforcement). Miller's account highlights the persistent positive feeling-behaviour association. Long-term debt does not prevent short-term reinforcement from maintaining the cycle.

## Evaluation and connections

Reward explanations offer testable predictions, but inferring dopamine from visible behaviour is indirect. Learning explains environmental triggers and suggests behavioural change; it may understate biological differences. Feeling-state reports provide personal meaning but can be difficult to test independently. Distinguish a theory of onset from maintenance.

# Treatment and management of impulse control disorders

Lesson 3.3.3 | Clinical psychology

## Core ideas

Cognitive behavioural therapy can help people recognise triggers, challenge thinking patterns and plan safer responses to urges.

Behavioural strategies may include delaying the response, avoiding high-risk cues, practising alternative behaviours and reducing reinforcement for the impulsive act.

Some management plans use medication to target mood, anxiety, reward or impulse-control difficulties, depending on the person and diagnosis.

Relapse prevention focuses on recognising warning signs, planning support and preparing for situations where urges are likely.

Family or social support can reduce opportunities for harmful behaviour and make coping plans easier to follow.

Treatment should consider severity, risk, motivation, access, side effects, co-occurring disorders and whether the plan fits the person's daily life.

## Key terms

**CBT:** A talking therapy that works on thoughts, beliefs and behaviour.

**Trigger management:** Planning how to reduce or cope with cues that increase urges.

**Response prevention:** Stopping or delaying the usual impulsive behaviour after an urge.

**Coping strategy:** A planned action used to manage urges or stress.

**Relapse:** A return of harmful behaviour after improvement.

**Relapse prevention:** Planning to reduce the chance of symptoms returning.

**Adherence:** How far a person follows a treatment plan.

# Treatment and management of impulse control disorders

Lesson 3.3.3 | Clinical psychology

*Continued*

**Co-occurring disorder:** Another disorder present at the same time.

**Opioid antagonist:** A drug that blocks opioid receptors; used in the Grant gambling trials.

**PG-YBOCS:** Yale-Brown Obsessive Compulsive Scale modified for pathological gambling.

**Covert sensitisation:** An imagery-based procedure linking an unwanted act with unpleasant imagined consequences.

**Imaginal desensitisation:** An imagery-based method intended to reduce arousal and improve responses to triggering situations.

## Further detail and evidence

Key study - Grant et al. (2008): because responses to opioid antagonists differed, the study examined which clinical characteristics predicted improvement. It pooled 284 adults with pathological gambling from two double-blind placebo-controlled trials: 16 weeks of nalmefene and 18 weeks of naltrexone.

**Grant method:** 214 received active medication and 70 placebo after random allocation within the original trials. Repeated PG-YBOCS ratings measured gambling urges and behaviour. Response meant at least a 35% score reduction maintained for a month by the endpoint.

**Grant findings:** family history of alcohol problems was the clearest predictor of response to active medication. Stronger urges at higher doses and younger age in the placebo group were weaker trends. The analysis identifies predictors, not proof that family history causes medication response.

**Required psychological treatments include covert sensitisation:** the person imagines the unwanted act paired with unpleasant consequences (illustrated by Glover's 1985 kleptomania case). Imaginal desensitisation pairs imagined triggering situations with reduced arousal and alternative responses (illustrated by Blaszczynski and Nower, 2003).

# Treatment and management of impulse control disorders



*Continued*

Opioid antagonists block opioid receptors and may reduce the rewarding impact or urge associated with gambling. They are not dopamine-receptor blockers. Grant investigated predictors of improvement in trials of two such medicines, rather than directly measuring a dopamine mechanism.

Covert sensitisation uses imagined unwanted behaviour followed by imagined aversive consequences. Glover's kleptomania case illustrates pairing theft imagery with unpleasant responses to weaken attraction. Imaginal desensitisation rehearses urge-triggering scenes while practising a calmer alternative response, illustrated by Blaszczynski and Nower.

## Applying the ideas

For a learned trigger, a psychological intervention changes the association or response without requiring the person to carry out the harmful act. A later reduction in urges and acts is relevant to effectiveness; follow-up is needed to assess persistence. Case improvement cannot exclude spontaneous change, expectancy or concurrent support.

## Evaluation and connections

**Grant evaluation:** blinding and placebo control reduce expectancy bias. Pooling trials increases sample size but combines different drugs, durations and samples; clinical exclusions restrict generalisation. Informed consent and monitoring of adverse effects matter. Distinguish opioid-antagonist treatment from a claim that the study directly tested dopamine levels.

Compare biological treatment and cognitive-behavioural approaches using effects on urges and behaviour, side effects, durability, ethical consent and individual needs. Case evidence gives detail but cannot alone establish that treatment caused improvement.

Grant's pooled analysis concerns selected treatment-seeking adults with gambling problems. Findings should not be transferred automatically to pyromania or kleptomania. A predictor measured before treatment can support personalisation, but association does not show causation. Compare drug adverse effects with the distress, engagement and skill demands of imagery-based therapy.

# Diagnostic criteria for anxiety disorders and fear-related disorders

Lesson 3.4.1 | Clinical psychology

## Core ideas

Anxiety disorders involve fear or anxiety that is excessive, persistent and disruptive to everyday functioning.

Fear is usually a response to an immediate threat, while anxiety is often anticipation of a future threat.

Specific phobia focuses on a particular object or situation, while agoraphobia involves feared situations where escape or help may feel difficult.

Diagnosis considers duration, avoidance, distress, impairment and whether symptoms are better explained by another condition or substance.

ICD-11 GAD involves persistent apprehension or excessive worry across everyday concerns, with associated symptoms, over several months. Agoraphobia centres on situations where escape or help may be difficult; a specific phobia centres on a defined stimulus such as blood or injections.

**Measures:** GAD-7 assesses generalised-anxiety symptom severity. The Blood-Injection Phobia Inventory (BIPI), illustrated by Mas et al. (2010), assesses responses to blood/injection situations. Evaluate questionnaire reliability, validity and subjective reporting; scores alone do not establish a diagnosis.

# Diagnostic criteria for anxiety disorders and fear-related disorders

Lesson 3.4.1 | Clinical psychology

## Key terms

**Fear:** An emotional response to an immediate perceived threat.

**Anxiety:** Worry or apprehension about a possible future threat.

**Avoidance:** Staying away from feared situations or objects.

**Specific phobia:** Excessive fear of a specific object or situation.

**Agoraphobia:** Fear of situations where escape or help may feel difficult.

**Generalised anxiety:** Persistent, hard-to-control worry across several areas of life.

**GAD-7:** Seven-item Generalised Anxiety Disorder assessment, a symptom-severity measure.

**BIPI:** Blood-Injection Phobia Inventory, a questionnaire concerning blood/injection fear.

## Further detail and evidence

GAD concerns difficult-to-control, broad worries across everyday domains rather than one stimulus. Associated tension, restlessness, disturbed sleep and concentration problems may occur. Agoraphobia concerns situations such as crowds, transport or being outside alone where escape or help seems difficult.

Blood/injection/injury phobia is a specific phobia involving marked fear and avoidance of related stimuli. Some sufferers show a two-phase physiological response: initial arousal followed by a blood-pressure drop and possible fainting. This feature matters when comparing relaxation with applied tension.

# Diagnostic criteria for anxiety disorders and fear-related disorders



*Continued*

GAD-7 contains seven frequency-rated items about recent anxiety symptoms. BIPI examines blood/injection situations and cognitive, physiological and behavioural responses; Mas et al. (2010) investigated its assessment properties. Severity measures support assessment without replacing duration, impairment and exclusion checks.

GAD-7 rates seven items from 0 to 3 over the past two weeks, giving a 0-21 total. This brief measurement window differs from the longer persistence required for a clinical diagnosis. Agoraphobia and specific phobia involve persistent fear/avoidance over several months, with distress or impairment.

## Applying the ideas

Avoiding a hospital because of needles suggests a different feared cue from avoiding a bus because help would be difficult if symptoms occurred. Ask what the person fears and why they avoid it. The same location can be avoided for different reasons and cannot identify a diagnosis alone.

## Evaluation and connections

Scale consistency supports reliability but does not prove diagnostic validity. Physiological fainting and subjective anxiety are different outcomes. Questionnaires can miss context, and people may describe bodily symptoms differently across cultures. Compare self-report with interview and observed approach/avoidance.

# Explanations of fear-related disorders

Lesson 3.4.2 | Clinical psychology

## Core ideas

Classical conditioning can explain how a neutral object or situation becomes associated with fear after a frightening or unpleasant experience.

The required biological account is genetic vulnerability. Öst (1992), an illustrative blood/injection-phobia study, supplies evidence about family patterns and physiological/behavioural features; family resemblance alone cannot separate inherited and learned influences.

Classical conditioning pairs a formerly neutral stimulus with an aversive experience. Watson and Rayner's (1920) Little Albert illustrates learned fear and stimulus generalisation, while raising major consent, distress and sample-size concerns.

The required psychodynamic account uses unconscious conflict and displacement. Freud's Little Hans case (1909) interprets a boy's horse phobia through family conflict; evaluate reliance on interpretation and reports mediated through the father.

# Explanations of fear-related disorders

Lesson 3.4.2 | Clinical psychology

## Key terms

**Classical conditioning:** Learning by association between two stimuli.

**Operant conditioning:** Learning through consequences such as relief or reward.

**Avoidance:** Staying away from a feared object or situation.

**Negative reinforcement:** A behaviour becoming more likely because it removes an unpleasant feeling.

**Displacement:** Redirecting an emotion from its original focus to another object or situation in a psychodynamic account.

## Further detail and evidence

**Genetic vulnerability:** family patterns in blood/injection phobia, illustrated by Öst (1992), are consistent with inherited susceptibility. Families also share models and experiences; a family history does not separate these influences automatically.

**Classical conditioning:** a neutral rat was paired with a loud aversive sound in Watson and Rayner's Little Albert case. The rat could then elicit fear; fear also generalised to related furry stimuli. Label the unconditioned stimulus/response and conditioned stimulus/response, rather than calling any avoidance classical conditioning.

# Explanations of fear-related disorders

Lesson 3.4.2 | Clinical psychology

*Continued*

**Psychodynamic account:** Freud interpreted Little Hans's horse fear as displacement of unconscious conflict involving his parents. The horse became a safer symbolic target than the feared family conflict. This is an interpretation of a case, rather than an experimentally demonstrated causal sequence.

## Applying the ideas

A painful injection could act as an aversive event and the sight of a syringe become a learned fear cue. Continued avoidance may additionally be negatively reinforced by relief. That maintenance mechanism complements the original classical-conditioning account but should not be confused with the pairing itself.

## Evaluation and connections

Little Albert offers observation of fear learning but has one infant, limited controls and serious distress/consent concerns. Hans provides detailed meaning but relies on indirect reports and difficult-to-falsify interpretation. Genetic accounts generalise risk but may be reductionist. Compare which evidence could distinguish competing explanations.

# Treatment and management of anxiety disorders and fear-related disorders

Lesson 3.4.3 | Clinical psychology

## Core ideas

CBT helps people identify anxious thoughts, test threat predictions and practise more helpful responses to feared situations.

Exposure-based treatments reduce avoidance by helping the person face feared cues in a planned and supported way.

Gradual exposure can use a fear hierarchy, moving from less frightening to more frightening situations while coping skills are practised.

Good management plans include relapse prevention, support systems and adaptations for the specific anxiety pattern.

**Behavioural therapy:** systematic desensitisation combines a graded fear hierarchy with a learned incompatible response such as relaxation. It is more specific than exposure alone; the rationale is to weaken the anxiety response gradually.

Applied tension is included for blood/injection/injury phobia because some sufferers show a fall in blood pressure and fainting. Its rationale is to counter that fall; do not assume ordinary relaxation and muscle tension are interchangeable.

# Treatment and management of anxiety disorders and fear-related disorders

Lesson 3.4.3 | Clinical psychology

## Key terms

**CBT:** A therapy that works on thoughts, beliefs and behaviour.

**Exposure therapy:** Treatment involving planned contact with feared cues or situations.

**Fear hierarchy:** A ranked list of feared situations from easier to harder.

**Gradual exposure:** Step-by-step exposure to feared situations.

**Systematic desensitisation:** Gradual exposure paired with relaxation or calmer responding.

**Relapse prevention:** Planning to reduce the chance of symptoms returning.

**Applied tension:** Muscle-tension training used to counter fainting responses associated with blood/injection/injury phobia.

## Further detail and evidence

**Key study - Chapman and DeLapp (2013):** this case examined nine sessions of manualised CBT with applied tension for "T", a self-referred 42-year-old White man whose long-standing blood/injection/injury phobia prevented medical care.

**Chapman/DeLapp method:** interviews and symptom questionnaires informed an individual formulation. Sessions used psychoeducation, monitoring, cognitive restructuring, graded exposure and applied tension; subjective distress ratings tracked change. Exposure progressed towards blood tests and routine medical procedures.

**Chapman/DeLapp findings:** T resumed medical procedures and reported lasting gains at follow-up. At about 12 months his Beck Anxiety Inventory score had fallen from 41 to 7, and blood/injection sensations were reduced. This supports feasibility for this case, not proof that one component alone caused improvement.

# Treatment and management of anxiety disorders and fear-related disorders

Lesson 3.4.3 | Clinical psychology

*Continued*

Systematic desensitisation begins with a graded hierarchy, teaches an incompatible response and progresses through increasingly feared situations. Improvement should involve reduced fear/avoidance, not just being able to recite the hierarchy. Exposure alone does not necessarily include the incompatible-response component.

**CBT adds work on predictions and beliefs:** identify an expectation, consider evidence, test it safely and review what happened. Applied tension specifically targets the fainting tendency in BII phobia; its physiological purpose differs from reducing arousal through relaxation.

## Applying the ideas

Chapman and DeLapp combined cognitive and behavioural components with applied tension. A lower BAI score and renewed medical attendance provide different kinds of outcome evidence. Because the components were combined, the case cannot tell us whether tension, exposure, cognitive change or their interaction was responsible.

## Evaluation and connections

**Chapman/DeLapp evaluation:** detailed longitudinal evidence supports real-world application, but one motivated self-referred man limits generalisation. Combined treatments and self-reports cannot isolate causal mechanisms. Confidentiality, consent and managing distress are important; compare idiographic understanding with nomothetic treatment claims.

Individual formulation supports idiographic usefulness, while a manual supports consistency and later replication. Long follow-up tests maintenance, but one motivated self-referral cannot establish average effectiveness. Exposure requires informed agreement and distress monitoring; avoiding all short-term discomfort would also prevent testing the feared prediction.

# Diagnostic criteria for obsessive-compulsive disorder

Lesson 3.5.1 | Clinical psychology

## Core ideas

Obsessive-compulsive disorder involves obsessions, compulsions or both.

Obsessions are intrusive, unwanted thoughts, images or urges that cause anxiety or distress.

Compulsions are repetitive behaviours or mental acts carried out to reduce distress or prevent a feared outcome.

Compulsions can become time-consuming and interfere with school, work, relationships or normal routines.

The person may recognise that the obsession or compulsion is excessive, but still find it hard to resist.

Diagnosis considers distress, impairment, time cost and whether symptoms are better explained by another condition or substance.

## Key terms

**Obsession:** An intrusive and unwanted thought, image or urge.

**Compulsion:** A repetitive behaviour or mental act used to reduce distress.

**Intrusive thought:** An unwanted thought that enters awareness repeatedly.

**Ritual:** A repeated action or mental routine linked with a compulsion.

**Distress:** Emotional suffering or anxiety caused by symptoms.

**Impairment:** Difficulty in daily functioning caused by symptoms.

# Diagnostic criteria for obsessive-compulsive disorder



*Continued*

**Insight:** Awareness that a belief or behaviour may be excessive or unreasonable.

**Time-consuming:** Taking enough time to disrupt normal life.

**MOCI:** Maudsley Obsessive-Compulsive Inventory, a measure of obsessive-compulsive symptoms.

**Y-BOCS:** Yale-Brown Obsessive-Compulsive Scale, a measure of obsessive-compulsive symptom severity.

## Further detail and evidence

**Use ICD-11 framing:** persistent obsessions and/or compulsions must be time-consuming or cause significant distress/impairment. Insight can vary; recognising that rituals are unreasonable is not a universal requirement.

Examples include contamination fears with washing, fears of harm with checking, and symmetry concerns with ordering. Mental rituals, such as silently repeating phrases, are compulsions too. Rapoport's (1989) "Charles" is an illustrative case of severe compulsive washing, not a designated key study.

Measures are the Maudsley Obsessive-Compulsive Inventory (MOCI) and Yale-Brown Obsessive-Compulsive Scale (Y-BOCS). Compare what self-report and structured severity ratings reveal, and evaluate validity, reliability, subjective judgement and sensitivity to change.

Obsessions can concern contamination, accidental harm, unacceptable impulses or symmetry. Compulsions include washing, checking, ordering, counting and mental neutralising. A visible repetitive habit is not necessarily a compulsion: its function and the associated obsession/distress matter.

# Diagnostic criteria for obsessive-compulsive disorder



*Continued*

Rapoport's Charles case illustrates how lengthy washing rituals can dominate daily activities and damage functioning. It gives detail about the lived experience of OCD, while remaining case evidence rather than a representative estimate of all patients.

MOCI is a self-report inventory with true/false responses covering obsessive-compulsive features. Y-BOCS uses structured clinician severity ratings of obsessions and compulsions, including time, interference, distress and resistance/control. The Y-BOCS severity total is distinct from its symptom checklist.

MOCI commonly uses 30 true/false items, covering checking, washing, slowness and doubting. Y-BOCS severity uses ten items rated 0-4, giving a 0-40 total. Different formats and targets mean their totals are not directly interchangeable.

## Applying the ideas

An intrusive fear of infecting family members is an obsession; washing until anxiety briefly falls is a compulsion. Silently repeating a phrase to neutralise a feared thought is also a compulsion. Ordinary handwashing according to a realistic need does not by itself demonstrate OCD.

## Evaluation and connections

MOCI is efficient and standardised, but a forced-choice response can miss degree or context. Y-BOCS allows structured clinical judgement yet still uses subjective reports and rater decisions. Both can support monitoring; neither substitutes for the full clinical history. Insight can be good, poor or absent.

# Explanations of obsessive-compulsive disorder

Lesson 3.5.2 | Clinical psychology

## Core ideas

Biological explanations focus on genetic vulnerability, brain circuits and neurotransmitters linked with anxiety, habit and inhibition.

Serotonin is often discussed because it is linked with mood and anxiety regulation, but it is not a complete explanation by itself.

Cognitive explanations suggest intrusive thoughts become obsessions when the person gives them exaggerated meaning or responsibility.

Inflated responsibility can make a person feel they must prevent harm, even when the actual risk is very low.

Behavioural explanations suggest compulsions are maintained because they reduce anxiety in the short term.

A fuller explanation can combine vulnerability, intrusive thoughts, threat interpretation and negative reinforcement of rituals.

## Key terms

**Genetic vulnerability:** Inherited risk that may increase the chance of developing OCD.

**Serotonin:** A neurotransmitter linked with mood and anxiety regulation.

**Brain circuit:** A connected set of brain areas working together.

**Intrusive thought:** An unwanted thought that enters awareness repeatedly.

**Inflated responsibility:** Feeling overly responsible for preventing harm.

# Explanations of obsessive-compulsive disorder

Lesson 3.5.2 | Clinical psychology

*Continued*

**Threat interpretation:** Judging a thought or situation as more dangerous than it is.

**Negative reinforcement:** A behaviour becoming more likely because it reduces distress.

**Maintenance:** The process by which symptoms continue over time.

**Undoing:** A proposed defence in which an act symbolically cancels an unacceptable thought or impulse.

**Isolation of affect:** A proposed defence separating an idea or memory from the emotion associated with it.

## Further detail and evidence

Compare both biochemical and genetic explanations with cognitive, behavioural and psychodynamic explanations. Genes indicate susceptibility rather than inevitability; neurotransmitter evidence must not be treated as proof of a single cause.

The cognitive account concerns thinking errors such as inflated responsibility and overestimating the meaning or danger of intrusive thoughts. The behavioural account explains how anxiety relief negatively reinforces repeated rituals.

The psychodynamic account proposes that unconscious conflict creates anxiety and that defensive rituals symbolically manage it; explanations can include undoing or isolation of affect. Evaluate its difficulty of objective testing alongside the strengths and limits of competing accounts.

Use individual/situational explanations, nature/nurture, reductionism/holism, determinism/free will and idiographic/nomothetic approaches to compare explanations rather than merely listing them.

# Explanations of obsessive-compulsive disorder

Lesson 3.5.2 | Clinical psychology

*Continued*

Biochemical explanations link symptoms with neurotransmitter processes including serotonin; genetic explanations propose inherited vulnerability. Family or twin similarity is relevant, but environment and measurement complicate the inference. Drug response is compatible with biological involvement without demonstrating a sole chemical cause.

Cognitive accounts propose that ordinary intrusive thoughts become especially distressing when interpreted as dangerous, significant or a sign of responsibility. Thought-action fusion treats thinking about an event as morally equivalent to, or increasing the likelihood of, the event.

**Behavioural maintenance:** a compulsion temporarily removes distress, which negatively reinforces it. Psychodynamic accounts instead interpret rituals as defences against unconscious conflict: undoing symbolically cancels an unacceptable impulse, while isolation separates a thought from its emotional meaning.

## Applying the ideas

A person believes that failing to check a lock makes them responsible for any burglary. Checking reduces anxiety immediately, strengthening future checking. This sequence links a cognitive appraisal to a behavioural consequence; it does not show that the person freely chose to develop the original intrusive thought.

## Evaluation and connections

Cognitive and behavioural accounts predict changes that can be tested during ERP. Psychodynamic interpretations provide personal meaning but are harder to falsify objectively. A reductionist neurotransmitter account may miss the content of the obsession; a purely psychological account may miss vulnerability. Compare evidence and explanatory level.

# Treatment and management of obsessive-compulsive disorder

Lesson 3.5.3 | Clinical psychology

## Core ideas

CBT for OCD helps people examine intrusive thoughts, responsibility beliefs and the feared consequences of not doing rituals.

Exposure and response prevention asks the person to face obsession-related triggers while resisting the usual compulsion.

Response prevention is important because it helps break the short-term relief cycle that keeps compulsions going.

SSRIs may be used to reduce OCD symptoms by affecting serotonin activity, but medication does not directly teach new coping behaviours.

Treatment can be difficult because exposure may feel distressing and medication may involve side effects or delayed improvement.

Management should include relapse prevention, support, review of progress and adaptation for the person's symptoms and daily life.

## Key terms

**CBT:** A therapy that works on thoughts, beliefs and behaviour.

**Exposure:** Planned contact with a feared thought, object or situation.

**Response prevention:** Resisting the usual compulsion after anxiety is triggered.

**ERP:** Exposure and response prevention for OCD.

**SSRI:** Medication that increases serotonin availability at synapses.

**Adherence:** How far a person follows a treatment plan.

**Relapse:** A return of symptoms after improvement.

**Relapse prevention:** Planning to reduce the chance of symptoms returning.

**Non-inferiority trial:** A trial testing whether a treatment is not unacceptably worse than a comparison, using a margin set in advance.

# Treatment and management of obsessive-compulsive disorder

Lesson 3.5.3 | Clinical psychology

## Further detail and evidence

**Biological treatment:** SSRIs alter serotonin reuptake and may reduce obsessive-compulsive symptoms; evaluate symptom reduction alongside adverse effects, adherence and relapse. Biological treatment does not itself teach how to resist rituals.

Required exposure and response prevention (ERP) involves planned contact with obsession-related triggers while resisting compulsions. Lehmkuhl et al. (2008), an illustrative case involving a 12-year-old with autism and OCD, shows how ERP can be adapted; distinguish case-specific usefulness from broad generalisation.

Key study - Lovell et al. (2006): to improve access, this randomised non-inferiority trial compared telephone-delivered and face-to-face CBT/ERP in 72 OCD patients recruited from two Greater Manchester outpatient units. Participants were allocated 36 to each arm; eligibility included age 16-65 and clinically significant OCD.

**Lovell method:** face-to-face treatment comprised ten one-hour sessions. The telephone arm had an initial face-to-face session, eight calls of up to 30 minutes and a final face-to-face session; both used graded ERP and homework. Blind assessors monitored outcomes, including Y-BOCS, depression and satisfaction, through six months.

**Lovell findings:** both groups improved and satisfaction was high. The six-month Y-BOCS difference was -0.55, with a 95% interval from -4.26 to 3.15, within the prespecified non-inferiority margin. The result supports the telephone-assisted format, not the claim that no face-to-face contact was needed.

# Treatment and management of obsessive-compulsive disorder

Lesson 3.5.3 | Clinical psychology

*Continued*

SSRIs reduce serotonin reuptake, increasing its availability at synapses. Improvement may take time; adverse effects, discontinuation and relapse are relevant to usefulness. Symptom change does not establish a unique biological cause.

ERP combines exposure to a trigger with prevention of the usual ritual or neutralising act. A hierarchy and repeated practice allow the person to learn that anxiety can change and feared predictions need not be fulfilled. Lehmkuhl's child case illustrates adapting explanations and support for autism alongside OCD.

## Applying the ideas

Lovell tests delivery format, not whether CBT is better than no therapy. Both groups received active ERP. A non-inferiority design asks whether the new format is no worse than a clinically acceptable margin; failure to find an ordinary significant difference alone would not prove equivalence.

## Evaluation and connections

**Lovell evaluation:** randomisation and blind assessment strengthen comparison; manuals/supervision support consistency. Participants and therapists could not be blinded. Clinic recruitment, exclusions and limited follow-up restrict generalisation; a deterioration-triggered switch to face-to-face care illustrates participant protection.

Telephone-assisted treatment can reduce travel and therapist contact time, supporting access. Its initial/final face-to-face meetings and safety procedures remain part of the tested package. Blind outcome assessment reduces one source of bias, but cannot blind participants to receiving calls. Consider motivation, privacy at home and ability to complete homework when generalising.

# Retail store design

Lesson 4.1.1 | Consumer psychology

## Core ideas

Store design can shape where customers walk, what they notice and how long they stay in a retail environment.

Layout choices such as grid, racetrack and free-flow designs guide movement in different ways.

Product placement affects visibility, comparison and impulse buying by changing how easily items are encountered.

Aisle width, entrance space, signs and checkout position can affect comfort, crowding and wayfinding.

Point-of-purchase displays can draw attention to products at the moment when buying decisions are made.

Research on store design must consider confounding variables such as price, brand, staff, music, lighting and customer purpose.

# Retail store design

Lesson 4.1.1 | Consumer psychology

## Key terms

**Store layout:** The arrangement of aisles, displays, entrances and checkout areas.

**Grid layout:** A structured layout with straight aisles, often used in supermarkets.

**Free-flow layout:** A flexible layout that encourages browsing through less rigid pathways.

**Racetrack layout:** A looped route designed to guide customers around many store areas.

**Product placement:** Where products are positioned to affect visibility and access.

**Wayfinding:** How easily customers can navigate and locate products.

**Point-of-purchase display:** A display placed near where buying decisions are made.

**Traffic flow:** The pattern of customer movement through a store.

## Further detail and evidence

Exterior design includes the storefront, entrance, windows and landscaping. Mower et al. (2012) varied window displays and landscaping in boutique images rated by US students. Both improved liking and patronage intentions, but neither produced a main effect on pleasure or arousal. Intentions were measured, rather than actual purchases.

# Retail store design

Lesson 4.1.1 | Consumer psychology

*Continued*

**Interior layouts:** grid uses regular parallel aisles; freeform uses less rigid groupings that encourage browsing; racetrack uses a main loop around displays. Compare ease of locating a planned product, exposure to other products, browsing pleasure and available floor space.

Virtual layouts need separate testing. Vrechopoulos et al. (2004) compared online grocery stores using grid, freeform and racetrack structures. Grid was perceived as easier to use; freeform was more entertaining/useful, while freeform and racetrack encouraged longer shopping. Physical-store assumptions did not all transfer unchanged.

## Applying the ideas

A supermarket can use a grid for routine search and clear product categories. A boutique may use freeform browsing and attractive windows. A virtual store also needs navigation links, search and usable comparison tools: a screen cannot simply reproduce walking through a physical aisle.

## Evaluation and connections

Images provide controlled comparisons but lack smell, movement and real spending. Student ratings limit demographic generalisation. Longer time in a store can indicate engagement or difficulty, so interpret it alongside satisfaction and task success. A layout suitable for browsing may frustrate a customer completing a quick planned purchase.

# Sound and consumer behaviour

Lesson 4.1.2 | Consumer psychology

## Core ideas

Background sound can influence consumer mood, arousal, perceived atmosphere and willingness to stay.

Music tempo can affect pace of movement; slower music may encourage browsing, while faster music may increase movement speed.

Volume affects comfort because sound that is too loud can increase stress or push some customers away.

Music style or fit can signal brand identity and change how products or services are interpreted.

Sound may influence spending indirectly through time spent, mood, attention and perceived waiting time.

Research on sound must separate music effects from confounds such as crowding, price, staff, lighting and shopper purpose.

## Key terms

**Background music:** Music played in a store or service setting while customers shop.

**Tempo:** The speed or beat of music.

**Volume:** The loudness of sound in the environment.

**Arousal:** A person's level of alertness or stimulation.

**Mood:** An emotional state that can affect consumer decisions.

**Music fit:** How well music matches the brand, product or setting.

**Perceived waiting time:** How long a wait feels to the customer.

**Atmospheric cue:** An environmental feature that can influence consumer experience.

# Sound and consumer behaviour

Lesson 4.1.2 | Consumer psychology

## Further detail and evidence

**Key study:** North et al. (2003) tested whether classical background music increased restaurant spending, extending earlier wine-purchase research.

A field experiment used 393 customers at one upmarket English restaurant: 120 heard classical music, 142 pop and 131 no music. Customers formed an opportunity sample and were unaware of the study.

The independent variable was music condition; the dependent variable was spending per customer. Different customers experienced different conditions, an independent-measures design.

Across 18 evenings, each condition occurred once on each opening weekday. Volume and 152 minutes of music before repetition were controlled.

Mean spending was £32.51 with classical music, £29.46 with pop and £29.73 without music; coffee spending was £1.06, £0.80 and £0.53 respectively.

The proposed explanation was an upmarket atmosphere encouraging spending, not proof that every restaurant benefits from classical music.

Apply situational explanations and environmental determinism, while recognising that music does not explain every purchasing decision.

Music can influence perceived atmosphere, pace, expectations and spending. Style, tempo, volume and fit with the setting are separate variables: evidence for classical versus pop music does not by itself establish a tempo effect.

# Sound and consumer behaviour

Lesson 4.1.2 | Consumer psychology

*Continued*

**Noise and taste:** Woods et al. (2011) compared food ratings under quiet and louder background noise. Sweetness and saltiness were rated lower with loud noise; liking did not show the same clear effect. A second experiment examined texture, including increased perceived crunchiness. Reported sensory intensity is different from changing the food's ingredients.

## Applying the ideas

North's real restaurant bills provide behavioural evidence, while Woods' controlled tasting task measures perception. A restaurant might alter music to fit its desired image, but should separately test whether noise makes conversation difficult or changes enjoyment. Spending more is not automatically greater satisfaction.

## Evaluation and connections

Natural customers and objective bills support ecological validity; one restaurant, unmeasured customer differences and absent prior informed consent limit generalisation and raise ethical issues.

North kept playlists/volume procedures consistent and rotated conditions across weekdays, helping comparison. Customers were not individually randomly allocated, and one restaurant limits generalisation. Woods offers repeated-measures control, but tasting small samples in a study differs from a meal. Explain the specific outcome supported by each method.

# Retail atmospherics

Lesson 4.1.3 | Consumer psychology

## Core ideas

Retail atmospherics refers to the planned sensory and physical features of a shopping or service environment.

Lighting can affect visibility, mood, product appeal and the sense of warmth or luxury in a store.

Colour can shape attention and associations, but its effect depends on culture, brand and product context.

Scent may influence mood, memory, perceived quality or time spent when it fits the setting and is not overpowering.

Crowding, temperature and ease of movement can change comfort, stress and willingness to stay.

Atmospheric cues often work together, so research should examine fit and confounds rather than treating one cue as the only cause of buying.

## Key terms

**Retail atmospherics:** The planned environmental cues that shape a customer's experience in a store.

**Ambient cue:** A background feature such as scent, temperature, lighting or music.

**Design cue:** A visible feature such as layout, colour, signs or display style.

**Scent marketing:** Using smell as part of a retail or service environment.

**Crowding:** The feeling that a space has too many people or too little room.

**Store image:** The overall impression a customer forms of a store or brand.

**Approach behaviour:** Actions such as entering, browsing, staying longer or buying.

**Avoidance behaviour:** Actions such as leaving, rushing, ignoring products or not returning.

**Pleasure:** The pleasant-unpleasant dimension of emotional response.

**Arousal:** The degree of stimulation and alertness.

**Dominance:** Perceived ability to control or act freely in an environment.

# Retail atmospherics

Lesson 4.1.3 | Consumer psychology

## Further detail and evidence

Mehrabian and Russell's pleasure-arousal-dominance (PAD) model connects environmental cues, emotional states and approach/avoidance behaviour.

Pleasure means feeling happy or unhappy; arousal means stimulation/alertness versus sleepiness; dominance means feeling in control versus restricted.

A calm store can be pleasant with low arousal; an overcrowded noisy store can be unpleasant with high arousal. Arousal is not automatically beneficial.

Approach includes entering, exploring, staying and interacting; avoidance includes leaving or avoiding return. Emotions mediate atmospheric effects on behaviour.

**Apply PAD to odour and crowding:** scent or perceived crowding can affect pleasure, stimulation and control, with responses varying by goals, preferences and culture.

Example study - Chebat and Michon (2003) compared competing explanations of scent effects in a real Montreal-area shopping mall. Shoppers' reports of pleasure/arousal, perceptions of the mall and product quality, and spending were analysed under scent conditions.

Chebat and Michon found better support for a cognition-first account: scent influenced perceptions of the environment and products, which helped explain emotion and spending. The direct scent-to-mood effect was nearly absent. This does not establish that pleasant scent always increases pleasure or purchases; compare the evidence critically with PAD.

**Example study - Machleit, Eroglu and Mantel (2000), Study 1:** university marketing students completed anonymous retrospective surveys after a real shopping trip. Ratings distinguished human crowding (people) from spatial crowding (feeling cramped), and measured emotions, satisfaction, expectations and tolerance.

# Retail atmospherics

Lesson 4.1.3 | Consumer psychology

*Continued*

In Machleit Study 1, greater perceived crowding was associated with lower pleasure and satisfaction. Emotions explained only part of this association; expectations and tolerance also mattered. Crowding did not uniformly increase arousal. The real shopping episodes aid application, but retrospective correlational self-reports cannot establish the direction of causation.

**Mehrabian and Russell:** environmental stimuli affect the organism's emotional state, influencing approach/avoidance. Pleasure is enjoyment, arousal is activation, and dominance is perceived control. Approach can include staying, exploring and interacting; avoidance includes leaving or withdrawing.

A pleasant environment does not always need maximal arousal. The desired stimulation depends on goals and setting. Human crowding (other people) and spatial crowding (fixtures/limited space) should be distinguished from objective density.

Use Chebat and Michon's ambient-odour study to consider cognition as well as emotion: evaluations of the mall and product quality helped explain effects on feelings and spending. Machleit et al.'s Study 1 relates perceived crowding, emotions and shopping satisfaction; expected crowding and tolerance can modify responses.

## Applying the ideas

**Two people can experience the same busy shop differently:** a rushed customer may feel obstructed, while a visitor expecting a lively sale may tolerate it. An attractive scent may change perceived product quality as well as mood. Identify the proposed mediator rather than claiming that smell directly makes everyone buy.

## Evaluation and connections

Questionnaire measures access subjective experience but can share response biases. Observed spending is more behavioural, yet field conditions contain competing influences. Statistical mediation is consistent with a pathway; it is not automatic proof of its causal sequence. Compare situational atmospherics with individual preferences and cultural norms.

# Environmental influences on consumers

Lesson 4.2.1 | Consumer psychology

## Core ideas

Consumer decisions can be shaped by the immediate situation, including the physical setting, social setting and time available.

Crowding and density can affect stress, comfort, movement and whether customers continue shopping or leave.

Queues and waiting time can influence satisfaction, perceived service quality and willingness to buy.

Shopping companions, staff presence and other customers can create social influence, reassurance or pressure.

Time pressure can reduce browsing and comparison, while a relaxed context may encourage exploration.

Environmental influences interact with personal goals, product need, price, culture and previous experience.

# Environmental influences on consumers

Lesson 4.2.1 | Consumer psychology

## Key terms

**Situational influence:** A temporary feature of the buying context that can affect consumer behaviour.

**Physical setting:** The material environment around the consumer, such as space, temperature and layout.

**Social setting:** The people present during the buying situation, such as friends, staff or other customers.

**Density:** The number of people or objects in a given space.

**Crowding:** The subjective feeling that a space is too full or restrictive.

**Time pressure:** Feeling that there is limited time to decide or complete a purchase.

**Perceived waiting time:** How long a wait feels, which may differ from the actual time.

**Customer satisfaction:** How far the buying experience meets or misses a customer's expectations.

## Further detail and evidence

Wayfinding is deciding and following a route; orientation is knowing where one is relative to destinations. Signs need visible locations, clear wording/symbols and consistent categories. A you-are-here map needs an accurate position marker and alignment that users can interpret.

# Environmental influences on consumers

Lesson 4.2.1 | Consumer psychology

*Continued*

Dogu and Erkip (2000) examined a shopping mall, combining user evidence with its spatial design. Building configuration, visual accessibility, circulation and signage influence wayfinding. Familiarity and goals can change how much support a shopper needs.

Gil et al. (2009) combined CCTV movement traces and exit interviews. Trip patterns included short, round, central and wave trips. Short trips cover limited areas; round trips loop around; central trips rely on central routes; wave trips move back and forth through aisles.

**Gil's shopper types:** specialists focus on a few products; natives make efficient, relevant-aisle trips; tourists move quickly near main/entrance routes with lower conversion; explorers make long, wide-ranging trips and many interactions; raiders travel quickly and decide efficiently, going farther when needed. These are behavioural clusters rather than fixed personality diagnoses.

## Applying the ideas

A clear sign can reduce unnecessary search without forcing every shopper into the same route. Compare a planned top-up purchase with a main weekly shop. Exit interviews explain the mission, while traces show the path actually taken; stated intentions and observed behaviour need not agree.

## Evaluation and connections

CCTV supplies detailed natural behaviour, but movement alone does not reveal motives or attention. Consistent coding and independent checking improve reliability. One store's layout and products limit generalisation. A convenient customer sample can miss people deterred from entering by inaccessible design.

# Menu design psychology

Lesson 4.2.2 | Consumer psychology

## Core ideas

Menu design can guide attention by changing item position, section order, spacing, boxes, images and visual emphasis.

Item names and descriptions can create expectations about taste, quality, origin or value before the customer orders.

Price presentation can affect how noticeable cost feels, especially when currency symbols, columns or comparison points are used.

Choice overload may occur when too many options make decisions slower, less satisfying or more stressful.

Anchoring and decoy options can shape price judgements by making other items seem cheaper, better value or more attractive.

Menu effects depend on restaurant type, customer goals, hunger, budget, culture, dietary needs and trust in the business.

# Menu design psychology

Lesson 4.2.2 | Consumer psychology

## Key terms

**Menu design:** The organisation and presentation of choices on a menu.

**Menu engineering:** Designing a menu to influence attention, choice and profitability.

**Visual emphasis:** Using size, boxes, spacing, images or colour to make an item stand out.

**Descriptive labelling:** Using appealing wording to shape expectations about an item.

**Choice overload:** Difficulty or dissatisfaction caused by having too many options.

**Anchoring:** Using one value or option as a reference point for judging others.

**Decoy option:** An option included partly to make another choice look more attractive.

**Price salience:** How noticeable or attention-grabbing a price is.

## Further detail and evidence

Menu design affects readability, attention and expectations. Pavesic (2005) discusses eye magnets such as boxes, contrast and distinctive type, alongside poor spacing, tiny print, overemphasised prices and layouts that do not fit the restaurant. This is a design discussion, not one new controlled eye-tracking experiment.

# Menu design psychology

Lesson 4.2.2 | Consumer psychology

*Continued*

Eye-tracking records fixations and gaze paths to study visual attention. Looking at an item does not prove liking or ordering it. Layout and folds can alter scanning; avoid treating one universal gaze pattern as established for every menu.

**Position:** Dayan and Bar-Hillel (2011) reordered menu lists in laboratory and restaurant settings. Items at the beginning/end could be selected more often than middle items, illustrating primacy/recency effects in choice.

**Names:** Lockyer (2006) used focus groups and a survey to examine reactions to alternative wording for menu items. Descriptive terms can change appeal, but substantial individual differences remained. A name can create an expectation without changing the recipe.

## Applying the ideas

To test a menu change, keep dishes and prices fixed, vary the defined feature and record actual orders. Eye-tracking can test whether highlighting captures attention; post-choice ratings can test expectations. Separate increased attention from a change in sales.

## Evaluation and connections

Restaurant orders offer ecological validity but availability, companions and time may confound choices. Surveys permit explanations yet depend on self-report. Randomising menu versions and balancing times improves a field comparison. Compare demographic, cultural and dietary needs rather than assuming one wording suits all diners.

# Consumer behaviour and personal space

Lesson 4.2.3 | Consumer psychology

## Core ideas

Personal space is the area around a person that they prefer others not to enter without permission.

In consumer settings, personal-space invasion can increase discomfort, stress and avoidance behaviour.

Crowding is partly subjective because the same number of people may feel comfortable or intrusive depending on context.

Interpersonal distance can affect service interactions, such as how close staff stand to customers.

Culture, age, relationship, gender norms, purpose of visit and setting can change preferred distance.

Design choices such as aisle width, seating layout and queue spacing can protect or reduce personal space.

## Key terms

**Personal space:** The area around a person that they prefer others not to enter without permission.

**Interpersonal distance:** The physical distance between people during interaction.

**Privacy:** Control over access to oneself, one's information or one's space.

**Territoriality:** Feeling ownership or control over a space or object.

**Crowding:** The feeling that there are too many people or too little room.

**Approach behaviour:** Moving toward, staying in or engaging with a setting.

**Avoidance behaviour:** Leaving, withdrawing or reducing interaction with a setting.

**Cultural norm:** An expectation about behaviour shared within a cultural group.

# Consumer behaviour and personal space

Lesson 4.2.3 | Consumer psychology

## Further detail and evidence

**Key study:** Robson et al. (2011) investigated how table spacing and dining context affect perceived privacy, emotion and intended behaviour.

A web survey yielded 1,013 valid responses from an American sample obtained through a professional sampling company; 53% reported being female.

Random assignment presented a photograph showing tables 6, 12 or 24 inches apart and a business, friend or romantic dining scenario: nine combinations.

Questionnaires used seven-point agreement ratings. These were imagined experiences and intentions, not observed purchases.

Closer tables produced poorer comfort/privacy reactions and stronger avoidance intentions, especially in the romantic context. Women were less comfortable with tight spacing.

Link to individual/situational explanations and cultural differences; an intention to leave does not establish that somebody actually left.

Hall's four interpersonal-distance zones are intimate (very close relationships), personal (ordinary contact with friends), social (more formal interactions) and public (addressing an audience). Preferred distances vary with culture, relationship and context; the zones are a framework, not fixed biological rules.

Personal space can regulate overload (too much social/sensory input), arousal (uncomfortable stimulation) and behaviour constraint (feeling movement or action is restricted). Explain which function a restaurant layout threatens, rather than treating all discomfort as identical.

**Example study - Milgram, Liberty, Toledo and Wackenhut (1986):** confederates intruded into 129 real New York waiting lines. The field experiment varied one versus two intruders and the presence of passive confederate buffers; observers coded physical, verbal and non-verbal objections.

In Milgram et al., people behind the intrusion objected more often than those in front; two intruders elicited more objections, while passive buffers reduced reactions. Queue defence was local to the intrusion point rather than coordinated across the whole line. Natural behaviour supports ecological validity, but unwitting participants and possible confrontation create ethical concerns.

# Consumer behaviour and personal space

Lesson 4.2.3 | Consumer psychology

*Continued*

Distinguish this 1986 queue study from Milgram's 1963 obedience study in AS. It provides evidence about defending a place in a queue and its social structure; it is not a second obedience experiment.

Hall's distance zones are intimate, personal, social and public. Approximate conventional US boundaries are up to 18 inches, 18 inches-4 feet, 4-12 feet and beyond 12 feet; these are culturally variable conventions, not fixed biological limits.

**Explanations of crowding:** overload means demands exceed processing capacity; arousal concerns stimulation/activation; behavioural constraint concerns blocked goals and reduced freedom. Each can predict discomfort, but suggests a different mechanism.

**Queue intrusion:** Milgram et al. (1986) used confederates to enter real queues and observed objections. Reactions could be verbal/nonverbal, and people close to the intrusion were especially affected. A queue is also a social rule about legitimate position, not only a distance arrangement.

## Applying the ideas

Robson measures imagined restaurant spacing and intentions. A close table during an intimate meal may feel more intrusive than during an ordinary business lunch. Milgram records real responses to a rule violation. Neither permits treating every person's preferred space as identical.

## Evaluation and connections

**The conclusion concerns the fit between space and dining purpose:** maximising seating capacity can conflict with customer comfort and willingness to return.

Standardised photographs and random assignment aid comparisons. Online self-report, uneven demographics, banquette seating and one national context limit realism and cultural generalisation.

A large online sample supports comparisons but hypothetical judgements can differ from real dining. Covert queue observation reduces demand characteristics but raises consent and distress concerns. Define objections clearly and check observer agreement. Personal-space explanations should include culture, relationship and task.

# Consumer decision-making

Lesson 4.3.1 | Consumer psychology

## Core ideas

Consumer decision-making often begins when a person recognises a need, problem or desire.

Information search can be internal, using memory and experience, or external, using reviews, adverts, friends or staff.

Consumers compare alternatives using criteria such as price, quality, convenience, brand, risk and personal values.

Low-involvement decisions are often quicker and more habitual, while high-involvement decisions usually involve more comparison.

Emotion, mood, confidence, perceived risk and social influence can affect how options are evaluated.

Post-purchase evaluation can shape satisfaction, regret, loyalty, complaints and future decisions.

# Consumer decision-making

Lesson 4.3.1 | Consumer psychology

## Key terms

**Need recognition:** Realising that there is a problem, desire or gap to address.

**Information search:** Looking for knowledge about products, services or options before choosing.

**Internal search:** Using memory, habits or previous experience to guide a decision.

**External search:** Using outside sources such as reviews, adverts, staff or friends.

**Evaluation criteria:** Features used to compare options, such as price, quality or convenience.

**Involvement:** How important, risky or personally relevant a decision feels.

**Perceived risk:** The possible loss or uncertainty a consumer feels before choosing.

**Post-purchase evaluation:** Judging the decision after buying or using the product.

## Further detail and evidence

Utility theory assumes a decision maker evaluates outcomes and chooses the option with greatest expected value. Satisficing searches until an option meets an acceptable threshold rather than examining every alternative. Prospect theory uses reference points, loss aversion and different responses to gains and losses.

# Consumer decision-making

Lesson 4.3.1 | Consumer psychology

*Continued*

Compensatory strategies allow strength on one attribute to offset weakness on another. Non-compensatory strategies eliminate alternatives failing a key criterion. Partially compensatory approaches combine stages, such as screening out unaffordable options and then weighing the remaining trade-offs.

Jedetski et al. (2002) tested website comparison technology using several product categories. Side-by-side comparison/sorting on CompareNet encouraged more compensatory strategies and greater satisfaction. The information display can therefore shape the decision process, rather than merely displaying a pre-existing preference.

## Applying the ideas

A shopper first rejects laptops above a budget (non-compensatory), then compares battery life against weight and price for the shortlist (compensatory). Choosing the first acceptable machine is satisficing. Avoid identifying a strategy solely from whether a purchase was expensive.

## Evaluation and connections

Full rational comparison requires time, information and consistent preferences. Think-aloud reports give process detail but can change how people decide. Website studies age as interfaces and shopping habits change. Stated satisfaction, decision strategy and purchase quality are distinct outcomes.

# Choice heuristics

Lesson 4.3.2 | Consumer psychology

## Core ideas

Heuristics reduce mental effort by allowing consumers to make quick judgements without comparing every detail.

Availability heuristic means recent, vivid or memorable examples can feel more common or important than they really are.

Representativeness heuristic means consumers may judge a product by how closely it matches a category, stereotype or expectation.

Anchoring happens when an initial price, rating or piece of information influences later judgements.

Recognition and brand familiarity can guide choice when consumers prefer what feels known or easy to process.

Satisficing means choosing an option that is good enough rather than searching for the objectively best option.

# Choice heuristics

Lesson 4.3.2 | Consumer psychology

## Key terms

**Heuristic:** A mental shortcut used to make a judgement or decision quickly.

**Availability heuristic:** Judging by examples that come easily to mind.

**Representativeness heuristic:** Judging by similarity to a category, stereotype or expectation.

**Anchoring:** Relying too heavily on an initial value or piece of information.

**Recognition heuristic:** Choosing an option because it is familiar or recognised.

**Satisficing:** Choosing an option that is good enough instead of searching for the best possible option.

**Cognitive effort:** The mental work needed to think through a decision.

**Bias:** A systematic tendency that can lead judgement away from accuracy.

## Further detail and evidence

Availability uses what comes easily to mind; representativeness uses similarity to a category; recognition favours the recognised alternative when that cue is informative. Take-the-best checks cues in order of validity and stops at the first that discriminates. Anchoring begins from an initial value and adjusts, sometimes insufficiently.

# Choice heuristics

Lesson 4.3.2 | Consumer psychology

*Continued*

Wansink, Kent and Hoch (1998) reported field/laboratory evidence that multiple-unit pricing, purchase limits and suggested quantities can anchor how much consumers buy. A suggested number can influence quantity without changing the per-item value. Existing internal anchors can modify the effect.

Decision styles include rational (systematic), intuitive (feeling based), dependent (seeking others), avoidant (delaying) and spontaneous (quick). Del Campo et al. (2016) compared heuristic use in two countries: styles showed some relationships, but between-experiment differences indicate other contextual/cultural influences.

## Applying the ideas

A familiar brand can win by recognition; selecting it because it resembles a high-quality category is representativeness. A shelf label saying "buy 4" supplies a quantity anchor. Take-the-best is sequential cue use, not the same as weighing every feature equally.

## Evaluation and connections

Heuristics can save effort and be accurate when cues fit the environment. They can also produce bias when irrelevant cues dominate. Do not infer a stable style from one choice. Compare controlled tasks with genuine spending, and investigate whether effects replicate across products and populations.

# Mistakes in decision-making

Lesson 4.3.3 | Consumer psychology

## Core ideas

Decision-making mistakes can happen when consumers overweight limited information, emotion or social cues.

Framing effects occur when the way information is presented changes the choice, even when the facts are similar.

Overconfidence can make consumers trust their judgement too strongly and ignore warnings, reviews or uncertainty.

Sunk cost thinking can lead people to keep spending time or money because they have already invested something.

Impulse buying can happen when immediate emotion, reward or opportunity overrides slower evaluation.

Post-purchase regret and cognitive dissonance can occur when consumers question whether their choice was right.

## Key terms

**Decision error:** A choice that is poorly matched to the evidence, goals or situation.

**Framing effect:** A change in judgement caused by how information is presented.

**Overconfidence:** Trusting one's judgement more than the evidence supports.

**Sunk cost:** Money, time or effort already spent and impossible to recover.

**Impulse buying:** A quick purchase driven strongly by immediate emotion or opportunity.

**Cognitive dissonance:** Discomfort from holding conflicting thoughts, such as liking a purchase but doubting it.

**Regret:** A negative feeling that a different choice might have been better.

**Risk perception:** How risky or uncertain a choice feels to the consumer.

# Mistakes in decision-making

Lesson 4.3.3 | Consumer psychology

## Further detail and evidence

**Key study:** Hall et al. (2010) tested choice blindness: failure to notice that a choice outcome differs from the option originally selected.

The field experiment recruited 180 supermarket shoppers. Participants tasted paired jams or smelled paired teas, selected their preference and explained it after sampling again.

On manipulated trials, specially divided jars secretly supplied the rejected alternative. Product pairings varied in similarity; participants gave verbal reasons and were later debriefed.

Measures included switch detection and explanations, combining quantitative detection data with qualitative verbal reports.

No more than one third of manipulated trials were detected overall. Even strongly contrasting products produced detection on no more than half of trials.

People could justify an outcome they had not selected, challenging the assumption that consumers always have direct access to stable reasons for preferences.

The shopping context supports application, but a brief sampling task does not represent every considered purchase. Deception requires justification and debriefing.

System 1 processing is relatively fast, automatic and low-effort; System 2 is relatively slow, deliberate and effortful. For example, a familiar logo can trigger an immediate preference, whereas comparing several prices and product attributes requires deliberate work. Fast processing is not always wrong, and slow processing is not guaranteed correct.

Proactive interference occurs when earlier advertising disrupts memory for later advertising: remembering Brand A's old offer can interfere with a new Brand B offer. Retroactive interference occurs when later advertising disrupts memory for earlier advertising: a new competing advert can make the first one harder to recall.

Example study - Burke and Srull (1988) experimentally examined competing adverts and memory. Their first experiment found that subsequent adverts for related products or competing brands inhibited recall of the target advertising; the second demonstrated analogous interference from earlier adverts.

# Mistakes in decision-making

Lesson 4.3.3 | Consumer psychology

*Continued*

Burke and Srull's third experiment found that repetition improved recall chiefly when there was little or no similar-product advertising. Thus repetition is not a universal cure for forgetting: competition and ordering affect consumer memory. Controlled exposure helps test interference, although experimental recall does not by itself establish real purchase choices.

System 1 is relatively fast, automatic and associative; System 2 is more deliberate, effortful and analytical. Shleifer (2012) discusses these processes in relation to judgement errors. They are functional descriptions, not two separate anatomical brain compartments.

Choice blindness means failing to notice a mismatch between an intended choice and the outcome, sometimes then explaining the substituted choice. Hall's covert food swaps show that a confident explanation can be constructed after the choice rather than faithfully reporting its original cause.

**Proactive interference:** older learning disrupts memory for newer material. Retroactive interference: newer learning disrupts older memories. Burke and Srull (1988) investigated memory for advertising under competing advertising information; multiple similar messages can impair retrieval.

## Applying the ideas

If an earlier brand slogan makes a newly learned one harder to recall, interference is proactive. If a new campaign makes an older slogan harder to retrieve, it is retroactive. A customer giving plausible reasons for a swapped product illustrates choice blindness rather than necessarily deliberate lying.

## Evaluation and connections

Evaluate consumer self-reports and free choice; failure to detect a switch does not mean all preferences are meaningless.

Hall has realistic tasting and an unobtrusive manipulation, but deception limits informed consent and detection varies with contrast and suspicion. Memory tasks offer standardisation but may differ from everyday repeated advertising. Fast thinking is not always wrong, and effortful thinking is not guaranteed correct.

# Packaging and positioning of a product

Lesson 4.4.1 | Consumer psychology

## Core ideas

Packaging can attract attention and communicate information before the consumer uses the product.

Colour, shape, materials, images and wording can create expectations about quality, taste, safety or status.

Product positioning can mean where an item is placed physically, such as shelf height, or how it is positioned psychologically, such as budget or premium.

Shelf position and visibility affect which products are noticed, compared and chosen.

Packaging should fit the target audience, brand identity, product category and cultural context.

Research on packaging and positioning must consider price, brand familiarity, need, promotions and store environment as possible confounds.

## Key terms

**Packaging:** The external container, label and visual design of a product.

**Product positioning:** How a product is placed or presented relative to alternatives.

**Shelf position:** Where a product is placed on a shelf or display.

**Brand image:** The overall impression consumers have of a brand.

**Category cue:** A feature that signals what type of product something is.

**Premium positioning:** Presenting a product as high quality, exclusive or higher status.

**Visibility:** How easily a product can be seen and noticed.

**Target audience:** The consumer group a product is designed or marketed toward.

# Packaging and positioning of a product

Lesson 4.4.1 | Consumer psychology

## Further detail and evidence

**Key study:** Becker et al. (2011) investigated whether visual package potency transfers to taste impressions, especially in design-sensitive consumers.

The main study involved 151 customers, 74 male and 77 female, aged 15-81, at a German supermarket.

A factorial field experiment varied angular versus rounded yoghurt packaging and higher versus lower colour saturation; the yoghurt was held constant.

Participants viewed packaging, tasted yoghurt and rated taste intensity, product evaluations and expected price. Sensitivity to design was also measured.

Angular packaging produced stronger taste impressions, particularly among design-sensitive participants. Shape and saturation also influenced some broader product/price evaluations.

Gift-wrapping can signal care, effort, occasion and the relationship between giver and recipient, while concealing the object and creating anticipation. Compare the giver's intention with the recipient's interpretation: elaborate wrapping can raise expectations that the gift itself may not meet. Wrapping type, occasion and cultural norms can change its meaning. Compare decorative paper, gift bags, transparent wrapping and an unwrapped presentation: visibility, effort and expectations can differ.

A planogram specifies where products and their facings should be placed on shelves or displays. A product's horizontal position within its category can influence attention, alongside brand, price, package design and shoppers' goals.

The central gaze cascade effect is an increasing concentration of gaze on a centrally positioned option shortly before a choice. It differs from simply looking at the centre first.

Example study - Atalay, Bodur and Rasolofoarison (2012) used computer-based eye tracking and an experiment with tangible products. Centrally placed brands attracted more attention and were chosen more often. The late central gaze cascade, rather than initial central fixation, related to choice; category-centre effects also occurred away from the centre of the visual field.

Eye tracking records where and when people look; retrospective claims about what attracted attention need not agree with eye movements. The study supports a role for placement, not a claim that every centrally displayed product will be selected.

# Packaging and positioning of a product

Lesson 4.4.1 | Consumer psychology

*Continued*

Packaging communicates identity, quality and expected sensation through shape, colour, material and information. Gift wrapping can also signal occasion, effort and the giver-recipient relationship. A utilitarian gift and a symbolic gift may create different expectations about appropriate presentation.

**Positioning:** a planogram specifies where products are placed on shelves/displays. Central position can attract gaze and choice. Atalay et al. (2012) used eye-tracking and choice tasks to investigate a central gaze cascade: centrally placed items received attention that increasingly favoured the eventual choice.

**Keep perceptual variables separate:** angular versus rounded packaging and high versus low colour saturation are distinct manipulations. Becker tested taste expectations/experience with the same yoghurt; a packaging effect does not imply a chemical change in the product.

## Applying the ideas

A retailer can rotate product positions while holding price/stock constant, then record fixations and sales. A producer can test whether packaging implies an intense or mild taste. Eye movement can suggest an attentional pathway, but actual choice data are needed before claiming a sales effect.

## Evaluation and connections

**This supports cross-modal transfer:** information in one sensory modality can shape another. Colour effects were not uniformly identical to shape effects.

Keeping food constant supports a package-based explanation; one food, subjective ratings and one supermarket limit generalisation.

Evaluate situational cues alongside individual design sensitivity; angular packaging did not physically change the ingredients.

Becker's factorial design separates shape and saturation, while sensitivity to design helps explain individual differences. Standardising the yoghurt improves internal validity. One product and local shoppers limit generalisation. Packaging can influence expectations without overriding every sensory cue or preference.

# Selling the product

Lesson 4.4.2 | Consumer psychology

## Core ideas

Selling involves identifying customer needs, presenting relevant benefits and helping the customer decide whether the product fits.

Salespeople can influence consumers through expertise, friendliness, similarity, authority and trustworthiness.

Product demonstrations and trials can reduce uncertainty by making benefits easier to see or experience.

Persuasive selling should match features to the customer's goals rather than only pushing a product.

Pressure tactics such as scarcity, urgency or repeated prompting may increase short-term sales but can reduce trust or satisfaction.

Effective selling depends on product type, customer involvement, perceived risk, relationship quality and ethical communication.

# Selling the product

Lesson 4.4.2 | Consumer psychology

## Key terms

**Sales interaction:** Communication between a seller and a customer during a buying situation.

**Customer need:** The problem, goal or desire the product may address.

**Product benefit:** A useful outcome or advantage the product offers.

**Demonstration:** Showing how a product works or what it can do.

**Trial:** A chance to use or test a product before buying.

**Trustworthiness:** The extent to which a seller seems honest and reliable.

**Scarcity tactic:** Suggesting limited availability to encourage quicker action.

**Closing:** The stage where the seller encourages a final decision or purchase.

## Further detail and evidence

Customer-focused selling identifies needs and fits an offer to them. Competitor-focused selling contrasts alternatives. Product-focused selling stresses features and performance. A feature is useful only when linked to a benefit relevant to the customer.

# Selling the product

Lesson 4.4.2 | Consumer psychology

*Continued*

Disrupt-then-reframe briefly interrupts normal processing and then supplies a simple positive interpretation. Kardes et al. (2007) found that effectiveness depended on need for cognitive closure: confusion makes an easy resolution attractive, especially when a definite answer is desired.

**Cialdini's six principles:** reciprocity (return favours), commitment/consistency (act in line with prior commitments), social proof (follow others), liking (agree with liked people), authority (defer to credible expertise), and scarcity (value limited availability). Identify the mechanism behind the sales cue.

## Applying the ideas

A free sample can invite reciprocity; "most popular" uses social proof; a credible expert uses authority; a limited quantity uses scarcity. A small initial commitment can encourage consistent later action. These cues predict tendencies and do not guarantee that a person will buy.

## Evaluation and connections

A field sale provides actual behaviour but may combine several cues. Experiments should isolate the target principle and avoid misleading participants. Need for closure illustrates individual differences; time pressure and confusing presentation are situational influences. Ethical usefulness includes truthful claims and meaningful consumer choice.

# Buying the product

Lesson 4.4.3 | Consumer psychology

## Core ideas

The buying stage is when intention becomes action, such as putting an item in a basket, paying or signing an agreement.

Checkout friction, such as long forms, unclear costs or queues, can interrupt a purchase even after the customer has decided.

Payment method can affect the pain of paying because cash, cards and digital payments may feel different psychologically.

Perceived ownership can increase once customers handle, customise or imagine using a product.

Returns policies, guarantees and reviews can reduce perceived risk and make buying feel safer.

After buying, reassurance and clear information can reduce regret, complaints and cognitive dissonance.

# Buying the product

Lesson 4.4.3 | Consumer psychology

## Key terms

**Buying stage:** The point where a consumer commits to the purchase.

**Checkout friction:** Anything in the buying process that makes completing a purchase harder.

**Pain of paying:** The unpleasant feeling linked with spending money.

**Perceived ownership:** Feeling that an item is already partly yours before or during purchase.

**Purchase intention:** A consumer's plan or willingness to buy.

**Conversion:** Turning interest or intention into an actual purchase.

**Returns policy:** Rules about returning a product after purchase.

**Post-purchase reassurance:** Information or support that helps the buyer feel confident after buying.

## Further detail and evidence

**Engel-Kollat-Blackwell sequence:** problem recognition, information search, evaluation of alternatives, purchase and post-purchase evaluation. Feedback from experience can alter later searches and brand loyalty. The model is a framework, not a claim that every habitual purchase involves extensive conscious searching.

# Buying the product

Lesson 4.4.3 | Consumer psychology

*Continued*

Sinha et al. (2002) investigated Indian shoppers' store choices. Convenience/proximity, merchandise, ambience, service and an established relationship can matter, with importance varying by store/product and shopper characteristics. Demographics describe associations rather than immutable rules about individuals.

Post-purchase dissonance is discomfort from conflicting thoughts about a chosen product and attractive rejected alternatives. It can grow with importance, close alternatives and irrevocability. Reduction includes seeking supportive information, reinterpreting advantages, avoiding negative material or changing/returning the choice.

Nordvall (2014) used a virtual grocery rate-choose-rate task with 100 participants. Chosen items became more favourably evaluated, consistent with reducing dissonance even for everyday goods. Rating change is an indirect indicator rather than a direct readout of discomfort.

## Applying the ideas

After buying a costly phone, a consumer may emphasise its camera and stop reading reviews of a rejected model. This changes the balance of beliefs, without necessarily improving the phone. A return policy reduces finality and can change the decision context.

## Evaluation and connections

Stages can overlap, be skipped or recur. Self-report can reconstruct a reason after the event. Cultural context and changes in retail formats limit temporal generalisation. Rate-choose-rate designs should consider whether initial preferences were measured imperfectly, rather than attributing all later change to dissonance.

# Types of advertising and advertising techniques

Lesson 4.5.1 | Consumer psychology

## Core ideas

Advertising can appear in many forms, including television, print, online, social media, outdoor, influencer and point-of-sale adverts.

The advertising medium affects who sees the advert, how often it is seen and how much attention it may receive.

Persuasive techniques can include emotional appeals, celebrity endorsement, humour, fear appeals, scarcity, social proof and repetition.

Informational adverts emphasise product features or evidence, while transformational adverts link the product to feelings, identity or lifestyle.

Targeting aims adverts at a specific audience using demographics, interests, behaviour or context.

Advertising effects depend on audience involvement, credibility, culture, prior brand attitudes, exposure and ethical limits.

# Types of advertising and advertising techniques

Lesson 4.5.1 | Consumer psychology

## Key terms

**Advertising medium:** The channel used to deliver an advert, such as TV, social media or posters.

**Persuasive technique:** A feature of an advert designed to influence attention, attitude or choice.

**Emotional appeal:** Using feelings such as happiness, fear, pride or belonging to persuade.

**Celebrity endorsement:** Using a famous person to support or represent a product.

**Social proof:** Suggesting that many other people like, buy or approve of the product.

**Repetition:** Showing or saying the same message repeatedly to aid memory.

**Target audience:** The group of consumers the advert is designed to reach.

**Brand credibility:** How believable and trustworthy the brand or advert seems.

## Further detail and evidence

Yale model asks who says what, through which channel, to whom, with what effect. Source credibility/attractiveness, message content and order, medium, audience characteristics and attitude/behaviour outcomes can influence persuasion.

Media include print, television, internet and mobile-phone advertising. Compare reach, targeting, movement/sound, interactivity, distraction and control over viewing. A click or a remembered logo is not necessarily a purchase.

# Types of advertising and advertising techniques



*Continued*

Ciceri et al. (2020) compared static advertisements in a mock newspaper on paper, tablet and a laptop website, combining eye-tracking and EEG with later recognition. Tablet attention/recognition exceeded the website condition; paper and tablet were similar. Interpreted EEG frustration was higher for the website, not a direct measurement of a private feeling.

**Lauterborn's four Cs:** customer wants/needs, cost to the customer, convenience and communication. These shift attention to the consumer's experience, including time/effort costs and two-way communication, rather than treating advertising as a message sent in one direction.

## Applying the ideas

For a credible health-related advert, consider the expert source, clear evidence in the message, an accessible channel and audience knowledge. Specify whether success means recall, attitude, enquiry or behaviour. An interactive mobile message may improve convenience while also increasing distraction.

## Evaluation and connections

Physiological measurements add information beyond self-report, but require interpretation. Eye fixation measures overt visual attention; EEG patterns do not uniquely identify persuasion. Controlled exposure differs from freely skipping advertisements. Evaluate each medium for the relevant audience and intended outcome.

# Advertising-consumer interaction

Lesson 4.5.2 | Consumer psychology

## Core ideas

Consumers can interact with adverts by clicking, searching, commenting, liking, sharing, skipping, blocking or questioning the message.

Interactive advertising can increase involvement because consumers do something with the advert rather than only watch or read it.

Engagement signals, such as clicks, watch time, comments and shares, can help advertisers judge whether an advert is working.

Personalised adverts use consumer data or behaviour to make the message feel more relevant to a particular person or group.

Consumer feedback can strengthen an advert through social proof, but negative comments or distrust can weaken the brand message.

Ethical issues include privacy, manipulation, transparency and whether consumers understand how their data shapes the adverts they see.

## Key terms

**Interaction:** A consumer's active response to an advert, such as clicking, sharing or commenting.

**Engagement:** The amount of attention or active involvement a consumer gives to an advert.

**Click-through:** When a consumer selects an advert link to see more information or buy.

**Personalisation:** Adapting an advert to a consumer's interests, behaviour or profile.

**Consumer feedback:** Responses from consumers, such as comments, ratings, reviews or complaints.

**User-generated content:** Consumer-created posts, videos or reviews linked to a brand or advert.

**Ad avoidance:** Skipping, ignoring, muting or blocking advertising.

**Data privacy:** Control over how personal information is collected and used.

# Advertising-consumer interaction

Lesson 4.5.2 | Consumer psychology

## Further detail and evidence

**Key study:** Snyder and DeBono (1985), Study 3, tested whether self-monitoring affects willingness to try image-advertised versus quality-advertised shampoo.

Forty Minnesota introductory-psychology undergraduates participated for course credit; a median split of Self-Monitoring Scale scores formed 20 high and 20 low self-monitors.

A researcher blind to these scores telephoned participants, posing as a market researcher. Random assignment determined the message.

The image message stressed good-looking hair with average cleaning; the quality message stressed cleaning with average appearance.

Dependent measures were five-category willingness and a 0-100% willingness estimate, combined into an index.

High self-monitors were more willing under image appeals; low self-monitors were more willing under quality appeals.

Product placement embeds a branded product within film or other content. Mere exposure can increase familiarity; a reminder can reactivate an existing brand association. Neither mechanism requires a viewer to report a persuasive intention consciously.

Example study - Auty and Lewis (2004) showed children aged 6-7 and 11-12 a Home Alone clip containing Pepsi or a similar unbranded clip. At individual interviews children were offered a choice of Pepsi or Coke, providing a behavioural choice measure rather than only stated liking.

Children who saw the branded clip were more likely to choose Pepsi. Interviews suggested a reminder effect involving prior exposure, and explicit recall did not fully explain choice. Age did not mediate the effect as expected; this is not evidence that younger children are immune to embedded marketing.

# Advertising-consumer interaction

Lesson 4.5.2 | Consumer psychology

*Continued*

Self-monitoring concerns adjusting self-presentation to social cues. Image-oriented advertising stresses the identity or impression associated with a product; quality-oriented advertising stresses performance and practical attributes. Neither is inherently more persuasive for every audience.

Snyder and DeBono's designated Study 3 measures willingness to try shampoo after a message, not actual long-term purchasing. Its blind caller reduces interviewer bias; grouping on self-monitoring is a measured participant difference, not an experimentally created personality.

Product placement embeds a brand in entertainment. Auty and Lewis (2004) compared children exposed to a Pepsi placement in Home Alone with a control clip, then offered drinks. Placement influenced choice through a reminder effect; explicit recall alone did not explain the pattern. Age and existing exposure need consideration.

## Applying the ideas

A shampoo advert can stress a fashionable impression or reliable cleaning. A viewer high in self-monitoring may respond differently from someone focused on internal preferences. A drink chosen after a film clip is behaviour, while saying one would try shampoo is an intention; keep their evidential value distinct.

## Evaluation and connections

This supports matching advertising to personality/functions, but willingness is not observed use. Self-monitoring was measured, not experimentally assigned.

Evaluate controlled clips against the realism of a single drink choice, pre-existing brand preferences and generalisation beyond these age groups. Research with children requires appropriate consent/assent and protection; embedded advertising also raises questions about recognising persuasion.

Controlled messages isolate content and blinded interviewing improves consistency. A small student sample limits generalisation to other ages/products. Children's research needs consent/assent and suitable debriefing. Product-placement usefulness must be weighed against less obvious persuasion of vulnerable audiences.

# Brand awareness and recognition

Lesson 4.5.3 | Consumer psychology

## Core ideas

Brand awareness means consumers know that a brand exists and can connect it with a product category or need.

Brand recognition happens when consumers identify a brand after seeing a cue such as a logo, colour, slogan, package or advert.

Brand recall is harder than recognition because the consumer must bring the brand to mind without being shown it.

Repeated exposure can increase familiarity, but too much repetition may cause boredom or irritation.

Distinctive brand cues help consumers notice and remember a brand among competing adverts and products.

Strong brand awareness can influence choice because familiar brands may feel safer, easier to evaluate or more trustworthy.

# Brand awareness and recognition

Lesson 4.5.3 | Consumer psychology

## Key terms

**Brand awareness:** Knowing that a brand exists and what type of product or service it offers.

**Brand recognition:** Identifying a brand when a cue, such as a logo or package, is shown.

**Brand recall:** Remembering a brand without being directly shown it.

**Brand cue:** A feature that signals the brand, such as a colour, sound, logo or slogan.

**Distinctiveness:** How easily a brand stands out from similar brands.

**Familiarity:** The feeling that a brand is known because it has been seen or heard before.

**Top-of-mind awareness:** Being one of the first brands a consumer thinks of in a category.

**Slogan:** A short phrase used repeatedly to identify or promote a brand.

## Further detail and evidence

Brand awareness includes recognition (identifying a brand when shown a cue) and recall (retrieving it without the full cue). Recognition is usually the less demanding task. Brand image concerns associations with the brand, not just knowing its name.

# Brand awareness and recognition

Lesson 4.5.3 | Consumer psychology

*Continued*

Fischer et al. (1991) asked preschool children to match brand logos to products. Recognition of cigarette logos rose with age; among six-year-olds, recognition of Old Joe was comparable with the Disney logo. This demonstrates recognition, not proof that a child smokes or will smoke later.

A slogan is a brief verbal expression linked to a brand. It can describe a benefit, express an image or position the brand relative to competitors. Kohli et al. (2007) discuss slogans as supports for identity, recall and differentiation: clarity, meaningful brand linkage and consistent use matter.

## Applying the ideas

A child selecting a cigarette picture when shown a logo demonstrates recognition. Naming that brand when asked about cigarettes without a logo would test recall. A familiar slogan may be remembered while its brand is forgotten, so test the link between the two rather than the phrase alone.

## Evaluation and connections

Logo matching provides standardised behavioural data but depends on available pictures and prior exposure. Convenience preschool samples limit generalisation. Cross-sectional age differences cannot track individual development or show advertising caused later behaviour. Slogans need evaluation across languages and cultures; a catchy phrase can communicate different meanings in different settings.

# Practitioner interpersonal skills

Lesson 5.1.1 | Health psychology

## Core ideas

Interpersonal skills are the communication behaviours that help a practitioner build a working relationship with a patient.

Active listening, empathy and clear explanations can help patients feel respected and understood.

Open questions can encourage patients to describe symptoms and concerns, while closed questions can check specific details.

Non-verbal behaviour, such as eye contact, posture, facial expression and tone, can change how caring or rushed the practitioner seems.

Good rapport can increase patient satisfaction, disclosure, understanding and willingness to follow advice.

Poor communication may lead to confusion, anxiety, low trust, missed information or weaker adherence to treatment.

# Practitioner interpersonal skills

Lesson 5.1.1 | Health psychology

## Key terms

**Interpersonal skills:** Communication behaviours used to build a helpful relationship with another person.

**Rapport:** A positive, trusting connection between practitioner and patient.

**Active listening:** Showing attention by listening carefully, checking meaning and responding appropriately.

**Empathy:** Understanding and showing concern for another person's feelings or situation.

**Open question:** A question that invites a fuller answer, such as asking how a symptom affects daily life.

**Closed question:** A question that asks for a short specific answer, such as yes, no or a number.

**Non-verbal communication:** Messages sent through body language, facial expression, eye contact and tone.

**Adherence:** Following agreed medical advice, such as taking medication or attending appointments.

# Practitioner interpersonal skills

Lesson 5.1.1 | Health psychology

## Further detail and evidence

Practitioner clothing is non-verbal information about role, professionalism and approachability. McKinstry and Wang (1991) asked 475 Scottish patients to rate photographs of doctors in different clothes. More traditional dress was generally preferred, especially by older patients. The task measured impressions, not clinical competence.

Verbal communication includes the terminology used, checking meaning and inviting questions. McKinlay (1975) compared actual understanding of medical terms with doctors' estimates in maternity-service users/underusers in Aberdeen. Users understood more, and doctors underestimated respondents' understanding. Do not reverse that finding into a universal claim that doctors overestimated it.

A familiar term can still have different everyday and technical meanings. Open questions can reveal a patient's interpretation; asking the person to explain a plan in their own words checks understanding more directly than asking only "Do you understand?"

## Applying the ideas

A smart outfit can increase initial confidence without ensuring listening or empathy. A practitioner who notices uncertainty can clarify a term and check the patient's explanation. Evaluate clothing, words, tone and listening as interacting features of a consultation.

## Evaluation and connections

Photographs standardise appearance but omit movement, voice and a real consultation. Local preferences may change over time and culture. Comprehension studies need reliable scoring and an appropriate vocabulary sample. Respectful communication avoids assuming that social class, age or limited technical vocabulary implies lack of intelligence.

# Practitioner diagnosis and style

Lesson 5.1.2 | Health psychology

## Core ideas

Diagnosis depends on collecting accurate information from symptoms, patient history, observation, tests and clinical reasoning.

A practitioner-centred style gives the practitioner more control over questions, decisions and the direction of the consultation.

A patient-centred style encourages the patient to explain concerns, ask questions and take part in decisions.

Practitioner style can affect how much information the patient shares, especially about sensitive or uncertain symptoms.

Diagnostic errors can happen when information is missed, assumptions are made too quickly or communication is unclear.

A good consultation style should balance medical expertise with patient involvement, time limits, safety and clear advice.

## Key terms

**Diagnosis:** Identifying a health problem from symptoms, history, examination or test evidence.

**Practitioner-centred style:** A consultation style where the practitioner controls most questions and decisions.

**Patient-centred style:** A consultation style where the patient's concerns, preferences and questions are actively included.

**Clinical reasoning:** Using evidence and professional knowledge to judge what condition or action is most likely.

**Patient history:** Information about symptoms, past illness, medication, lifestyle and relevant background.

# Practitioner diagnosis and style

Lesson 5.1.2 | Health psychology

*Continued*

**Shared decision-making:** Practitioner and patient discussing options and agreeing a plan together.

**Diagnostic error:** A wrong, delayed or missed diagnosis.

**Compliance:** Following medical instructions, often used when the practitioner directs the treatment plan.

## Further detail and evidence

**Key study:** Savage and Armstrong (1990) compared directing, doctor-centred consultations with sharing, patient-centred consultations rather than assuming sharing is always preferable.

At one inner-London practice, 359 patients aged 16-75 consulting one GP were selected; four refused and five were excluded. Follow-up had substantial non-response.

Random allocation using face-down cards determined consultation style. Standardised prompts varied advice, treatment and prognosis.

Immediate and one-week questionnaires assessed satisfaction with understanding, explanation and perceived help; consultations were audiotaped.

Directing consultations generally produced greater satisfaction, particularly for physical problems and prescriptions; differences were not significant for every subgroup.

For physical problems, 34% rated the directing explanation excellent, compared with 15% in the sharing condition.

A false-positive diagnosis identifies a condition that is actually absent; a false-negative diagnosis misses a condition that is actually present. For example, wrongly diagnosing an infection is false positive, while overlooking an existing infection is false negative.

Patients' willingness and ability to disclose symptoms affect the information available for diagnosis. When presenting a diagnosis, practitioners should explain its meaning and uncertainty in understandable language and check the patient's interpretation. Communication style can affect satisfaction without proving that the diagnosis was correct.

# Practitioner diagnosis and style

Lesson 5.1.2 | Health psychology

*Continued*

A false positive identifies a condition when it is absent; a false negative misses a condition that is present. Consequences can include needless anxiety/intervention or delayed care. Neither error is defined by whether the patient feels satisfied with the consultation.

Disclosure matters because embarrassment, fear, memory and the way questions are asked can change the information available. Presenting a diagnosis requires an understandable explanation, attention to uncertainty and an opportunity for the patient to respond.

Doctor-centred consultations are comparatively directive, with the practitioner controlling advice and decisions. Shared consultations involve the patient's concerns and preferences in discussion. Patient involvement is compatible with clear professional advice; it does not mean abandoning clinical expertise.

## Applying the ideas

Savage and Armstrong changed consultation style within one GP practice and measured satisfaction. Greater satisfaction with the directing style for some physical problems challenges the assumption that every patient always wants the same degree of shared discussion. It does not establish better diagnostic accuracy or recovery.

## Evaluation and connections

This concerns consultation fit and satisfaction, not demonstrated clinical recovery. Random allocation and a common GP support control, but one doctor and attrition limit generalisation.

Evaluate situational explanations, cultural expectations, satisfaction-scale validity and informed consent for recording.

Random allocation by prompt cards strengthens the style comparison; recording consultations helps check implementation. One GP limits practitioner generalisation, and follow-up losses may bias later responses. Separate patient expectations, satisfaction, disclosure, adherence and health outcomes when judging a consultation style.

# Misusing health services

Lesson 5.1.3 | Health psychology

## Core ideas

Misuse of health services can include overusing appointments, delaying help, missing appointments or using emergency care for non-urgent problems.

Overuse may happen when people are very anxious about symptoms, seek repeated reassurance or misunderstand normal bodily changes.

Underuse may happen when people deny symptoms, fear diagnosis, feel embarrassed, mistrust services or face practical barriers.

Health anxiety can increase checking, reassurance-seeking and repeated consultations even when serious illness is unlikely.

Missed appointments waste resources and can delay care for both the patient and other people.

Reducing misuse requires clear information, accessible services, appropriate triage and communication that respects patient concerns.

# Misusing health services

Lesson 5.1.3 | Health psychology

## Key terms

**Health service misuse:** Using medical services in a way that is unnecessary, delayed, inappropriate or wasteful.

**Overuse:** Using health services more often than is medically needed.

**Underuse:** Not using health services when help, screening or treatment is needed.

**Health anxiety:** Excessive worry about having or developing an illness.

**Reassurance-seeking:** Repeatedly asking for confirmation that symptoms are not serious.

**Triage:** Sorting patients by urgency so care is directed appropriately.

**Missed appointment:** Not attending a booked health appointment without cancelling in time.

**Barrier to access:** Anything that makes it harder for a person to use health services.

## Further detail and evidence

Safer et al. (1979) divided delay into appraisal (noticing a symptom to recognising illness), illness (recognising illness to deciding to seek help), and utilisation (decision to seek help to attending). Their retrospective patient evidence indicates that different factors can influence each stage.

**Health Belief Model:** perceived susceptibility and severity contribute to threat; perceived benefits are weighed against barriers; cues to action prompt response, and self-efficacy concerns ability to act. It is an alternative account of why someone seeks or avoids care, not a fixed three-stage timetable.

# Misusing health services

Lesson 5.1.3 | Health psychology

*Continued*

Munchausen syndrome is a severe factitious presentation involving recurrent fabrication/induction of illness and assuming the sick role, without obvious external reward being the defining motive. It differs from malingering for an external gain such as money or avoiding duties.

Aleem and Ajarim (1995) reported a young woman repeatedly hospitalised with unexplained physical problems and evidence of self-induced illness. Essential features concern fabricated/induced illness and repeated presentation. Supporting features in the review included extensive medical knowledge, repeated hospital use/scars and unusual presentations; these are clues, not proof on their own.

## Applying the ideas

Not recognising a symptom illustrates appraisal delay; recognising illness but fearing a diagnosis can delay deciding to seek care; transport or appointment barriers can delay attendance after that decision. A change aimed at access will not necessarily solve earlier symptom interpretation.

## Evaluation and connections

Retrospective time estimates are vulnerable to recall bias. A detailed factitious-disorder case reveals complexity but cannot establish prevalence or a universal cause. Genuine symptoms must not be dismissed merely because a patient seeks repeated help. Analyse practical barriers, beliefs and clinical evidence separately.

# Types of non-adherence and reasons why patients do not adhere

Lesson 5.2.1 | Health psychology

## Core ideas

Adherence means following agreed medical advice, such as taking medication correctly, changing behaviour or attending follow-up appointments.

Non-adherence can be intentional, when a patient chooses not to follow advice, or unintentional, when barriers such as forgetting or confusion interfere.

Primary non-adherence happens when treatment is never started, such as not collecting a prescription.

Secondary non-adherence happens after treatment has started, such as stopping tablets early or taking the wrong dose.

Reasons for non-adherence include side effects, cost, complex routines, low perceived risk, poor understanding, lack of trust and social pressure.

Non-adherence matters because it can reduce treatment effectiveness, increase complications and make it harder to judge whether a treatment works.

# Types of non-adherence and reasons why patients do not adhere

Lesson 5.2.1 | Health psychology

## Key terms

**Adherence:** Following agreed medical advice or treatment as intended.

**Non-adherence:** Not following medical advice or treatment as intended.

**Intentional non-adherence:** Choosing not to follow advice because of beliefs, preferences or concerns.

**Unintentional non-adherence:** Failing to follow advice because of practical barriers such as forgetting or confusion.

**Primary non-adherence:** Not starting treatment, such as not collecting or filling a prescription.

**Secondary non-adherence:** Starting treatment but not continuing it correctly.

**Side effect:** An unwanted effect of a treatment that may reduce willingness to continue.

**Treatment regimen:** The plan for how and when a treatment should be followed.

## Further detail and evidence

Non-adherence can involve not starting, missing doses, changing timing/amount, stopping early, or missing appointments. Intentional non-adherence is a considered choice; unintentional non-adherence includes forgetting, misunderstanding and practical difficulty. Both can occur in the same person.

# Types of non-adherence and reasons why patients do not adhere

Lesson 5.2.1 | Health psychology

*Continued*

Consequences include reduced treatment benefit, complications, unnecessary changes to prescriptions and wasted appointments/resources. A clinician can mistake non-adherence for an ineffective medicine if the pattern is not explored.

Rational non-adherence considers a person's trade-offs between expected benefits, adverse effects, cost and demands. Laba et al. (2012) used a discrete-choice experiment in an Australian community sample to investigate such medication choices. Hypothetical choices reveal preferences rather than directly observing a prescription being followed.

**Use the HBM explicitly:** a person may see little susceptibility or benefit, perceive severe barriers, lack confidence or receive no cue to act. A treatment plan viewed as sensible by a clinician may be judged differently by the patient.

## Applying the ideas

A person can forget a dose (unintentional), deliberately skip it because of an expected side effect (intentional), or be unable to afford a refill (practical barrier). A reminder addresses memory but not all concerns about benefits and costs. Identify the barrier before choosing an intervention.

## Evaluation and connections

Calling a decision rational describes the patient's reasoning, not proof that the medical outcome is optimal. Self-report may hide missed doses. Belief models organise factors but can understate poverty, access and habitual behaviour. Cultural and individual differences limit one universal explanation.

# Measuring non-adherence

Lesson 5.2.2 | Health psychology

## Core ideas

Non-adherence can be measured using self-reports, interviews, pill counts, prescription records, electronic monitoring and biological tests.

Self-report methods are quick and can reveal reasons for non-adherence, but patients may forget, misunderstand or give socially desirable answers.

Pill counts compare the number of doses left with the number expected, but they cannot prove when or whether the medicine was actually taken.

Pharmacy or prescription records show whether treatment was collected or refilled, but they do not prove correct use at home.

Electronic monitoring can record when a container is opened, giving detailed timing data, but opening a container is not the same as swallowing a dose.

Biological tests can detect medicine or health markers in the body, but they may be costly, invasive and affected by individual biology.

# Measuring non-adherence

Lesson 5.2.2 | Health psychology

## Key terms

**Self-report:** A patient's own account of whether and how they followed advice.

**Social desirability:** Giving an answer that seems acceptable rather than fully accurate.

**Pill count:** Counting remaining tablets to estimate how many doses were taken.

**Prescription record:** A record showing whether medicine was collected or refilled.

**Electronic monitoring:** Using a device to record behaviour such as opening a medication container.

**Biological test:** A test of bodily evidence, such as drug levels or health markers.

**Objective measure:** A measure based on observable records or tests rather than only personal report.

**Measurement validity:** How well a method measures the behaviour it claims to measure.

## Further detail and evidence

Subjective measures include clinician impressions, patient questionnaires and semi-structured interviews. They can explain reasons and timing, but depend on memory, honesty and judgement. Riekert and Drotar (1999) compared participation groups in adolescent diabetes adherence research: selection/nonresponse can affect whose adherence is represented.

# Measuring non-adherence

Lesson 5.2.2 | Health psychology

*Continued*

Objective measures include pill counts, electronic dispensers and biological tests. Chung and Naya (2000) followed 57 asthma patients for 12 weeks using TrackCap bottle-opening records alongside tablet counts. The electronic record added dose-timing information that a final pill count could miss.

Blood/urine assays detect a drug, metabolite or relevant biological marker. Results depend on metabolism, timing and the marker's relationship to the regimen. Taking treatment just before a visit can produce a misleading picture of the usual pattern.

## Applying the ideas

The expected number of tablets missing could reflect correct use, discarded pills or several doses removed together. A cap opening could occur without ingestion. An interview may reveal a change in working hours that explains timing. Combine evidence rather than treating one indicator as perfect proof.

## Evaluation and connections

Electronic devices supply detailed, relatively objective records but are costly and can alter behaviour through monitoring. Biological tests may be invasive and give only a time-limited snapshot. Interviews offer rich context but interviewer expectations matter. Reliability and validity should be assessed for the behaviour actually measured.

# Improving adherence

Lesson 5.2.3 | Health psychology

## Core ideas

Adherence can improve when patients understand what the treatment is for, how to follow it and what problems to expect.

Patient-centred communication helps by checking concerns, inviting questions and agreeing a realistic plan rather than simply giving orders.

Simplifying a treatment regimen can reduce unintentional non-adherence by making doses, timings and instructions easier to manage.

Reminders, prompts and packaging aids can support memory, especially when treatment has to be repeated over time.

Behavioural methods such as contracts, goal-setting, rewards and self-monitoring can turn advice into specific actions.

Follow-up, social support and problem-solving can help patients continue treatment when side effects, cost or daily routines get in the way.

## Key terms

**Adherence intervention:** A strategy designed to help patients follow agreed medical advice.

**Patient-centred communication:** Communication that explores the patient's concerns, preferences and understanding.

**Regimen simplification:** Making a treatment plan easier to follow by reducing complexity.

**Reminder:** A prompt that helps a patient remember a dose, appointment or health action.

**Behavioural contract:** An agreement that sets out a specific health behaviour and commitment.

**Self-monitoring:** Recording one's own health behaviour or symptoms to guide change.

**Social support:** Help from other people that makes treatment easier to continue.

**Follow-up:** Later contact that checks progress, problems and next steps.

# Improving adherence

Lesson 5.2.3 | Health psychology

## Further detail and evidence

**Key study:** Yokley and Glenwick (1984) tested community interventions to increase preschool immunisation, applying prompts and reinforcement to health-service use.

Families of 1,133 preschool children lacking required immunisations were randomly assigned to six public-health conditions.

Conditions were general prompt; child-specific prompt; specific prompt plus easier clinic access; specific prompt plus monetary incentive; contact control; and no-contact control.

The independent variable was intervention package; the outcome was immunisation attendance rather than stated intention.

Except for general prompting, interventions showed some improvement over controls. Monetary incentives plus specific prompts had the largest effect, followed by easier access and specific prompts alone.

Behavioural contracts agree a clear action, monitoring and consequence. Prompts cue the action at a relevant time; customising the regimen fits it around the person's practical needs. A useful intervention addresses the cause of non-adherence rather than adding an unrelated reward.

Chaney et al. (2004) tested the Funhaler with young children using asthma inhalers. A whistle/spinner provided contingent feedback for appropriate breathing. Parent reports favoured easier use and better adherence compared with the usual device. The short home comparison and parental report limit conclusions about long-term clinical improvement.

Yokley and Glenwick compared six community conditions for families whose preschool children lacked immunisation. Specific prompts, improved access and monetary incentives can change different barriers. The strongest attendance effect was associated with the incentive condition; a general prompt alone was not sufficient.

# Improving adherence

Lesson 5.2.3 | Health psychology

## Applying the ideas

A calendar reminder may help someone who intends to attend but forgets. Easier clinic access helps a practical obstacle, and an engaging child device changes the immediate experience of treatment. A contract should specify what counts as adherence and how both parties will review difficulties.

## Evaluation and connections

**The conclusion supports tailored, practical interventions:** reminders may be insufficient when barriers remain.

Random allocation and behavioural records support application. Combined packages do not isolate every mechanism; one community and health behaviour limit generalisation.

Evaluate child-research ethics, parental decisions, incentives and controls. Clinic attendance is not the same as complete long-term adherence.

Randomised community conditions support comparison and real attendance is a behavioural outcome. Incentives can impose costs and may not persist after removal. Parent reports can be optimistic and short comparisons are vulnerable to novelty. Evaluate treatment adherence, appointment attendance and health outcomes separately.

# Types and theories of pain

Lesson 5.3.1 | Health psychology

## Core ideas

Pain is an unpleasant sensory and emotional experience, so it is shaped by both body signals and psychological interpretation.

Acute pain is usually short-term and linked to recent injury or illness, while chronic pain continues for longer and may remain after tissue healing.

Nociceptors detect potentially damaging stimulation and send signals through nerves toward the spinal cord and brain.

Specificity theory treats pain as a direct signal from pain receptors to the brain, but it struggles to explain why context and emotion change pain.

Gate control theory argues that pain signals can be increased or reduced in the spinal cord before they reach conscious awareness.

Phantom limb pain and chronic pain show that pain can involve brain interpretation, memory, attention and emotion, not just current tissue damage.

# Types and theories of pain

Lesson 5.3.1 | Health psychology

## Key terms

**Pain:** An unpleasant sensory and emotional experience linked with actual or possible damage.

**Acute pain:** Short-term pain usually linked to recent injury, illness or tissue damage.

**Chronic pain:** Pain that continues for a long time, sometimes after healing has occurred.

**Nociceptor:** A sensory receptor that responds to potentially damaging stimulation.

**Specificity theory:** The idea that pain travels through a direct pathway from pain receptors to the brain.

**Gate control theory:** A theory that pain signals can be modulated in the spinal cord before reaching the brain.

**Phantom limb pain:** Pain felt in a limb or body part that is no longer present.

**Biopsychosocial view:** The view that biological, psychological and social factors all shape pain experience.

## Further detail and evidence

Pain has a protective function by signalling potential damage and encouraging withdrawal/protection, but persistent pain can be disabling beyond that immediate function. Acute/chronic describe time course, not necessarily intensity. Chronic pain is real even when current tissue damage does not explain its full severity.

# Types and theories of pain

Lesson 5.3.1 | Health psychology

*Continued*

Specificity theory proposes dedicated pathways carrying pain information from receptors towards the brain. Gate control includes modulation in the spinal cord: activity in different nerve fibres and descending influences from the brain can increase or reduce transmission. Attention, anxiety and expectations can therefore affect experience.

Phantom limb pain is pain experienced in an absent limb. MacLachlan et al. (2004) reported lower-limb mirror treatment in a case: viewing the reflected intact limb provided altered visual feedback and was associated with reduced phantom pain and improved movement control. A case suggests usefulness without proving a universal treatment effect.

## Applying the ideas

Two similar injuries can produce different pain ratings because attention, appraisal and context affect processing. Phantom pain challenges a simple one-to-one mapping from current limb damage to experienced pain. It does not show that all pain is imagined or voluntarily controllable.

## Evaluation and connections

Biological pathways explain transmission, while gate control integrates bodily and psychological influences. Objective injury measures cannot directly establish the subjective intensity. Case evidence permits personal detail but limited generalisation; controlled comparison and follow-up are needed to evaluate mirror interventions more broadly.

# Measuring pain

Lesson 5.3.2 | Health psychology

## Core ideas

Pain is subjective, so self-report is often central because the person experiencing pain has direct access to its intensity and quality.

Numerical rating scales and visual analogue scales turn pain into a score, making changes over time easier to compare.

Questionnaires can measure more than intensity by asking about the quality, location, duration and emotional impact of pain.

Pain diaries record pain in everyday life, helping researchers see patterns linked to activity, mood, medication or time of day.

Behavioural observation can record visible signs such as guarding, facial expression, movement limits or requests for help.

Physiological measures may show arousal or bodily stress, but they cannot prove exactly how much pain a person feels.

## Key terms

**Self-report:** A person's own account of their pain experience.

**Numerical rating scale:** A scale where pain is rated with numbers, such as 0 to 10.

**Visual analogue scale:** A line or visual scale where a person marks how strong their pain feels.

**Pain questionnaire:** A structured set of questions about pain intensity, quality or impact.

**Pain diary:** A record of pain episodes, triggers, activities and changes over time.

**Behavioural observation:** Recording visible pain-related behaviour rather than only asking the patient.

**Physiological measure:** A bodily measure such as heart rate, muscle tension or stress response.

**Subjective measure:** A measure based on personal experience or judgement.

# Measuring pain

Lesson 5.3.2 | Health psychology

## Further detail and evidence

**Key study:** Brudvik et al. compared children's pain ratings with parent and physician ratings and examined links to pain-relief decisions.

The syllabus labels this 2016 and its Reference List cites the 2017 journal issue: online-first and issue dates of the same study.

This cross-sectional study involved 243 children aged 3-15 at Bergen emergency outpatients in 2011. Children used age-adapted scales; parents and physicians made independent numerical ratings.

The same child supplied the basis for three assessments; participants were not randomly assigned to pain conditions.

Mean ratings were 5.5 for children, 4.8 for parents and 3.2 for physicians. Physicians underestimated pain; only 42.1% of children with severe pain received pain relief.

The McGill Pain Questionnaire uses sensory, affective and evaluative descriptors to capture more than pain intensity: what pain feels like, its emotional qualities and the person's overall appraisal. Selecting words creates structured self-report data; language and cultural interpretation can influence scores.

A visual analogue scale (VAS) normally asks the person to mark a point on a line between endpoints such as no pain and the worst pain. It differs from choosing a numbered category on a numerical rating scale; both quantify a subjective experience.

The University of Alabama at Birmingham (UAB) Pain Behavior Scale is a standardised observational measure of observable pain behaviours. Richards et al. (1982) developed it for rapid use by pain-team staff, with inter-rater reliability and validity evaluated. Behavioural indicators do not provide direct access to another person's experience.

Compare clinical interviews, McGill descriptors, visual ratings and behavioural observation: each captures different information. Observer agreement can support reliability without establishing validity, and absent visible behaviour does not prove absence of pain. These are separate required methods; do not assume the Brudvik study used every measure listed in the topic.

# Measuring pain

Lesson 5.3.2 | Health psychology

*Continued*

Clinical interviews explore location, onset, duration, intensity, quality and interference. McGill Pain Questionnaire uses descriptors addressing sensory and emotional qualities, alongside other pain information. A visual analogue scale marks intensity along a line between defined endpoints, usually converted to a distance score.

The UAB Pain Behavior Scale structures observation of visible pain-related behaviours such as facial/vocal expressions, movement and protective posture. Behavioural indicators are not identical to private experience: people differ in expression and suppression.

Brudvik compares children's own ratings with independent parent/physician estimates in an outpatient setting. Mean ratings differed substantially, with doctors estimating less pain. Inter-rater differences here can reflect differing access to experience, rather than the child's report simply being wrong.

## Applying the ideas

A child reporting severe pain while appearing quiet may still be in pain. A face scale can help younger children communicate, while an interview adds quality/context. Repeated ratings should use an appropriate consistent instrument. A lower score and improved functioning are related but separate outcomes.

## Evaluation and connections

The conclusion supports listening to children's age-appropriate self-reports and parental information rather than automatically treating professional estimates as objective.

Independent ratings aid comparison, but subjective scales do not directly measure tissue damage. One centre and observational data limit causal claims.

Evaluate psychometrics, subjective/objective data, child participation and agreement versus validity.

Self-report is essential to subjective experience but depends on comprehension and scale use. Structured observation improves consistency yet may underestimate hidden distress. Brudvik has real clinical relevance; age-appropriate scale differences and one setting restrict direct comparisons/generalisation. Combine information without assuming that objective-looking behaviour overrides the patient.

# Managing and controlling pain

Lesson 5.3.3 | Health psychology

## Core ideas

Pain management can involve medical, psychological and behavioural approaches, especially when pain is long-lasting or affects daily life.

Drug treatments can reduce pain signals or inflammation, but they may have side effects and may not address fear, stress or behaviour.

Cognitive approaches help patients change unhelpful thoughts about pain, such as catastrophising or expecting all activity to cause damage.

Behavioural approaches use pacing, graded activity and reinforcement to reduce avoidance and rebuild functioning step by step.

Relaxation, breathing and distraction can reduce tension and shift attention away from pain, which may influence pain experience.

Biofeedback and multidisciplinary pain programmes help patients notice body responses, practise coping skills and combine support from different professionals.

# Managing and controlling pain

Lesson 5.3.3 | Health psychology

## Key terms

**Pain management:** Strategies used to reduce pain or help a person cope with it.

**Analgesic:** A medicine used to reduce pain.

**Catastrophising:** Thinking about pain in an exaggeratedly negative or helpless way.

**Cognitive restructuring:** Changing unhelpful thoughts into more balanced ways of thinking.

**Pacing:** Balancing activity and rest so pain does not lead to repeated overdoing and crashing.

**Graded activity:** Increasing activity gradually through planned steps.

**Relaxation technique:** A method such as breathing or muscle relaxation used to reduce tension.

**Biofeedback:** Using information about body responses to learn control over tension or arousal.

## Further detail and evidence

**Biochemical management changes physiological transmission:** medicines can act peripherally on inflammatory processes or centrally on pain processing. Compare potential relief, side effects, tolerance/dependence where relevant, adherence and whether the underlying cause is addressed.

# Managing and controlling pain

Lesson 5.3.3 | Health psychology

*Continued*

Cognitive strategies include attention diversion (focus elsewhere), non-pain imagery (imagine a pleasant unrelated scene), and cognitive redefinition (reinterpret the sensation and its meaning). They aim to change processing and distress rather than deny the experience.

Acupuncture uses stimulation at selected body sites with needles; TENS uses electrodes providing transcutaneous electrical stimulation. Proposed mechanisms involve modulation of pain signalling, including gate-control processes. Neither should be described as simply repairing all damaged tissue.

## Applying the ideas

Listening to an absorbing story diverts attention; imagining a calm beach is non-pain imagery; viewing a sensation as manageable rather than catastrophic changes its meaning. These strategies can affect coping and reported intensity. A lower pain score does not necessarily show that an injury healed faster.

## Evaluation and connections

Compare self-reported pain with activity, sleep and quality of life. Blinding and credible sham comparisons help assess expectation effects, although complete blinding can be difficult. Treatments may suit different pain types and individuals. Long-term effectiveness, acceptability, adverse effects and access matter alongside immediate relief.

# Sources of stress

Lesson 5.4.1 | Health psychology

## Core ideas

A stressor is a demand or threat that a person perceives as difficult to cope with, not just any unpleasant event.

Major life events such as bereavement, divorce, moving home or serious illness can create stress because they require major adjustment.

Daily hassles are smaller repeated irritations, such as traffic, deadlines or conflicts, that can build up over time.

Chronic stressors are long-lasting pressures, such as caregiving, poverty, discrimination, work overload or ongoing health problems.

Workplace stress often increases when demands are high, control is low, support is weak or roles are unclear.

**Stress depends partly on appraisal:** people judge how serious a demand is and whether they have the resources to cope.

# Sources of stress

Lesson 5.4.1 | Health psychology

## Key terms

**Stressor:** A demand, threat or pressure that may trigger stress.

**Stress response:** The psychological and bodily reaction to a perceived demand.

**Major life event:** A significant change that requires adjustment.

**Daily hassle:** A small but repeated irritation or demand in everyday life.

**Chronic stressor:** A long-lasting source of pressure.

**Work overload:** Having more work demands than a person feels able to manage.

**Perceived control:** How much influence a person believes they have over a situation.

**Appraisal:** A person's judgement of a demand and their ability to cope with it.

## Further detail and evidence

**General Adaptation Syndrome:** alarm mobilises an immediate physiological response, resistance sustains adaptation, and prolonged demands can lead to exhaustion. Sympathetic activation and stress-hormone systems support short-term action; prolonged activation can carry health costs.

Holmes and Rahe's life-event approach sums weighted life changes, including desirable changes requiring adjustment. The same total can conceal different meanings, resources and timing. Daily hassles are useful context, but do not replace the required life-event account.

# Sources of stress

Lesson 5.4.1 | Health psychology

*Continued*

Chandola et al. (2008) used the Whitehall II cohort to examine work stress and coronary heart disease alongside behavioural/biological pathways. Work stress was associated with CHD, with health behaviours and physiological processes helping explain the relationship. A longitudinal association is not random assignment to stress.

Type A pattern involves competitiveness, time urgency and hostility, compared with a more relaxed Type B pattern. Friedman and Rosenman linked the pattern with coronary risk. Treat it as an historical risk account, rather than proof that a personality label inevitably causes disease.

## Applying the ideas

An upcoming deadline can activate alarm; continuing demands may sustain resistance. A life-event score estimates adjustment demands, whereas a work-stress questionnaire concerns the organisation of everyday demands. Neither alone reveals exactly how stressed every individual feels.

## Evaluation and connections

GAS provides an organised physiological model but can understate individual appraisal and differences between stressors. Life-event measures rely on recall and fixed weights. Cohorts improve temporal evidence but retain confounds. Personality and work exposures may interact with smoking, sleep, support and health history.

# Measures of stress

Lesson 5.4.2 | Health psychology

## Core ideas

Stress can be measured through self-report questionnaires, interviews, diaries, life-event scales, daily-hassle scales and physiological measures.

Self-report measures can show how stressful a person feels an event is, but answers may be affected by memory, honesty and interpretation.

Life-event scales estimate stress from major changes, but the same event can have different meanings for different people.

Daily-hassle measures can capture repeated everyday pressures that may be missed by only counting major life events.

Physiological measures such as heart rate, blood pressure, skin conductance and cortisol can provide biological evidence of arousal.

No single stress measure is perfect, so researchers often combine methods to compare subjective experience with bodily response.

# Measures of stress

Lesson 5.4.2 | Health psychology

## Key terms

**Self-report measure:** A measure based on what a person says about their own stress.

**Life-event scale:** A checklist or rating method for major changes that may create stress.

**Daily-hassle scale:** A measure of repeated everyday irritations and demands.

**Stress diary:** A record of stressful events, feelings and responses over time.

**Physiological measure:** A bodily measure used as evidence of stress or arousal.

**Heart rate:** The number of heart beats per minute, often higher during arousal.

**Cortisol:** A hormone linked with HPA-axis stress activity.

**Skin conductance:** A measure of sweat-related electrical activity in the skin, often linked with arousal.

## Further detail and evidence

Heart rate is relatively objective but responds to exercise, caffeine and illness as well as stress. fMRI measures physiological brain signals, not thoughts directly. Wang et al. (2005) induced stress with monitored mental arithmetic and combined perfusion MRI, subjective ratings, heart rate and salivary cortisol.

# Measures of stress

Lesson 5.4.2 | Health psychology

*Continued*

Wang found stress-related cerebral blood-flow patterns, including right prefrontal activity related to reported stress. Combining physiological and subjective measures supports convergent evidence, while an artificial task may differ from chronic daily pressure.

Evans and Wener (2007) studied 139 rush-hour train commuters using salivary cortisol, self-report and proofreading performance. Nearby seat density, rather than whole-car density, was associated with adverse stress indicators. Do not substitute their separate 2006 commuting-duration study. A later corrigendum corrected Table 1 formatting.

Psychological measures include Type A questionnaires and life-event scales. They are standardised and economical but subjective. A numerical questionnaire score is quantitative data without becoming an objective hormone measure.

## Applying the ideas

To assess commuting stress, take cortisol samples at standardised times and compare with an appropriate baseline, since hormone levels vary naturally. Record local seating conditions, not merely the number in the carriage. A questionnaire can add perceived control and personal meaning.

## Evaluation and connections

Physiology can be recorded reproducibly yet lacks complete specificity for stress. Self-reports provide experience but are affected by recall and expectations. Multiple methods strengthen interpretation when their limits are recognised. A natural commute improves realism but leaves participant and journey differences uncontrolled.

# Preventing and managing stress

Lesson 5.4.3 | Health psychology

## Core ideas

Stress prevention tries to reduce demands before they become overwhelming, while stress management helps people cope once stress is present.

Problem-focused coping targets the source of stress through actions such as planning, time management, seeking information or asking for practical help.

Emotion-focused coping targets the emotional response through methods such as relaxation, breathing, reappraisal, mindfulness or social support.

Cognitive strategies can reduce stress by challenging catastrophic thoughts and building more realistic appraisals of demands and resources.

Behavioural strategies such as exercise, sleep routines, activity scheduling and assertiveness can improve coping in daily life.

A coping method may help in one situation but fail in another, so students should judge whether the stressor is controllable and whether the strategy has long-term costs.

## Key terms

**Stress prevention:** Reducing stressors or risk factors before stress becomes severe.

**Stress management:** Strategies used to cope with stress once it is present.

**Problem-focused coping:** Coping by trying to change or solve the source of stress.

**Emotion-focused coping:** Coping by managing emotional reactions to stress.

**Reappraisal:** Changing how a situation is interpreted so it feels more manageable.

**Relaxation training:** Practising methods that reduce tension and arousal.

**Social support:** Emotional, practical or informational help from other people.

**Coping fit:** How well a coping strategy matches the situation and the person's resources.

# Preventing and managing stress

Lesson 5.4.3 | Health psychology

## Further detail and evidence

**Key study:** Bridge et al. (1988) tested whether relaxation, with or without peaceful imagery, reduced distress during breast-cancer radiotherapy.

The six-week randomised trial included 154 women with stage I or II disease; 139 completed. Participants were English-speaking outpatients under 70 at one London hospital.

Random allocation produced relaxation, relaxation-plus-imagery and conversational-control groups. Weekly half-hour individual contact and home practice supported treatment.

Relaxation involved muscle awareness and diaphragmatic breathing; the combined group additionally imagined a personally chosen peaceful scene.

Profile of Mood States and Leeds anxiety/depression ratings were collected before and after treatment.

Mood disturbance was lower in intervention groups, and combined-treatment participants felt more relaxed than relaxation-only participants. Leeds scores did not differ between groups.

Randomisation and control-group attention are strengths; attrition, subjective measures and one patient group limit inference. Evaluate ethics, application and individual differences.

**The topic also requires biofeedback:** physiological activity is measured and fed back so the person can learn to control a response, for example reducing muscle tension. Budzynski et al. (1969) is a syllabus example.

**Stress inoculation training has three phases:** conceptualisation (understand stress and personal reactions), skills acquisition/rehearsal (learn and practise coping skills), and application/follow-through (use and refine them in progressively challenging situations). These are required prevention content; generic coping advice alone is insufficient.

# Preventing and managing stress

Lesson 5.4.3 | Health psychology

*Continued*

Biofeedback gives immediate information about a body response so the person can learn to alter it. Budzynski and Stoyva (1969) linked tone pitch to muscle activity: appropriate EMG feedback supported deeper muscle relaxation than comparison feedback. Learning the bodily response differs from simply hearing soothing music.

Guided imagery directs attention towards a calming mental scene. Bridge compares relaxation with relaxation plus imagery and a conversational control during breast-cancer treatment. Better mood/relaxation supports psychological benefit; the study did not demonstrate removal of cancer.

**Stress inoculation training has three phases:** conceptualisation identifies stress and explains its processes; skills acquisition/rehearsal develops coping tools such as self-instruction and relaxation; application/follow-through practises them in progressively demanding situations and reviews transfer.

## Applying the ideas

Before a demanding presentation, identify catastrophic predictions, rehearse realistic coping statements, and practise the skills under manageable simulated pressure. This follows SIT's sequence rather than offering relaxation without identifying the stressor. An uncontrollable demand may require a different coping emphasis from a changeable one.

## Evaluation and connections

This supports help with treatment-related distress, not a claim that imagery cures cancer or prolongs survival.

Bridge's random allocation and attention control strengthen comparison, but home practice/adherence and attrition can affect outcomes. Self-report mood and physiological relaxation need not coincide. Individual coping skills can help while leaving an organisational source of stress unchanged; evaluate both the person and the situation.

# Strategies for improving health

Lesson 5.5.1 | Health psychology

## Core ideas

Health-promotion strategies try to reduce risk by changing what people know, believe, feel or do before harm becomes worse.

Fear arousal uses a threat or possible consequence to make a health risk feel serious enough to act on.

A fear appeal is more likely to help when the message is credible and gives clear, realistic action; very high fear can make people deny, avoid or reject the message.

Providing information gives people practical knowledge about a risk and the steps they can take to improve health.

Information alone may not change behaviour if people lack confidence, support, time, money or belief that the advice applies to them.

Studies such as Janis and Feshbach on dental hygiene and Lewin et al. on home-based rehabilitation show that effectiveness depends on message design, audience and follow-up evidence.

# Strategies for improving health

Lesson 5.5.1 | Health psychology

## Key terms

**Health promotion:** Action designed to encourage healthier behaviour or reduce health risks.

**Fear arousal:** Using threat or danger in a message to encourage behaviour change.

**Fear appeal:** A persuasive health message that highlights serious negative consequences.

**Defensive avoidance:** Ignoring or rejecting a frightening message to reduce anxiety.

**Providing information:** Giving clear knowledge or instructions so people know how to improve health.

**Self-efficacy:** A person's belief that they can carry out the recommended action.

**Target audience:** The group a health message is designed to reach.

**Outcome measure:** Evidence used to judge whether a health strategy worked.

## Further detail and evidence

Fear arousal highlights a threat to motivate protective action. Janis and Feshbach (1953) compared fear levels in dental-hygiene communications: the strongest fear was not the most effective for reported behaviour change, and a milder message performed better. Increased anxiety is different from improved health behaviour.

# Strategies for improving health

Lesson 5.5.1 | Health psychology

*Continued*

Information provision explains risk, benefits and practical steps. Lewin et al. (1992) randomly allocated 176 heart-attack patients to a heart-manual self-help rehabilitation package or standard care with comparison information/counselling. The package included exercise, relaxation and education, not information alone.

Lewin reported better psychological adjustment at one year, less GP contact and fewer early readmissions in the rehabilitation group. Benefits were greatest for those initially anxious/depressed. The bundled programme prevents attributing the whole effect to a leaflet by itself.

## Applying the ideas

A health message should make an action understandable and achievable, as well as communicating a threat. If a viewer feels helpless, vivid risk information may provoke avoidance. Measure actual protective behaviour where possible, rather than treating recall or fear as sufficient success.

## Evaluation and connections

Fear studies require distress safeguards, especially with children. Self-reported hygiene can be socially desirable and short follow-up may miss persistence. Lewin's randomised active comparison improves causal inference, but participants know the programme and practices may change over time. Generalise to appropriate patient groups and available support.

# Health promotion in schools and worksites

Lesson 5.5.2 | Health psychology

## Core ideas

School health promotion often targets habits early because children eat, learn and copy social behaviour in a setting that can be organised by adults.

Healthy-eating programmes can use peer modelling, repeated taste exposure and small rewards to encourage children to try fruit and vegetables.

Worksite health promotion can target safety by changing the consequences of behaviour, making safe actions more visible and reinforcing safe routines.

Token economy programmes reward desired safety behaviour, so workers have an immediate reason to follow protective procedures.

Longitudinal follow-up matters because a short-term increase in healthy eating or safety behaviour may fade once rewards or attention stop.

Evaluation should consider ethics, generalisability, quantitative accident or consumption data and qualitative information about how participants experienced the programme.

# Health promotion in schools and worksites

Lesson 5.5.2 | Health psychology

## Key terms

**School health promotion:** Health intervention delivered through a school setting.

**Worksite health promotion:** Health or safety intervention delivered through a workplace.

**Healthy eating:** Food choices that support health, such as eating more fruit and vegetables.

**Peer modelling:** Learning by watching people of a similar age or role perform a behaviour.

**Taste exposure:** Repeated chances to try a food so it becomes more familiar.

**Token economy:** A reward system where tokens or points are earned for desired behaviour.

**Safety behaviour:** Actions that reduce risk of accidents or injury.

**Longitudinal follow-up:** Checking outcomes again after time has passed.

## Further detail and evidence

Food Dudes combines peer models enjoying fruit/vegetables, repeated tasting, praise and small rewards. Tapper et al. (2003) describe programmes using adventure videos, themed rewards, letters and home support. The combined components increased consumption more than provision or modelling alone in the reported evaluations.

# Health promotion in schools and worksites

Lesson 5.5.2 | Health psychology

*Continued*

**Learning mechanisms differ:** attractive peer models provide observational learning; rewards reinforce trying/eating; repeated exposure can increase familiarity. Tasting a small amount and eating a target portion are different behavioural outcomes.

Fox et al. (1987) introduced trading-stamp tokens at two open-pit mines for injury-free work, group safety, useful safety suggestions and preventative acts. Stamps were exchangeable for goods. Reported injury-related lost time and costs decreased, with benefits sustained over several years.

## Applying the ideas

A school programme can reward tasting before expecting a full portion, use models pupils identify with, and maintain support at home. A workplace programme can reinforce observable safe actions rather than merely give a safety lecture. The reinforcer must be linked clearly to the intended behaviour.

## Evaluation and connections

Real consumption and long-term injury records improve practical relevance. Packages make individual components difficult to isolate. Injury-based rewards can discourage reporting, so examine reporting safeguards and near-miss data. Children need assent/guardian consent, fair inclusion and sensitivity to dietary needs. Assess maintenance when reinforcement becomes less frequent.

# Individual factors in changing health beliefs

Lesson 5.5.3 | Health psychology

## Core ideas

Health beliefs affect whether a person thinks advice is relevant, serious, achievable and worth acting on.

Unrealistic optimism happens when people believe negative health outcomes are less likely for themselves than for similar others.

Unrealistic optimism can make people disregard positive health advice because the risk feels like a problem for other people.

Positive psychology focuses on strengths, wellbeing and flourishing rather than only illness, symptoms or deficits.

The pleasant life, good life and meaningful life describe different routes to wellbeing through positive emotion, engaged activity and purpose.

School positive-psychology programmes can aim to improve mental health, but evaluation should consider culture, individual differences, psychometric measures and generalisability.

## Key terms

**Health belief:** A belief about risk, illness, treatment or personal ability to change.

**Unrealistic optimism:** Believing that negative outcomes are less likely for oneself than for others.

**Risk perception:** A person's judgement of how likely or serious a health risk is.

**Positive psychology:** A field that studies strengths, wellbeing and ways people can flourish.

**Pleasant life:** A route to wellbeing based on positive emotion and enjoyment.

**Good life:** A route to wellbeing based on engagement, strengths and absorbing activity.

**Meaningful life:** A route to wellbeing based on purpose and connection to something larger than oneself.

**Psychometrics:** The measurement of psychological qualities using tests, scales or questionnaires.

# Individual factors in changing health beliefs

Lesson 5.5.3 | Health psychology

## Further detail and evidence

**Key study:** Shoshani and Steinmetz (2014) evaluated whole-school positive psychology for adolescent mental health, extending promotion beyond correcting illness.

The analysed sample comprised 1,038 Israeli middle-school students: 537 in the intervention school and 501 in a demographically similar wait-list control school.

A longitudinal comparison followed pupils across two years, including a one-year intervention. Existing schools were compared; pupils were not individually randomly allocated.

Trained teachers delivered activities on positive emotions, strengths, meaning and relationships. Repeated questionnaires measured symptoms and wellbeing.

Intervention participants showed less distress, anxiety and depression, alongside greater self-esteem, self-efficacy and optimism; control symptoms increased.

Weinstein (1980) examined unrealistic optimism about future life events. In Study 1, 258 college students compared their chances of 42 events with classmates. As a group they expected comparatively more desirable and fewer undesirable events. This is comparative bias, not proof that any one person's low risk estimate is incorrect.

Contributing factors include selective focus on personal precautions, stereotypes of high-risk people, perceived control and lack of relevant experience. The 1980 paper should not be confused with the separate 1982 study of health problems.

Positive psychology distinguishes the pleasant life (positive emotion), good/engaged life (using strengths in absorbing activity) and meaningful life (serving something larger than oneself). The approaches can coexist and are not a claim that positive thinking prevents all illness.

Shoshani and Steinmetz's school programme combined activities around strengths, emotions, relationships and meaning. Repeated scales showed improved wellbeing indicators and reduced distress relative to the comparison school. Existing schools, rather than randomly allocated individual pupils, were compared.

# Individual factors in changing health beliefs

Lesson 5.5.3 | Health psychology

## Applying the ideas

A student may believe a health risk applies to others because they picture an extreme stereotype and overlook their own exposure. A school intervention could build realistic agency alongside strengths and social connection. It should not encourage denying real risk or blaming students for distress.

## Evaluation and connections

This supports combining pleasant experience, engagement and meaning in school health promotion, not claiming that positive thinking prevents every disorder.

The large real-school sample and follow-up aid application; school differences, attrition and self-report threaten causal inference.

Evaluate cultural differences, child-research ethics and psychometric validity; results from two schools need not apply worldwide.

Comparative ratings can reveal a group bias but depend on the comparison group and event definitions. The school study has ecological relevance and long follow-up; school differences and self-report limit causal certainty. Culture influences valued strengths and meanings. Distinguish questionnaire improvement from a diagnosed disorder being cured.

# Need theories

Lesson 6.1.1 | Organisational psychology

## Core ideas

Need theories explain motivation as a drive to satisfy psychological or practical needs through work.

Maslow's hierarchy arranges five needs from physiological needs, safety, love and belonging, esteem and self-actualisation.

In workplaces, lower-level needs can connect to pay, rest and security, while higher-level needs can connect to teamwork, respect, achievement and personal growth.

Saeednia's research is useful because it tried to measure satisfaction of Maslow's basic needs with a structured scale rather than relying only on broad theory.

McClelland argued that workers can differ in need for achievement, need for affiliation and need for power.

Need theories are easy to apply to everyday work, but they can overgeneralise because motivation also depends on culture, job design, personal goals and situational constraints.

# Need theories

Lesson 6.1.1 | Organisational psychology

## Key terms

**Need theory:** An explanation of motivation based on needs that people try to satisfy.

**Hierarchy of needs:** Maslow's idea that needs can be arranged from basic survival needs to self-actualisation.

**Physiological needs:** Basic needs such as food, water, rest and physical survival.

**Safety needs:** Needs for security, stability and protection from harm.

**Belonging needs:** Needs for relationships, acceptance and group membership.

**Esteem needs:** Needs for respect, recognition and a sense of competence.

**Self-actualisation:** Developing one's potential and pursuing personal growth.

**Need for achievement:** McClelland's motive to succeed, meet standards and master challenging tasks.

## Further detail and evidence

**Maslow's five needs, from lower to higher:** physiological (food/rest), safety (security/protection), love/belonging (relationships), esteem (respect/achievement), self-actualisation (realising potential). A relatively unmet need is proposed to motivate action; the strict order should be evaluated rather than assumed universal.

# Need theories

Lesson 6.1.1 | Organisational psychology

*Continued*

Saeednia (2011) developed a measure of the hierarchy using child interviews to generate material and a larger child sample to examine the scale. Evidence of acceptable measurement properties is not proof that every adult employee must satisfy needs in a rigid order.

**McClelland:** need for achievement seeks challenging but attainable success and feedback; affiliation seeks acceptance and close relationships; power seeks influence. Personalised power serves the individual, while socialised power can serve organisational/group aims. People differ in the relative strength of these learned needs.

## Applying the ideas

Secure employment may address safety, a supportive team belonging, and responsibility/skill development esteem or self-actualisation. An achievement-motivated worker may prefer clear feedback and moderate challenge; affiliation and power can predict different preferred roles. Do not equate every person's motivation with money.

## Evaluation and connections

Need theories organise workplace practices but broad concepts can be difficult to operationalise. Multiple needs can operate together, and culture changes what is valued. A scale developed with children has limited direct validity for adult workplaces. Compare individual need patterns with situational opportunities to satisfy them.

# Cognitive theories

Lesson 6.1.2 | Organisational psychology

## Core ideas

Cognitive theories explain motivation through beliefs, expectations and decisions rather than only through needs or rewards.

Latham and Locke's goal-setting theory argues that clear, challenging goals can improve performance when workers are committed and receive useful feedback.

Goal-setting principles include clarity, challenge, commitment, feedback and task complexity.

SMART goals are specific, measurable, achievable, relevant and time-bound, so workers know exactly what success should look like.

Vroom's VIE theory explains motivation through expectancy, instrumentality and valence.

Cognitive theories are useful because they apply to everyday work planning, but they can be too rational if they ignore emotion, culture, habit or unequal access to rewards.

# Cognitive theories

Lesson 6.1.2 | Organisational psychology

## Key terms

**Goal-setting theory:** A theory that clear and challenging goals can improve motivation and performance.

**Goal clarity:** How specific and understandable a goal is.

**Goal commitment:** How strongly a worker accepts and wants to reach a goal.

**Feedback:** Information about progress or performance.

**SMART goal:** A goal that is specific, measurable, achievable, relevant and time-bound.

**Expectancy:** Belief that effort will lead to good performance.

**Instrumentality:** Belief that good performance will lead to a valued outcome.

**Valence:** How much a worker values the outcome or reward.

## Further detail and evidence

**Goal-setting principles:** clarity makes the target understandable; challenge requires meaningful effort; commitment makes it personally accepted; feedback shows progress; task complexity requires suitable time, resources and subgoals. A difficult target without skills/support may reduce effectiveness.

# Cognitive theories

Lesson 6.1.2 | Organisational psychology

*Continued*

SMART goals are specific, measurable, achievable, relevant and time-bound. For example, completing an agreed number of accurately checked records by the end of a week specifies an outcome and deadline; "work harder" does not.

**Vroom's VIE:** expectancy is the belief that effort can produce the required performance; instrumentality is the belief that performance leads to an outcome; valence is the value of that outcome. Motivation depends on all three, often represented as a multiplicative relationship: one missing link can undermine effort.

## Applying the ideas

An attractive bonus has high valence, but motivation can remain low if the worker lacks training (low expectancy) or believes rewards are allocated unfairly (low instrumentality). A useful response targets the weak link, rather than only increasing the bonus. Feedback can show whether performance is approaching a goal.

## Evaluation and connections

Cognitive accounts recognise interpretation and agency. They can oversimplify if they treat all choices as calculated or assume one valued reward. Goals can narrow attention and encourage quantity at the expense of quality. Evaluate cultural values, task complexity, fairness, wellbeing and whether performance is under the worker's control.

# Motivators at work

Lesson 6.1.3 | Organisational psychology

## Core ideas

Extrinsic motivators come from outside the work itself, such as pay, bonuses, profit-sharing and performance-related pay.

Intrinsic motivators come from the work experience, such as interest, respect, recognition, empowerment and belonging.

Reward systems can increase effort when employees see them as fair, achievable and linked to valued outcomes.

Performance-related pay can focus behaviour on measurable targets, but it may reduce cooperation or intrinsic interest if workers feel controlled.

Deci and Ryan's self-determination theory argues that motivation is stronger when competence, autonomy and relatedness are supported.

Landry et al. can be used to examine motivational rewards through self-determination theory, especially whether rewards feel autonomy-supportive or controlling.

## Key terms

**Extrinsic motivator:** A motivator that comes from outside the work itself, such as money or a bonus.

**Intrinsic motivator:** A motivator based on interest, satisfaction or meaning in the work itself.

**Performance-related pay:** Pay linked to measured performance or target achievement.

**Profit-sharing:** A reward system where employees receive part of the organisation's profit.

**Recognition:** Acknowledgement or praise for effort, skill or achievement.

**Empowerment:** Giving workers more control, responsibility or decision-making power.

**Autonomy:** Feeling able to choose and direct one's own actions.

**Relatedness:** Feeling connected, respected and included with other people.

# Motivators at work

Lesson 6.1.3 | Organisational psychology

## Further detail and evidence

**Key study:** Landry et al. (2019), Study 1, tested reward meaning: autonomy-supportive appreciation versus controlling performance pressure.

123 French-speaking Canadian university volunteers, mean age 23 and 60% women, were randomly assigned to supportive (65) or controlling (58) instructions.

**Both offered a $10 coffee-shop gift card:** wording changed meaning while amount stayed constant.

Participants attempted 25 four-letter anagrams in two minutes and completed validated scales of needs and intrinsic/extrinsic motivation.

Supportive wording produced greater need satisfaction, intrinsic motivation and performance, and less need frustration and extrinsic motivation.

Mean intrinsic-motivation scores were 5.31 versus 4.56, and composite performance scores (based on correct and incorrect responses, not percentage accuracy) of 0.76 versus 0.54, supportive versus controlling.

**Extrinsic systems:** basic pay provides income; a bonus is an additional reward; profit-sharing links rewards to organisational profit; performance-related pay links them to assessed output. Intrinsic motivation is satisfaction in the activity itself. Praise, respect, recognition, empowerment and belonging can support it, though an external reward is not automatically intrinsic.

# Motivators at work

Lesson 6.1.3 | Organisational psychology

*Continued*

**Self-determination theory:** autonomy is a sense of choice/volition, competence is feeling effective, and relatedness is connection with others. The meaning and delivery of a reward can support or frustrate these needs. Cash need not always undermine intrinsic motivation.

Landry's designated Study 1 kept the reward value constant and manipulated need-supportive versus controlling presentation. It tested how the interpersonal context of a monetary reward related to needs, motivation and anagram performance, rather than simply comparing reward with no reward.

## Applying the ideas

"Here is information recognising your contribution" may be experienced differently from "You must perform this way to deserve payment." The same reward amount can communicate appreciation or control. In Landry, distinguish a composite performance measure from a percentage-correct score.

## Evaluation and connections

**This supports self-determination theory:** autonomy, competence and relatedness help explain rewards; money is not invariably harmful or beneficial.

Random allocation and standard tasks aid comparison; students, brief tasks and self-report limit workplace generalisation. Study 1 is required; Study 2 methodology is excluded in 2027.

Random allocation and constant reward value isolate presentation more clearly. A short student anagram task and coffee-card reward limit generalisation to salaries and long-term employment. Self-report need satisfaction is subjective, while task output adds behavioural evidence. Compare autonomy support with the practical need for clear standards and fair pay.

# Traditional and modern theories of leadership

Lesson 6.2.1 | Organisational psychology

## Core ideas

Universalist theories assume some leadership qualities or patterns can work across many situations.

Great person theories treat leadership as linked to special personal qualities, while charismatic leadership focuses on influence through vision, confidence and emotional appeal.

Transformational leaders try to inspire followers to go beyond routine performance by creating vision, intellectual challenge and commitment to shared goals.

Behavioural theories shift attention from who the leader is to what the leader does, such as structuring tasks or showing concern for people.

Ohio University and Michigan University explanations both studied leader behaviour, including task-focused and relationship-focused patterns.

Heifetz's adaptive leadership focuses on helping people face complex challenges, learn, share responsibility and adjust when old solutions are not enough.

# Traditional and modern theories of leadership

Lesson 6.2.1 | Organisational psychology

## Key terms

**Universalist theory:** A theory suggesting that some leadership qualities or behaviours work across many situations.

**Great person theory:** The idea that leaders have special personal qualities that set them apart.

**Charismatic leader:** A leader who influences others through personal appeal, confidence and vision.

**Transformational leader:** A leader who inspires change, commitment and higher levels of performance.

**Behavioural theory:** An explanation that focuses on what leaders do rather than fixed traits.

**Task-focused behaviour:** Leader behaviour aimed at organising work, goals and procedures.

**Relationship-focused behaviour:** Leader behaviour aimed at support, trust and concern for people.

**Adaptive leadership:** Leadership that helps people respond to complex challenges by learning and adjusting.

## Further detail and evidence

Great person accounts emphasise exceptional personal qualities; charismatic leaders influence through vision and emotional appeal; transformational leaders develop commitment through inspiration, intellectual stimulation, individual consideration and a shared purpose. These approaches differ from explaining leadership entirely through a job title.

# Traditional and modern theories of leadership

Lesson 6.2.1 | Organisational psychology

*Continued*

Ohio studies distinguish initiating structure (organising tasks/roles) and consideration (support/trust); these can both be high. Michigan studies contrast employee-centred and production-centred behaviour. Behavioural approaches suggest actions can be learned rather than only inherited.

**Heifetz's six principles:** get on the balcony (see the wider pattern); identify the adaptive challenge; regulate distress; maintain disciplined attention; give the work back to people; protect voices from below. Adaptive challenges require learning and value change, not merely an expert's existing technical solution.

Adaptive responsibilities include providing direction while exposing real challenges, regulating the pace, maintaining a workable setting, addressing conflict and encouraging learning. Protecting dissent helps the group hear information that established authority might suppress.

## Applying the ideas

Installing familiar software can be a technical task; changing a team's habits and values around collaboration is adaptive. A leader can clarify the problem and regulate pressure while allowing employees to develop solutions. High consideration can coexist with clear task structure.

## Evaluation and connections

Universal traits may overlook followers and context. Behavioural measures are more observable but ratings can reflect success after the event. Charisma may inspire or encourage uncritical dependence. Evaluate which approach predicts performance in a particular setting and whether evidence generalises across cultures.

# Leadership style

Lesson 6.2.2 | Organisational psychology

## Core ideas

Leadership style is the pattern of behaviour a leader uses when making decisions, giving direction and working with followers.

Muczyk and Reimann describe leader behaviour using two dimensions: how much followers participate in decisions and how directive the leader is during implementation.

Their four styles are directive autocrat, permissive autocrat, directive democrat and permissive democrat.

Scouller's three levels separate public leadership with the whole group, private leadership with individuals or small groups and personal leadership based on the leader's own qualities and self-management.

Leadership style and gender research asks whether the same behaviour is judged differently when the leader is described as a woman or a man.

Cuadrado et al. can be used to discuss how stereotypes, experimental design and generalisability affect conclusions about gender and leadership.

## Key terms

**Leadership style:** A leader's usual pattern of directing, involving and influencing followers.

**Directive autocrat:** A leader who makes decisions and gives strong direction during implementation.

**Permissive autocrat:** A leader who makes decisions but gives followers more freedom in carrying them out.

**Directive democrat:** A leader who involves followers in decisions but gives clear direction during implementation.

# Leadership style

Lesson 6.2.2 | Organisational psychology

*Continued*

**Permissive democrat:** A leader who involves followers in decisions and gives freedom during implementation.

**Public leadership:** Scouller's level focused on leading the group as a whole.

**Private leadership:** Scouller's level focused on one-to-one or small-group leadership.

**Gender stereotype:** A generalised expectation about behaviour based on gender.

## Further detail and evidence

**Key study:** Cuadrado et al. (2008) tested role congruity: whether leader gender and stereotyped style affect evaluations and help explain women's leadership underrepresentation.

136 Spanish psychology students, 53% women, were randomly allocated to four groups of 34.

A 2 × 2 experiment varied leader gender and masculine-stereotyped versus feminine-stereotyped style in a hospital-emergency-service narrative.

The masculine-stereotyped style was autocratic/task-oriented; the feminine-stereotyped style was democratic, relationship-oriented and individually considerate. These are manipulated stereotypes, not innate sex differences.

Participants rated competence, efficacy and traits. The feminine-stereotyped style received more favourable ratings regardless of leader gender.

**There was no main effect of leader gender:** the result did not simply confirm that equivalent female leaders were rated worse.

Muczyk/Reimann combine participation in decisions with direction during implementation. Directive autocrat: leader decides and closely directs. Permissive autocrat: leader decides but allows implementation freedom. Directive democrat: followers participate in decisions, then implementation is closely directed. Permissive democrat: participation and implementation freedom are both high.

# Leadership style

Lesson 6.2.2 | Organisational psychology

*Continued*

**Scouller:** public leadership concerns the collective group, private leadership concerns one-to-one work with individuals, and personal leadership concerns the leader's own self-awareness, skills and psychological development. Personal leadership supports the other two; it is not merely private life.

Cuadrado's gender/style experiment uses role-congruity expectations as its context. Its finding favouring the relationship-oriented/democratic style across leader genders should be distinguished from the hypothesis that women would be penalised simply for holding leadership roles.

## Applying the ideas

A team may help decide a project method while the manager closely monitors implementation: directive democracy. A manager can unilaterally choose a goal but leave an experienced team to decide how: permissive autocracy. Participation and follow-up are independent decisions.

## Evaluation and connections

Random allocation and controlled narratives aid validity; reliable multi-item ratings aid consistency. A hypothetical scenario and student sample limit real-hiring generalisation.

Evaluate nature/nurture, individual/situational explanations and cultural differences. Fictional-leader ratings do not demonstrate actual managerial effectiveness.

Written scenarios isolate gender/style information but omit real interaction and consequences. Student competence ratings are not hiring decisions or productivity. The labels masculine/feminine refer to stereotypes manipulated in the study, not biological properties. No main gender effect does not show that discrimination never occurs in any workplace.

# Leaders and followers

Lesson 6.2.3 | Organisational psychology

## Core ideas

Kouzes and Posner's Leadership Practices Inventory measures how often leaders show five practical leadership behaviours.

The five practices are Model the Way, Inspire a Shared Vision, Challenge the Process, Enable Others to Act and Encourage the Heart.

The LPI is a self-report or observer-report measure, so it is useful for feedback but can be affected by social desirability and rating bias.

Followership means the active role followers play in supporting, questioning or shaping what leaders and groups do.

**Kelley describes followership using two dimensions:** independent critical thinking and active engagement.

Kelley's five follower styles are effective followers, yes people, sheep, alienated followers and survivors.

# Leaders and followers

Lesson 6.2.3 | Organisational psychology

## Key terms

**Leadership Practices Inventory:** Kouzes and Posner's questionnaire for measuring five leadership practices.

**Model the Way:** Showing the values and standards that followers are expected to follow.

**Inspire a Shared Vision:** Communicating a clear future that others can believe in and work toward.

**Challenge the Process:** Looking for better ways to work and being willing to test change.

**Enable Others to Act:** Building trust, cooperation and confidence so others can contribute.

**Encourage the Heart:** Recognising effort and celebrating progress.

**Followership:** The way followers think, act and take responsibility in relation to leaders and group goals.

**Active engagement:** The extent to which followers participate, take initiative and put effort into group goals.

# Leaders and followers

Lesson 6.2.3 | Organisational psychology

## Further detail and evidence

**LPI practices:** Model the Way clarifies values and sets an example; Inspire a Shared Vision communicates an attractive future; Challenge the Process searches for improvements and learns from risks; Enable Others to Act builds trust/capability; Encourage the Heart recognises contributions and celebrates progress.

Followership is an active contribution to collective work, including appropriate support and challenge. Kelley's dimensions are independent critical thinking versus dependence, and active engagement versus passivity.

**Five styles:** effective followers are high on both dimensions; alienated followers think independently but engage little; yes people engage actively but depend on leaders' thinking; sheep are low on both; survivors/pragmatists occupy a cautious middle position. These describe patterns that can change with context.

## Applying the ideas

An employee who identifies a problem, proposes evidence and helps implement a better solution shows both critical thinking and active engagement. Agreeing enthusiastically without evaluating a weak plan is closer to a yes-person pattern. Constructive challenge can support a leader rather than signify disloyalty.

## Evaluation and connections

Self and observer LPI ratings enable structured feedback but can be shaped by social desirability, liking and unequal opportunities to observe. Check reliability and cultural meaning. Typologies simplify variation and can become stereotypes; use evidence across situations rather than permanently labelling a worker from one act.

# Group development and decision-making

Lesson 6.3.1 | Organisational psychology

## Core ideas

Tuckman and Jensen describe group development as forming, storming, norming, performing and adjourning.

The stages help explain why new groups may begin politely, experience conflict, agree norms, work effectively and then separate after the task.

Belbin's nine team roles describe useful behaviour patterns that can help a team balance ideas, relationships and task completion.

The nine roles are Resource Investigator, Teamworker, Co-ordinator, Plant, Monitor Evaluator, Specialist, Shaper, Implementer and Completer Finisher.

Groupthink is faulty decision-making where pressure for agreement reduces criticism, alternatives and attention to warning signs.

Forsyth's cognitive limitations and errors include sins of commission, sins of omission and sins of imprecision, all of which can distort group decisions.

## Key terms

**Forming:** The early stage when group members orient themselves and learn the task.

**Storming:** The stage where conflict, role disagreement or resistance may appear.

**Norming:** The stage where shared expectations and working patterns become clearer.

**Performing:** The stage where the group works more effectively toward its goals.

# Group development and decision-making

Lesson 6.3.1 | Organisational psychology

*Continued*

**Adjourning:** The stage where the group finishes its task and separates.

**Belbin team role:** A useful pattern of behaviour a person can contribute to a team.

**Groupthink:** Poor group decision-making caused by pressure for agreement and lack of challenge.

**Sin of omission:** A Forsyth error where a group overlooks useful or relevant information.

## Further detail and evidence

**Development:** forming establishes orientation; storming involves disagreement over roles/goals; norming develops shared expectations; performing coordinates effective work; adjourning concerns completion/separation. Groups may revisit stages after membership or task changes.

**Belbin ideas roles:** Plant generates creative solutions; Monitor Evaluator critically weighs options; Specialist supplies deep expertise. Action roles: Shaper drives progress; Implementer turns plans into practical work; Completer Finisher checks errors and deadlines. People roles: Co-ordinator clarifies goals/delegates; Teamworker supports cooperation; Resource Investigator explores external opportunities. One person may perform several roles.

Groupthink features include illusions of invulnerability/morality, collective rationalisation, stereotypes of outsiders, direct pressure on dissent, self-censorship, apparent unanimity and mindguards filtering warnings. Prevention includes impartial leadership, independent views, external review, a devil's advocate and reconsidering the decision.

# Group development and decision-making

Lesson 6.3.1 | Organisational psychology

*Continued*

**Forsyth commission errors actively use faulty judgement:** belief perseverance retains discredited beliefs; sunk-cost thinking continues because of past investment; extra-evidentiary bias lets material that should be excluded influence judgement; hindsight makes an outcome seem predictable after it occurs.

**Omission errors leave relevant information out:** base-rate neglect ignores background frequencies; fundamental attribution error overemphasises dispositions over situations; confirmation bias fails to seek disconfirming evidence. Imprecision errors use rough shortcuts: availability relies on easy recall; conjunction error rates a combined event above a component; representativeness uses similarity instead of sound probability.

## Applying the ideas

A team defending a failing project because it has already spent money shows sunk-cost thinking. Suppressing doubts to maintain unity illustrates groupthink. Independent preliminary judgements, diverse roles and a second review can reduce these pressures without guaranteeing a perfect decision.

## Evaluation and connections

Stage and role models organise team practice but can oversimplify fluid groups. Role questionnaires may reflect self-image. Explain a particular decision error and how a proposed safeguard addresses it; merely listing more meetings does not show how evidence quality improves.

# Individual and group performance

Lesson 6.3.2 | Organisational psychology

## Core ideas

Social facilitation is when the presence of others changes individual performance, often improving simple or well-learned tasks but weakening complex or unfamiliar tasks.

Drive theory explains social facilitation by arguing that other people increase arousal, which strengthens the dominant response.

Evaluation apprehension explains performance change through concern about being judged rather than mere physical presence.

Social loafing is reduced individual effort when people work in a group and their own contribution is less identifiable.

Social impact theory helps explain loafing because responsibility can feel spread across more people as group size increases.

Research on culture and monitoring asks when group performance improves or declines in real workplaces, such as collectivist groups or employees under electronic observation.

## Key terms

**Social facilitation:** A change in performance caused by the presence of others.

**Drive theory:** The idea that others increase arousal and strengthen a person's dominant response.

**Dominant response:** The response a person is most likely to give in that situation.

**Evaluation apprehension:** Concern about being judged by others.

**Social loafing:** Putting in less effort when working in a group than when working alone.

**Social impact theory:** The idea that social influence depends on factors such as strength, immediacy and number of people.

**Collectivist culture:** A culture where group goals and interdependence are usually emphasised.

**Electronic performance monitoring:** Using technology to observe, record or assess employee performance.

# Individual and group performance

Lesson 6.3.2 | Organisational psychology

## Further detail and evidence

**Key study:** Claypoole and Szalma (2019), Experiment 1, extended social-facilitation research to electronic monitoring during monotonous vigilance.

106 US university volunteers, 65 female and mean age about 20.6, entered electronic-presence or control conditions, 53 per group.

Participants monitored two-digit numbers and responded to critical signals. Electronic presence combined webcam and video-recorder monitoring; controls worked alone without them.

Correct detections, false alarms and response times were measured across a 24-minute task in four six-minute periods: performance data rather than self-rated concentration.

Monitored participants detected more signals (0.6906 versus 0.6038), made fewer false alarms and responded faster overall.

**Vigilance still deteriorated with time:** monitoring improved average performance rather than abolishing the vigilance decrement.

Social facilitation means performance changes in the presence of others, often improving simple/well-learned responses and impairing difficult/new ones. Drive theory proposes increased arousal strengthens the dominant response; evaluation apprehension emphasises concern about being judged.

Social loafing is reduced individual effort when contributions are pooled. Social impact theory considers how the influence of social sources is divided across targets: accountability can weaken as responsibility is spread. Identifiable contributions and meaningful shared goals can reduce loafing.

# Individual and group performance

Lesson 6.3.2 | Organisational psychology

*Continued*

Earley (1993) compared individual, in-group and out-group performance in different cultural contexts. Collectivist participants performed especially well with an in-group; individualists showed reduced performance in group conditions relative to alone. Group membership matters alongside cultural orientation; do not equate nationality with every individual's beliefs.

Claypoole and Szalma's designated Experiment 1 tested electronic monitoring during sustained attention. The combined webcam/recording condition improved detection and other performance indices relative to being alone, while vigilance still declined over time. Monitoring is therefore not a guarantee of constant perfect concentration.

## Applying the ideas

A practised task may benefit from evaluation-related arousal, while a novice may make more errors under scrutiny. A group output hiding individual effort can encourage loafing. Monitoring a single person's vigilance is different from testing effort in a pooled group task.

## Evaluation and connections

The conclusion supports electronic social presence as an influence on attention. Standardised measurement aids reliability, but a brief student laboratory task may not generalise to workplaces.

Evaluate apprehension about evaluation, privacy and consent, and individual/situational influences. Experiment 1 is required; Experiment 2 methodology is excluded in 2027.

Experimental monitoring offers control, but a short student task differs from real employment, incentives and privacy expectations. Between-culture comparisons need equivalent tasks and attention to within-culture differences. Evaluate benefits alongside stress, trust, consent and whether quality is being measured as well as output.

# Conflict at work

Lesson 6.3.3 | Organisational psychology

## Core ideas

Workplace conflict can happen within a person, between individuals, within a group or between groups.

Organisational causes of conflict include unclear roles, scarce resources, workload pressure and incompatible goals.

Interpersonal causes include personality clashes, communication problems, perceived unfairness and damaged trust.

**Thomas-Kilmann describes five conflict-handling modes:** competing, collaborating, compromising, avoiding and accommodating.

No conflict-handling mode is always best; the usefulness depends on urgency, relationship needs, power and the importance of the issue.

Einarsen describes workplace bullying as repeated negative acts that can escalate from aggression to bullying, stigmatisation and serious harm.

# Conflict at work

Lesson 6.3.3 | Organisational psychology

## Key terms

**Intra-individual conflict:** Conflict within one person, such as incompatible work demands or values.

**Inter-individual conflict:** Conflict between two or more individuals.

**Intra-group conflict:** Conflict within the same team or work group.

**Inter-group conflict:** Conflict between different teams, departments or groups.

**Competing:** A conflict mode high in assertiveness and low in cooperativeness.

**Collaborating:** A conflict mode high in assertiveness and cooperativeness, aiming for a win-win solution.

**Accommodating:** A conflict mode where one side gives way to preserve the relationship or satisfy the other side.

**Workplace bullying:** Repeated negative behaviour at work where the target struggles to defend themselves.

## Further detail and evidence

**Conflict levels:** intra-individual is within a person (competing goals); inter-individual is between people; intra-group is within one group; inter-group is between groups. Causes include scarce resources, incompatible goals, role ambiguity, interdependence, perceived unfairness and communication problems.

# Conflict at work

Lesson 6.3.3 | Organisational psychology

*Continued*

**Thomas-Kilmann combines assertiveness with cooperation:** competing is high assertiveness/low cooperation; collaborating is high on both; accommodating is low assertiveness/high cooperation; avoiding is low on both; compromising seeks a middle ground. No mode is universally best for every urgency and relationship.

Bullying is repeated negative treatment over time where a target has difficulty defending themselves. Einarsen (1999) distinguishes dispute-related escalation from predatory targeting. Work-related acts undermine tasks; person-related acts include ridicule, exclusion and threats.

The described escalation runs from aggressive behaviours to bullying, stigmatisation and severe trauma. Causes can involve leadership, poor psychosocial conditions, power and interpersonal processes. The review draws together research rather than reporting one newly randomised bullying experiment.

## Applying the ideas

Two departments competing for one budget illustrate inter-group conflict. Working jointly to redesign resource use is collaboration; splitting the budget midway is compromise. Persistent targeted exclusion with unequal power differs from a single ordinary disagreement between equal colleagues.

## Evaluation and connections

Sensitive research relies on confidential accounts and clear definitions. Retrospective reports cannot establish every causal sequence. Explaining contextual risks does not justify mistreatment or imply the target caused it. Use both individual and organisational evidence; avoid treating a conflict-handling questionnaire as a complete account of power.

# Physical work conditions

Lesson 6.4.1 | Organisational psychology

## Core ideas

Physical work conditions include features such as lighting, noise, temperature, space, privacy and office layout.

Work conditions can affect productivity directly by making tasks easier or harder, and indirectly by changing comfort, stress or motivation.

The Hawthorne effect describes behaviour changing because workers know they are being observed or given special attention.

Open-plan offices may increase contact and visibility, but they can also reduce privacy, increase noise and make concentration harder.

Oldham and Brass studied employee reactions to moving into an open-plan office, making the topic useful for discussing questionnaires, longitudinal change and real workplace application.

## Key terms

**Physical work conditions:** Environmental features of a workplace that can affect behaviour and performance.

**Productivity:** The amount or quality of work produced over a period of time.

# Physical work conditions

Lesson 6.4.1 | Organisational psychology

*Continued*

**Hawthorne effect:** A change in behaviour caused by being observed or receiving special attention.

**Open-plan office:** An office layout with few or no interior walls separating workers.

**Privacy:** The degree to which workers can control access to themselves, their work and conversations.

**Noise distraction:** Unwanted sound that can interrupt attention or reduce comfort.

**Quasi-experiment:** A study where the researcher uses naturally occurring groups or changes rather than full random allocation.

**Longitudinal study:** Research that collects data from the same people or setting over time.

## Further detail and evidence

Physical influences include lighting, noise, temperature, ventilation, seating, privacy and layout. Assess accuracy, speed, fatigue and wellbeing rather than assuming that higher output captures all benefits. Task demands can change which conditions are helpful.

The Hawthorne effect is the proposed change in behaviour associated with observation or special attention. Kompier (2006) critically reviewed the original evidence and rejected the simple textbook story as inadequately supported: methodological weaknesses and changes in pay, conditions and organisation complicate attribution.

# Physical work conditions

Lesson 6.4.1 | Organisational psychology

*Continued*

Oldham and Brass (1979) followed a real move from conventional offices to open-plan space. Satisfaction and internal motivation decreased after the move. The naturally occurring comparison had practical relevance, but office design was not randomly assigned to otherwise identical workers.

Open plan can improve visibility and ease of contact, while increasing distraction, noise and privacy loss. Individual concentration and collaborative work can demand different spaces. Flexible access to quiet and shared areas is a testable application rather than proof of one ideal layout.

## Applying the ideas

If productivity rises during a lighting trial, consider altered incentives, supervision, task learning and staff changes before attributing the increase to being observed. For a relocation study, measure employees before and after and use a comparable group where possible.

## Evaluation and connections

Longitudinal questionnaires can track change but repeated responses, expectations and attrition affect interpretation. Objective output and qualitative comments complement ratings. Kompier's critique does not prove that observation can never affect behaviour; it challenges the evidence for the classic causal story.

# Temporal conditions of work environments

Lesson 6.4.2 | Organisational psychology

## Core ideas

Temporal work conditions are features of when people work, including shift timing, rotation speed, on-call demands and flexible start or finish times.

Shiftwork can disrupt circadian rhythms, sleep quality and alertness, especially when work happens at night or schedules keep changing.

Rapid rotation changes shifts frequently, while slow rotation keeps workers on one shift pattern for longer before changing.

On-call work can create uncertainty and stress because workers must be ready to work even when they are not actively on duty.

Flexitime gives workers some control over start and finish times, which may improve autonomy and work-life balance.

Gold et al. found that rotating-shift nurses reported more sleep disruption and sleepiness-related accidents or errors than nurses working day or evening shifts.

# Temporal conditions of work environments

Lesson 6.4.2 | Organisational psychology

## Key terms

**Temporal work conditions:** Workplace conditions related to the timing and scheduling of work.

**Shiftwork:** Work scheduled outside a single standard daytime pattern.

**Rapid rotation:** A shift system where workers change shift type frequently.

**Slow rotation:** A shift system where workers stay on one shift type for a longer period before changing.

**On-call work:** A schedule where workers must be available to work if called in.

**Flexitime:** A system where workers have some choice over start and finish times.

**Circadian rhythm:** The body's roughly 24-hour sleep-wake and alertness cycle.

**Sleepiness-related accident:** An accident or error linked to tiredness or reduced alertness.

## Further detail and evidence

Rapid rotation changes shifts after short runs, such as several days; slow rotation retains one shift for longer, such as weeks. On-call work requires availability when needed and may interrupt rest. Flexitime permits some choice over start/end times around agreed requirements/core hours.

# Temporal conditions of work environments

Lesson 6.4.2 | Organisational psychology

*Continued*

Shift patterns can disrupt circadian rhythms, sleep length/quality, meals, family routines and recovery. Daytime sleep may be shortened by light, noise and social obligations. A person can adapt partly without eliminating every fatigue risk.

Gold et al. (1992) used a cross-sectional questionnaire with hospital nurses to relate schedules to sleepiness and accidents/near misses. Rotating workers reported more sleep disruption and sleepiness-related problems than fixed day/evening workers. Self-report associations do not show that schedule alone caused each accident.

## Applying the ideas

A worker alternating day and night duties has different adjustment demands from someone on a stable day schedule. On-call interruption can reduce recovery even when total scheduled hours look modest. Flexitime may support preferences but cannot remove all staffing constraints.

## Evaluation and connections

Questionnaires efficiently collect schedules and rare incidents, but recall and reluctance to report errors threaten validity. Nurses working different schedules may differ in age, responsibilities and health. Compare shift duration, rotation, recovery time and workload. Individual preference matters alongside the organisation's design.

# Health and safety

Lesson 6.4.3 | Organisational psychology

## Core ideas

Workplace accidents can be linked to human error, system design or a combination of both.

Human errors include omissions, commissions, sequencing errors and timing errors, each describing a different way an action can go wrong.

Operator-machine systems can create accidents when controls or displays are confusing, poorly placed or easy to misread.

A token economy reduces accidents by rewarding safe behaviour, such as accident-free work, useful safety suggestions or actions that prevent harm.

Fox et al.'s mining study showed that a well-managed token economy can reduce lost-time injuries and days lost from work.

Swat's monitoring study shows why organisations should record accidents, minor injuries and risk events instead of waiting for major accidents to happen.

## Key terms

**Human error:** A mistake by a worker that contributes to an accident or near miss.

**Error of omission:** Failing to do a required action.

**Error of commission:** Doing the wrong action or carrying out an action incorrectly.

**Sequencing error:** Doing the right actions in the wrong order.

**Timing error:** Doing an action too early, too late or for the wrong length of time.

**Operator-machine system:** The interaction between a worker, a machine, its controls and its displays.

**Token economy:** A reward system where tokens are earned for desired behaviour and exchanged for rewards.

**Risk event:** A minor incident or warning sign that reveals a possible accident risk.

# Health and safety

Lesson 6.4.3 | Organisational psychology

## Further detail and evidence

**Key study:** Swat (1997) sought a practical risk-event recording system to identify causes and prevent accidents, rather than waiting for major injuries.

The initial stage of a three-year project examined four Polish plants: foundry, machinery, meat processing and furniture, employing 2,964 workers.

Records of 83 accidents from 1993 were analysed for frequency, severity and direct/indirect causes. Additional monitoring examined minor meat-processing-plant injuries in 1994.

At least 45.8% of accidents involved breaches of basic housekeeping principles; the additional study indicated that 95% of incidents went unreported.

Recommendations were to classify accident circumstances/types, record minor/first-aid injuries and include housekeeping in safety monitoring.

Repeated small incidents and poor housekeeping can reveal problems before serious accidents occur.

**Human errors:** omission leaves out an action; commission performs an incorrect action; sequencing performs correct steps in the wrong order; timing performs an action too early/late. Classification depends on the intended procedure and context.

**System errors involve operator-machine design:** confusing controls, incompatible mappings, poor labels, hard-to-read displays and inadequate feedback can invite mistakes. A display communicates information; a control changes the system. Training is useful but does not excuse a preventable design hazard.

# Health and safety

Lesson 6.4.3 | Organisational psychology

*Continued*

Fox et al. (1987) used exchangeable trading-stamp tokens for safety-related outcomes and preventative actions in mines, with reductions in injuries/lost time and costs sustained over years. Rewarding low incident numbers requires safeguards against concealment.

Swat recorded accidents and additional minor/risk events in four industrial plants. The study identifies housekeeping/procedure problems and major underreporting. Monitoring reveals hazards and patterns; an observational record does not establish that monitoring itself caused fewer accidents.

## Applying the ideas

Failing to check a guard is omission; selecting the wrong switch is commission; starting a machine before securing the guard is a sequence error; responding too late to an alarm is timing. Similar switches can make an apparent personal error partly a system-design problem.

## Evaluation and connections

Industrial records support application, but underreporting threatens validity and plants differ in risk. This was not experimental proof that a monitoring system reduced accidents.

Evaluate objective/subjective evidence, longitudinal methods, situational explanations and generalisations from findings.

Near-miss reporting can identify risks before severe harm. Consistent definitions and accessible confidential reporting improve data quality. Official accident numbers may look objective while missing unreported events. Compare exposure-adjusted patterns and workplace differences rather than blaming one worker from a raw count.

# Theories of job satisfaction

Lesson 6.5.1 | Organisational psychology

## Core ideas

Job satisfaction is a worker's positive evaluation of their job, shaped by the work itself, conditions, rewards and opportunities.

Herzberg's two-factor theory separates hygiene factors, which prevent dissatisfaction, from motivators, which increase satisfaction.

Hygiene factors include pay, supervision, company policy and working conditions; improving them may reduce complaints without creating strong motivation.

Motivators include achievement, recognition, responsibility, advancement and meaningful work.

Hackman and Oldham argue that job characteristics affect satisfaction through psychological states such as meaningfulness, responsibility and knowledge of results.

**Job design techniques change the structure of work:** enrichment adds responsibility, rotation moves workers between roles and enlargement adds more tasks at a similar level.

# Theories of job satisfaction

Lesson 6.5.1 | Organisational psychology

## Key terms

**Job satisfaction:** A positive attitude or feeling about one's job.

**Hygiene factor:** A job feature that can prevent dissatisfaction when adequate but does not necessarily motivate by itself.

**Motivator:** A job feature that can increase satisfaction and motivation.

**Job characteristics model:** Hackman and Oldham's theory linking job design to psychological states and work outcomes.

**Skill variety:** The degree to which a job uses different skills and activities.

**Autonomy:** The amount of control a worker has over how they complete the job.

**Job enrichment:** Redesigning work to add responsibility, challenge and decision-making.

**Job rotation:** Moving workers between different tasks or roles over time.

## Further detail and evidence

Herzberg separates hygiene factors preventing dissatisfaction from motivators increasing satisfaction. Fair pay, conditions and policy are hygiene; achievement, recognition, responsibility, advancement and the work itself are motivators. Satisfaction and dissatisfaction are treated as partly distinct dimensions.

# Theories of job satisfaction



*Continued*

**Hackman/Oldham:** skill variety, task identity and task significance support experienced meaningfulness; autonomy supports experienced responsibility; feedback supports knowledge of results. Together these psychological states are proposed to improve intrinsic motivation and satisfaction, subject to individual/contextual differences.

Enlargement adds tasks at a similar responsibility level (horizontal change). Enrichment adds autonomy/responsibility and more meaningful control (vertical change). Rotation moves a worker among tasks/roles. Belias and Sklikas (2013) review these job-design approaches and their potential benefits/limitations; this is a literature review rather than one controlled intervention.

## Applying the ideas

Adding several repetitive duties enlarges a job without necessarily enriching it. Allowing an employee to plan a complete piece of work, check results and make relevant decisions can add identity, autonomy and feedback. Rotation can reduce monotony while requiring training and safe transitions.

## Evaluation and connections

Theories give actionable predictions but self-report and retrospective explanations may reflect bias. A challenging enriched role may suit one worker and overload another. More autonomy is useful only with resources and authority. Compare satisfaction with performance, turnover and wellbeing instead of assuming all outcomes move together.

# Measuring job satisfaction

Lesson 6.5.2 | Organisational psychology

## Core ideas

Job satisfaction can be measured with rating scales and questionnaires that ask workers to report how they feel about specific parts of their job.

The Job Descriptive Index measures satisfaction as separate facets rather than one vague overall feeling.

The JDI focuses on work itself, pay, promotion opportunities, supervision and co-workers.

Walton's Quality of Working Life model is broader than job satisfaction because it considers pay, safety, growth, rights, work-life balance and social value.

Psychometrics matters because a useful job-satisfaction measure should be reliable, valid and sensitive enough to detect meaningful differences.

Questionnaires can produce comparable quantitative data, but they may miss individual reasons unless open questions or interviews are also used.

## Key terms

**Rating scale:** A fixed response scale used to show the strength of a person's attitude or judgement.

**Questionnaire:** A set of written or online questions used to collect self-report data.

**Job Descriptive Index:** A job-satisfaction questionnaire that measures satisfaction with several job facets.

**Facet measure:** A measure that breaks a broad attitude into separate parts.

**Quality of Working Life:** A broader evaluation of how work affects employees' wellbeing and life at work.

# Measuring job satisfaction

Lesson 6.5.2 | Organisational psychology

*Continued*

**Psychometrics:** The study of how well psychological tests and scales measure what they claim to measure.

**Reliability:** The consistency of a measure across items, time or raters.

**Validity:** The extent to which a measure actually measures the intended concept.

**Constitutionalism at work:** Protection of employee rights, fair procedures, privacy and expression.

## Further detail and evidence

Walton's quality of working life (QWL) includes eight conditions and evaluation of them, extending beyond enjoyment of immediate tasks.

**The eight conditions are:** adequate/fair compensation; safe/healthy working conditions; opportunity to use/develop human capacities; continued growth/security; social integration; constitutionalism; work and total life space; social relevance of work.

Constitutionalism concerns rights, fair treatment, privacy and opportunity to express views. Work and total life space concerns balance with family and non-work life.

Social integration concerns belonging/supportive relationships; social relevance concerns organisational responsibility and the value of work to society.

QWL evaluation uses questionnaire/rating-scale items covering these conditions. Examine each domain: a high overall average can conceal unsafe work or unfair treatment.

The 2027 syllabus names a QWL evaluation scale but does not prescribe one question count or universal cut-off. State the response scale and scoring for the version used.

# Measuring job satisfaction

Lesson 6.5.2 | Organisational psychology

*Continued*

JDI facets are the work itself, pay, promotion, supervision and co-workers. Descriptor responses indicate satisfaction with each facet; versions/scoring rules must be identified. A separate overall satisfaction measure is not interchangeable with the facet profile.

**Walton's eight conditions broaden the focus:** compensation; safe/healthy conditions; use/development of capacities; growth/security; social integration; constitutional rights; work-life balance; social relevance. Distinguish fair treatment/voice from belonging and from the organisation's social responsibility.

A QWL evaluation scale turns conditions into clearly worded items with response anchors and a scoring scheme. A researcher should explain the version and whether scores are domain-specific or combined. Confidential collection matters because employment relationships can influence candour.

## Applying the ideas

A worker can enjoy colleagues while being dissatisfied with promotion. Two equal overall QWL averages may conceal opposite safety and work-life profiles. Report facet/domain scores before recommending a change, then use interviews to understand particular problems.

## Evaluation and connections

Evaluate self-report bias, confidentiality, reliability and cultural validity; distinguish broad QWL assessment from the JDI's narrower satisfaction facets.

Test-retest checks stability when conditions should be unchanged; internal consistency examines related items; construct validity asks whether the intended facet is measured. High reliability does not guarantee truthful responding. Translation, cultural expectations and fear of employer access affect validity. Change after an intervention may represent real improvement rather than unreliability.

# Attitudes to work

Lesson 6.5.3 | Organisational psychology

## Core ideas

Attitudes to work can affect behaviour such as attendance, effort, loyalty and deliberate harm to the organisation.

Workplace sabotage is intentional employee behaviour that damages production, profit, property, reputation or smooth running.

Giacalone and Rosenfeld studied how unionised factory workers judged reasons for sabotage and methods such as slowdowns, destructiveness, dishonesty and causing chaos.

Absenteeism can be voluntary, when a worker chooses not to attend, or involuntary, when illness or unavoidable events prevent attendance.

Blau and Boal link absence and turnover risk to job involvement and organisational commitment rather than job satisfaction alone.

Their model groups workers as institutional stars, lone wolves, corporate citizens or apathetics, depending on whether involvement and commitment are high or low.

## Key terms

**Workplace sabotage:** Intentional employee behaviour that harms the organisation or disrupts work.

**Slowdown:** A sabotage method where employees deliberately reduce the pace or amount of work.

**Destructiveness:** A sabotage method involving damage to property, products or equipment.

**Dishonesty:** A sabotage method involving lying, theft, fraud or deliberate deception.

**Absenteeism:** Failure to attend scheduled work.

**Voluntary absence:** Absence that happens because the worker chooses not to attend.

**Job involvement:** How strongly a person identifies with and invests effort in their job tasks.

**Organisational commitment:** How strongly a person feels attached or loyal to the organisation.

# Attitudes to work

Lesson 6.5.3 | Organisational psychology

## Further detail and evidence

**Key study:** Giacalone and Rosenfeld (1987) asked whether accepting more sabotage reasons predicts judging sabotage methods more justifiable.

A volunteer sample of 38 unionised labourers came from one north-eastern US electrical factory.

A former employee helped construct questionnaires covering 29 methods in four categories - slowdowns, destruction, dishonesty and chaos - and 11 sabotage reasons.

Workers anonymously rated methods and reasons on seven-point justifiability scales; management could not access responses. Attitudes were measured, not actual sabotage rates.

High acceptors of reasons justified slowdowns, destruction and chaos more than low acceptors; dishonesty did not show the same significant difference.

Blau/Boal distinguish job involvement (identification with the job) from organisational commitment (identification with and attachment to the employer). High involvement/high commitment gives institutional stars; high involvement/low commitment gives lone wolves; low involvement/high commitment gives corporate citizens; low both gives apathetics.

Absence can be organisationally excused or unexcused, and frequency differs from total duration. Meanings include medical (uncontrollable health/family demands), career-enhancing (furthering job/career goals), normative (following accepted group patterns), and calculative (allocating time in an exchange with the employer). The same absence count can hide different reasons.

Giacalone and Rosenfeld measure workers' justifications for sabotage. Slowdown, destruction, dishonesty and chaos are categories of methods; accepting a reason and carrying out a harmful act are different. The reported association cannot establish that justification caused sabotage.

# Attitudes to work

Lesson 6.5.3 | Organisational psychology

## Applying the ideas

An employee strongly attached to a profession may be willing to move employers: involvement can be high while organisational commitment is lower. Absence for illness is not automatically low motivation. Identify contextual evidence and reasons before applying a commitment category.

## Evaluation and connections

This supports justification as a way of making harmful behaviour seem acceptable; the association does not establish that endorsing reasons causes sabotage.

Anonymity and familiar examples may improve candour; fear of disclosure, self-report, small volunteer sampling and one factory restrict validity/generalisation.

Evaluate individual/situational explanations, reductionism, idiographic/nomothetic approaches and confidentiality in sensitive workplace research.

Anonymous self-reports encourage candour on sensitive attitudes but cannot verify every act. One factory and a small volunteer sample limit generalisation. A conceptual taxonomy predicts patterns rather than diagnosing an individual from attendance alone. Workplace fairness and power can matter alongside personal attitudes; preserve confidentiality when reporting results.

# Application of psychology to everyday life

Lesson 7.1.1 | A Level issues, debates and methods

## Core ideas

Application means using psychological evidence to understand, predict, prevent or improve behaviour in real situations.

Psychological applications can support work in schools, healthcare, policing, workplaces, families, media and public policy.

A strong application names a specific finding and shows exactly how it could guide a decision or intervention.

Controlled studies can suggest useful applications, but real-life settings may include stress, culture, cost, ethics and individual differences.

Specialist options often make application explicit, such as improving workplace safety, designing better job roles or supporting healthier behaviour.

Good evaluation explains both the practical value of an application and the limits of transferring evidence to a new context.

# Application of psychology to everyday life

Lesson 7.1.1 | A Level issues, debates and methods

## Key terms

**Everyday life:** Real situations outside the research setting.

**Intervention:** An action designed to change, prevent or improve behaviour.

**Practical value:** The usefulness of research beyond describing a finding.

**Transfer:** Using evidence from one setting, sample or task in another context.

**Ecological validity:** How well research reflects real-world behaviour.

**Generalisability:** How far findings apply beyond the original participants or setting.

**Policy:** A rule, plan or decision made by an organisation or authority.

## Further detail and evidence

Application is a justified use of a finding, theory or method in a real setting. State the psychological mechanism, the change proposed, the intended beneficiary and the outcome to be measured. A sensible suggestion is not proof that the intervention already works.

**Clinical:** telephone-assisted ERP can reduce travel demands. Consumer: a product comparison tool may support compensatory decisions. Health: a specific immunisation prompt addresses a different barrier from access support. Organisational: clear safety reporting can reveal near misses that accident totals omit.

Transfer depends on matching the original evidence to the new population, task and context. Compare cost, acceptability, feasibility, equity and unintended effects alongside effectiveness. The four specialist options share methods but make different claims about behaviour.

# Application of psychology to everyday life

Lesson 7.1.1 | A Level issues, debates and methods

## Applying the ideas

Lovell's format included initial/final meetings and safeguards. Applying it means preserving the tested package's important features while evaluating access and outcomes in the new setting. It does not support replacing all professional contact with unsupported calls.

**Worked example:** A school wants to reduce exam anxiety and asks for one psychology-based idea. Which kind of evidence could be applied, and what caution should the school keep in mind? The school could apply evidence from health or clinical psychology on stress management, such as relaxation, imagery or coping strategies, to design support sessions before exams. The application is practical because it turns research on managing anxiety into an intervention for students. The school should be cautious because evidence from one sample or treatment setting may not work equally well for all ages, cultures or levels of anxiety.

**Worked example:** In a hospital, managers use research on rotating shifts to change night-work schedules. Why is this a good example of application to everyday life? This is a good application because research on shiftwork, sleep disruption and accidents is being used to change a real workplace schedule. The aim is to reduce tiredness and improve safety for staff and patients. It still needs evaluation because hospital staffing needs, worker preferences and local accident data may affect whether the change works in that setting.

## Evaluation and connections

A laboratory effect can suggest an application without demonstrating its effectiveness in the field. Follow-up and suitable comparison groups help assess maintenance. Avoid treating larger spending, higher productivity or reduced service use as automatically better for every person. Identify whose outcome matters.

# Individual and situational explanations

Lesson 7.1.2 | A Level issues, debates and methods

## Core ideas

Individual explanations focus on characteristics inside the person, such as beliefs, personality, biology, motivation, cognition or prior experience.

Situational explanations focus on features outside the person, such as social pressure, physical setting, work design, culture, instructions or rewards.

Many behaviours are best explained by an interaction between individual factors and situational pressures.

A Level specialist topics often invite this debate, such as stress, pain, consumer behaviour, mental disorder, motivation and workplace safety.

Individual explanations can be useful for tailored support, but they may risk blaming the person if the situation is ignored.

Situational explanations can support environmental or policy changes, but they may underplay personal differences in how people respond.

## Key terms

**Individual explanation:** An explanation based on personal characteristics or processes.

**Situational explanation:** An explanation based on the surrounding context or environment.

**Disposition:** A person's characteristic tendency or way of responding.

# Individual and situational explanations



*Continued*

**Context:** The setting, people, demands and conditions around behaviour.

**Interaction:** Two or more factors influencing each other.

**Attribution:** A judgement about the cause of behaviour.

**Personal factor:** A characteristic of the individual that may affect behaviour.

**Environmental factor:** A feature of the situation that may affect behaviour.

## Further detail and evidence

Individual explanations emphasise relatively enduring traits, beliefs, biology or skills; situational explanations emphasise the immediate environment, roles, incentives and social context. A measured individual difference is not necessarily inherited, and a situational effect is not necessarily universal.

**Clinical:** vulnerability and cognitive appraisals can interact with stressful conditions. Consumer: self-monitoring can alter the response to an advertising message. Health: personal beliefs interact with cost/access. Organisational: skill and motivation interact with leadership and task design.

An interaction occurs when the effect of one factor depends on another. In an experiment, manipulate the situational factor while measuring a relevant individual characteristic; avoid calling the measured characteristic a randomly allocated condition.

# Individual and situational explanations

Lesson 7.1.2 | A Level issues, debates and methods

## Applying the ideas

In Landry, a fixed-value reward was presented supportively or controllingly. Presentation is situational, while employees may differ in how they value autonomy. In Robson, the effect of spacing can depend on the dining relationship. Use this conditional pattern to move beyond simply listing two causes.

**Worked example:** A hospital manager says nurses make errors because some staff are careless. Another manager points to rotating night shifts, fatigue and confusing displays. How do these explanations differ? The first explanation is individual because it locates the cause inside the nurses, such as carelessness or personal responsibility. The second explanation is situational because it focuses on working time, tiredness and the design of the operator-machine system. A balanced answer would consider both: individual attention matters, but workplace conditions can make errors more likely.

**Worked example:** In consumer psychology, one shopper buys an expensive dessert because they love sweet food, while another buys it because music, lighting and table spacing make the restaurant feel relaxed. What does this show about the debate? The first shopper is explained more individually because preference for sweet food is a personal factor. The second shopper is explained more situationally because the restaurant environment influences behaviour. The example shows why the debate is useful: consumer decisions can reflect both personal preferences and situational cues in the setting.

## Evaluation and connections

Individual accounts can support personalisation but risk blaming the person and ignoring constraints. Situational accounts identify changeable environments but may overlook consistent differences. Controlled manipulation helps isolate a factor; correlations between traits and behaviour retain alternative explanations. A balanced conclusion follows the actual evidence.

# Nature versus nurture

Lesson 7.1.3 | A Level issues, debates and methods

## Core ideas

Nurture explanations focus on experience and environment, such as learning, family life, culture, social norms, education, media or workplace conditions.

Most psychological explanations are not purely nature or purely nurture; many behaviours develop through interaction between biology and experience.

Core studies and specialist options can be evaluated by asking whether their evidence supports biological causes, environmental causes or both.

Nature explanations can support medical or biological interventions, but they may become deterministic if they ignore learning and context.

Nurture explanations can support prevention, education and environmental change, but they may underplay biological vulnerability or individual differences.

# Nature versus nurture

Lesson 7.1.3 | A Level issues, debates and methods

## Key terms

**Nature:** Inherited or innate contributions to behaviour; biological measurements alone do not establish inheritance.

**Nurture:** Influences on behaviour linked to environment, learning and experience.

**Inheritance:** Passing characteristics from parents to offspring through genes.

**Innate:** Present from birth rather than learned through experience.

**Learning:** A change in behaviour or knowledge through experience.

**Socialisation:** The process of learning norms, values and behaviours from other people.

**Interactionist explanation:** An explanation where biological and environmental factors work together.

**Biological vulnerability:** A biological risk factor that may make a person more likely to develop a behaviour or disorder.

# Nature versus nurture

Lesson 7.1.3 | A Level issues, debates and methods

## Further detail and evidence

Nature concerns inherited/innate contributions; nurture concerns experience and environmental influence. Biological measurement is not automatically evidence of inheritance: experience can change the brain and physiology. Genetic association is not a demonstration that genes determine behaviour.

Family resemblance combines shared genes and environment. Twin/adoption evidence can help separate influences, but depends on assumptions and comparable environments. Genetic effects may depend on exposure; people also select and shape environments partly through their characteristics.

Learning accounts explain how rewards, modelling and associations contribute. Clinical conditioning, Food Dudes and workplace rewards illustrate nurture mechanisms. They do not prove that biology is irrelevant or that every individual responds identically.

## Applying the ideas

Oruc compares genetic variants in bipolar I patients and controls. The main null result and weak exploratory subgroup findings do not justify a single-gene conclusion. In contrast, behavioural treatment changing a learned fear is evidence that experience can modify responses, not evidence that susceptibility has no inherited component.

## Evaluation and connections

**Use precise conclusions:** heritability is about variation in a population/context, not the percentage of one person caused by genes. A nature/nurture label should follow the proposed mechanism and evidence. Interaction accounts are often more informative than declaring one side the complete winner.

# Use of children in psychological research

Lesson 7.1.4 | A Level issues, debates and methods

## Core ideas

Children may be studied because some psychological questions are specifically about development, learning, family life, education or early experience.

Child participants need extra ethical protection because they may understand less, feel more pressure to obey adults and be more vulnerable to distress.

Researchers usually need parental or guardian consent as well as the child's own assent where possible.

Tasks, instructions, questions and debriefing must be age-appropriate so children can understand what is happening.

Protection from harm is especially important, so procedures should avoid unnecessary fear, embarrassment, fatigue or lasting upset.

Data from children can be valuable, but validity may be affected by language ability, attention, memory, suggestibility and the testing situation.

## Key terms

**Child participant:** A participant who is not yet legally or developmentally treated as an adult.

**Parental consent:** Permission from a parent or guardian for a child to take part.

**Assent:** A child's own agreement to take part, given in a way they can understand.

# Use of children in psychological research



*Continued*

**Age-appropriate:** Suitable for a child's developmental level, language and understanding.

**Protection from harm:** The responsibility to avoid physical or psychological harm to participants.

**Debriefing:** Explaining the study afterwards in a clear and suitable way.

**Suggestibility:** A tendency to be influenced by leading questions or other people's expectations.

**Vulnerability:** Increased need for protection because a person may be less able to understand, refuse or cope.

## Further detail and evidence

Children may differ in comprehension, memory, language, motivation and power relative to adults. Use developmentally appropriate tasks and response formats. A child scale is not automatically comparable with an adult scale simply because both generate numbers.

Ethical safeguards include suitable guardian permission, the child's willing assent, understandable information, continuing withdrawal, privacy and careful distress monitoring. School permission does not replace individual willingness. Incentives should not create undue pressure.

Useful examples include Lehmkuhl's adapted ERP case, Chaney's child inhaler device, logo recognition in Fischer, and school interventions such as Food Dudes/Shoshani. Each uses children for a specific question; their procedures and ethical demands differ.

# Use of children in psychological research

Lesson 7.1.4 | A Level issues, debates and methods

## Applying the ideas

Brudvik used age-appropriate self-report to avoid assuming that a quiet child has little pain. Fischer's logo matching reduces reading demands but tests recognition rather than later smoking. The measure should fit developmental ability and the construct, not only convenience.

**Worked example:** A researcher wants to test memory in seven-year-olds using a long interview with complex wording and several leading questions. What problems would this create? The interview may not be age-appropriate because complex wording could confuse the children, making the data less valid. Leading questions could increase suggestibility, so children may give answers shaped by the researcher rather than their own memory. Ethically, the researcher should shorten the task, use simple language, avoid leading wording, gain parental consent and child assent, and remind children they can stop.

**Worked example:** During a school study, parents have signed consent forms but one child says they do not want to continue. How should the researcher respond? The researcher should let the child stop because parental consent does not remove the child's right to withdraw. The child's assent matters, especially because children may feel pressure to obey adults in school. The researcher should respond calmly, avoid making the child feel punished, and debrief in a simple way so the child understands what happened.

## Evaluation and connections

Research can improve child services and reveal development, but dependency increases risks of compliance and coercion. Adult findings may not generalise to children, while one age group may not represent another. Distinguish longitudinal change from cross-sectional age differences and report documented protections separately from inferred concerns.

# Cultural differences

Lesson 7.1.5 | A Level issues, debates and methods

## Core ideas

Culture includes shared values, norms, practices, language and meanings that can shape behaviour and experience.

Cultural differences matter because a finding from one group may not generalise automatically to another group.

Researchers should avoid ethnocentrism, where one culture is treated as the normal or superior standard for judging others.

An etic approach looks for patterns that may compare across cultures, while an emic approach tries to understand behaviour within one culture's own meanings.

Methods can be culturally biased if tasks, questionnaires, translations or researcher expectations do not fit the participants' context.

Applications of psychology should be adapted carefully because interventions, workplace practices, health advice or consumer strategies may not work the same way in every culture.

## Key terms

**Culture:** Shared values, norms, practices, language and meanings within a group.

**Cultural difference:** A variation in behaviour, belief or experience linked to cultural context.

**Generalisability:** How far findings apply beyond the original sample or setting.

# Cultural differences

Lesson 7.1.5 | A Level issues, debates and methods

*Continued*

**Ethnocentrism:** Judging other cultures using one culture as the main standard.

**Cultural bias:** Distortion caused when methods or interpretations unfairly favour one culture.

**Emic approach:** Studying behaviour from within the meanings of one culture.

**Etic approach:** Comparing behaviour across cultures to look for broader patterns.

**Translation validity:** How well translated materials keep the same meaning across languages.

## Further detail and evidence

Culture involves shared meanings, practices and norms, with substantial variation within any country. Cultural differences may concern personal space, communication, authority, health beliefs, advertising or the value of group membership. Nationality is an imperfect indicator of cultural orientation.

Cross-cultural comparison needs equivalent recruitment, tasks, language and measurement meaning. Translation/back-translation helps wording but does not guarantee conceptual equivalence. The same rating can have different reference points or social desirability pressures.

Earley illustrates the importance of individualist/collectivist orientation together with in-group membership. Del Campo reports cross-country differences in heuristic use. Neither warrants the claim that all members of one nation think or work in the same way.

# Cultural differences

Lesson 7.1.5 | A Level issues, debates and methods

## Applying the ideas

A leadership scale developed in one context may treat speaking up as effective participation, while another context expresses constructive contribution differently. Pilot locally, examine meanings and compare relevant workplace conditions before interpreting a score difference as a cultural trait.

**Worked example:** A questionnaire about workplace motivation is written in English, translated quickly and used with employees in three countries. Results are then compared as if the measure worked identically everywhere. What should be questioned? Translation validity should be questioned because the same words may not carry the same meaning in each language or workplace culture. The measure may also have cultural bias if examples, rating styles or ideas about motivation fit one context better than another. Before comparing scores, researchers should check whether items are understood similarly and whether local work norms affect responses.

**Worked example:** When a health campaign from one country is copied into another, fewer people follow the advice even though the message is scientifically accurate. How can cultural differences explain this? The advice may not match local beliefs, language, family roles, trust in health authorities or practical barriers, so the application does not transfer directly. This shows that psychological evidence can have practical value but still needs cultural adaptation. A stronger campaign would test the message with the target group and adjust examples, delivery and support to fit the local context.

## Evaluation and connections

Cultural research challenges universal assumptions and improves appropriate applications. However, culture may be confounded with education, economics, workplace structure and test familiarity. Avoid ethnocentrism and within-country stereotypes. Generalise from the sampled setting with a clear account of its limits.

# Reductionism versus holism

Lesson 7.1.6 | A Level issues, debates and methods

## Core ideas

Reductionism explains complex behaviour by breaking it down into smaller parts, such as genes, neurotransmitters, learning links or single cognitive processes.

Holism explains behaviour by considering the whole person, situation and interaction between biological, cognitive and social influences.

Reductionist explanations can be useful because they are often clearer to measure, test and link to practical treatments or interventions.

Reductionism can become a weakness if it ignores context, meaning, culture, individual differences or how several influences work together.

Holistic explanations can give a richer and more realistic account of complex behaviour, especially in clinical, health, consumer and organisational topics.

Holism can be harder to test precisely because broad explanations may include many interacting factors at once.

## Key terms

**Reductionism:** Explaining complex behaviour by reducing it to simpler parts or lower-level processes.

**Holism:** Explaining behaviour by considering the whole person or wider system.

**Level of explanation:** The scale used to explain behaviour, such as biological, cognitive or social.

# Reductionism versus holism

Lesson 7.1.6 | A Level issues, debates and methods

*Continued*

**Biological reductionism:** Explaining behaviour mainly through genes, brain activity, hormones or neurotransmitters.

**Environmental reductionism:** Explaining behaviour mainly through learning, rewards, punishments or stimulus-response links.

**Interaction:** Different influences affecting each other rather than acting separately.

**Context:** The wider situation in which behaviour happens.

**Oversimplification:** Making an explanation too narrow so important influences are left out.

## Further detail and evidence

Reductionism explains a complex phenomenon using a smaller set of components or one explanatory level. Biological reductionism uses mechanisms such as neurotransmitters; psychological reductionism can explain behaviour solely through reinforcement or a narrow cognitive process. Reductionism is not limited to biology.

Holism examines the organised whole and interactions among levels, including personal meaning, relationships and environment. An approach becomes more holistic by explaining their relationships, not merely listing many unrelated influences.

**Examples:** a dopamine-only account of urges is narrower than an account combining reward, beliefs and context. A pain rating explained only by tissue damage omits attention/emotion. Safety explained only as worker error overlooks controls, displays and work organisation.

# Reductionism versus holism

Lesson 7.1.6 | A Level issues, debates and methods

## Applying the ideas

Gate control integrates peripheral input, spinal modulation and descending brain influences. This explains why both bodily stimulation and psychological context can affect pain. It is more integrative than a direct signal account, while still simplifying the whole experience.

**Worked example:** One student says panic disorder is only a problem of adrenaline and brain chemistry. Another says symptoms also depend on thoughts, avoidance, life stress and support. How do these explanations differ? The first explanation is reductionist because it reduces panic disorder to biological processes such as adrenaline and brain chemistry. The second is more holistic because it includes biological, cognitive, behavioural and social influences working together. The reductionist account may help with clear biological treatment ideas, but the holistic account may better explain why different people experience and manage panic in different ways.

**Worked example:** For a workplace safety problem, a manager blames accidents only on careless workers. A psychologist examines training, shift length, equipment design, supervision and fatigue. Which approach is stronger here? The manager's account is reductionist because it reduces accidents to one personal cause: carelessness. The psychologist's account is more holistic because it considers several interacting workplace factors. The holistic approach is stronger here because accidents in organisations often depend on systems as well as individuals, although each factor would still need evidence to show how much it contributes.

## Evaluation and connections

Reduction makes mechanisms operational and experiments feasible, supporting targeted interventions. It can miss meaning and interactions. Holism reflects complexity but may become hard to test, replicate or falsify. Evaluate what a particular simplification gains and loses, rather than assuming more variables always produce a better theory.

# Determinism versus free-will

Lesson 7.1.7 | A Level issues, debates and methods

## Core ideas

Determinism is the view that behaviour is caused by factors such as biology, learning, unconscious processes, culture or the situation.

Free-will is the view that people can make meaningful choices and are not completely controlled by internal or external causes.

Hard determinism argues that behaviour is fully caused and that free-will is an illusion.

Soft determinism accepts that behaviour has causes but allows that people may still choose within limits.

Scientific psychology often looks for causes so that behaviour can be explained, predicted and changed.

A fully deterministic account can be criticised for ignoring responsibility, personal agency and cases where people resist pressure or change behaviour.

## Key terms

**Determinism:** The view that behaviour is caused by factors beyond free choice.

**Free-will:** The idea that people can make meaningful choices about their behaviour.

**Hard determinism:** The view that behaviour is fully caused and free-will is an illusion.

# Determinism versus free-will

Lesson 7.1.7 | A Level issues, debates and methods

*Continued*

**Soft determinism:** The view that behaviour has causes but people still have some choice within limits.

**Biological determinism:** Explaining behaviour through genes, brain activity, hormones or other biological causes.

**Environmental determinism:** Explaining behaviour through learning, reinforcement, social pressure or surroundings.

**Agency:** A person's capacity to act intentionally and make choices.

**Responsibility:** Being accountable for behaviour or decisions.

## Further detail and evidence

Determinism proposes that behaviour follows causes. Biological determinism emphasises physical/inherited processes; environmental determinism emphasises learning and circumstances; psychic determinism emphasises unconscious processes. Strong/hard determinism allows little meaningful choice.

Free will concerns the capacity to choose and act intentionally. Soft determinism/compatibilism accepts causal influences while allowing agency within constraints. Feeling free is not itself proof that no prior cause influenced the decision.

A probabilistic finding is not inevitability. Genetic vulnerability, rewards and social influence can change likelihood without forcing every person to act the same way. Therapy and planning can support agency while recognising barriers and unconscious influences.

# Determinism versus free-will

Lesson 7.1.7 | A Level issues, debates and methods

## Applying the ideas

A consumer responding to an anchor may feel fully deliberate. A person resisting a compulsion can learn alternative responses even when intrusive thoughts are unwanted. Explain which behaviour is being discussed: onset of an urge and choice of a later response need not receive the same account.

**Worked example:** After repeated praise for taking risks, a worker keeps ignoring safety rules. Later, after a serious near miss, they choose to follow the procedure even when peers joke about it. How does this scenario show both sides of the debate? The early risk-taking can be explained deterministically because reinforcement and peer approval shaped the worker's behaviour. The later decision supports free-will or soft determinism because the worker reflects on the near miss and chooses a safer action despite social pressure. A balanced answer would say behaviour is influenced by causes, but people may still make choices within those pressures.

## Evaluation and connections

Deterministic theories support prediction and scientific testing, but can understate lived choice and responsibility. Strong free-will claims can neglect coercion, illness and access barriers. Compare specific mechanisms and limits of prediction; exceptions to a group trend do not automatically refute every causal influence.

# Idiographic versus nomothetic

Lesson 7.1.8 | A Level issues, debates and methods

## Core ideas

Idiographic research focuses on the individual person, case or small group in depth, often using rich qualitative detail.

Nomothetic research looks for general laws, patterns or averages that can apply across larger groups of people.

Idiographic approaches can reveal personal meaning, unusual cases and complex life histories that may be lost in group averages.

Nomothetic approaches can support prediction, comparison, diagnosis, policy and evidence-based interventions.

A limitation of idiographic evidence is that findings from one person or small group may not generalise widely.

A limitation of nomothetic evidence is that group trends may hide individual differences, context and personal experience.

## Key terms

**Idiographic approach:** Studying individuals or small cases in depth.

**Nomothetic approach:** Studying groups to find general laws or patterns.

**Case study:** A detailed investigation of one person, group or situation.

# Idiographic versus nomothetic

Lesson 7.1.8 | A Level issues, debates and methods

*Continued*

**General law:** A broad pattern or principle that is expected to apply across people.

**Qualitative data:** Non-numerical data such as interviews, observations or written descriptions.

**Quantitative data:** Numerical data such as scores, ratings or frequencies.

**Group average:** A summary score that represents a group but may not describe every person in it.

**Individual difference:** A way in which one person differs from another.

## Further detail and evidence

Idiographic approaches seek detailed understanding of a particular person/unit, including unique meaning and history. Nomothetic approaches seek general principles and patterns across people. A case study often supports idiographic understanding; a standardised comparison often supports nomothetic claims, but method and purpose should be distinguished.

Qualitative is not identical to idiographic, and quantitative is not identical to nomothetic. A case can use repeated numerical ratings; a large study can compare qualitative themes. A small study may generate a general hypothesis without establishing it.

Chapman/DeLapp's BII case and Lehmkuhl's adapted child ERP illustrate individual formulation. Lovell's randomised comparison and Landry's experimental groups investigate broader patterns. Their conclusions differ in level and appropriate generalisation.

# Idiographic versus nomothetic

Lesson 7.1.8 | A Level issues, debates and methods

## Applying the ideas

T's reduction in anxiety and return to medical procedures provides detailed evidence of usefulness for one client. A controlled trial could test average improvement across varied clients. Combining both approaches helps explain who benefits, how and under which conditions.

**Worked example:** A clinical psychologist writes a detailed case report about one client whose symptoms do not fit a common pattern. A hospital manager wants large-scale evidence before changing treatment guidelines. How do these positions differ? The clinical psychologist is using an idiographic approach because the focus is on one client's unique symptoms, life context and personal meaning. The hospital manager is asking for nomothetic evidence because treatment guidelines usually need broader patterns from larger groups. The case report may reveal an important exception, but larger evidence is needed before assuming the same approach should apply widely.

**Worked example:** In a workplace study, the average stress score falls after a new rota, but interviews show two employees became more stressed because of childcare and travel problems. What does this show about the debate? The average stress score is nomothetic because it summarises a general group pattern. The interviews add idiographic detail by showing how the change affected particular employees differently. Together they give a stronger evaluation: the rota may help the group overall, but individual circumstances still matter when judging its real impact.

## Evaluation and connections

Idiographic work preserves context and unusual cases, but cannot estimate a population effect from one person. Nomothetic work supports comparison and prediction, but averages may conceal subgroups. Standardisation improves consistency while potentially excluding important personal meaning. Match the conclusion to the design.

# Randomised control trials

Lesson 7.2.1 | A Level issues, debates and methods

## Core ideas

A randomised control trial compares an intervention group with a control or comparison group to judge whether the intervention changes an outcome.

Random allocation means participants are assigned to groups by chance, helping reduce selection bias and participant differences between conditions.

A control group may receive no treatment, usual treatment, a waiting-list condition, a placebo or an alternative intervention.

Outcome measures should be chosen before the trial and should match the aim, such as symptom scores, relapse rates, behaviour records or quality-of-life ratings.

Blinding can reduce expectation bias when participants or researchers might change behaviour or judgements if they know the condition.

## Key terms

**Randomised control trial:** A study comparing groups assigned by chance to test an intervention.

**Random allocation:** Assigning participants to groups by chance.

**Intervention group:** The group that receives the treatment, programme or change being tested.

# Randomised control trials

Lesson 7.2.1 | A Level issues, debates and methods

*Continued*

**Control group:** A comparison group used to judge the effect of the intervention.

**Placebo:** An inactive treatment used to compare against an active treatment.

**Blinding:** Keeping participants or researchers unaware of group allocation to reduce bias.

**Outcome measure:** The score, behaviour or result used to judge whether the intervention worked.

**Attrition:** Loss of participants before the trial is completed.

## Further detail and evidence

An RCT randomly allocates participants to intervention/comparison groups. It aims to distribute known and unknown participant differences on average. Random allocation is different from randomly sampling a population and does not guarantee a representative sample.

Comparisons can use placebo, usual care, a waiting list or another active treatment, depending on the question and ethical needs. Blinding participants, providers and assessors are separate possibilities. Psychological therapies often cannot blind therapists/clients, but outcome assessors may be blinded.

Specify baseline, standardised treatment delivery, outcome measures, follow-up, adherence and dropout handling. Intention-to-treat analysis retains people in assigned groups where appropriate, protecting the comparison from some selective adherence effects. It cannot magically recover every missing outcome.

# Randomised control trials

Lesson 7.2.1 | A Level issues, debates and methods

## Applying the ideas

Lovell compares delivery formats of active CBT/ERP using random allocation and blind assessors. Grant's original medication trials included placebo/blinding. The later pooled predictor analysis is different from a new randomised test of family-history causation.

**Worked example:** A clinic tests a new anxiety programme by randomly assigning 80 clients to the programme or to usual support, then comparing symptom scores after eight weeks. What features make this an RCT? This is an RCT because clients are allocated by chance to two groups, one receiving the new programme and one acting as a comparison group with usual support. The symptom score after eight weeks is the outcome measure. The design helps judge whether the programme adds benefit beyond usual support, although the clinic should also monitor consent, withdrawal, attrition and whether the groups were treated fairly.

**Worked example:** In a trial for a sleep intervention, 12 of 60 participants leave before the follow-up. The remaining participants improve more than the control group. How should the result be interpreted? The improvement suggests the intervention may be effective because it is compared with a control group. However, attrition is 20 percent because 12 out of 60 participants left, so the result should be interpreted carefully. If the people who left differed from those who stayed, the final comparison may overestimate or underestimate the intervention's effect.

## Evaluation and connections

RCTs can give strong evidence for effectiveness, but they may raise ethical issues and may not reflect every real treatment setting.

RCTs strengthen causal inference when allocation, implementation and follow-up are sound. Attrition, crossover, expectancy and selected eligibility can still bias interpretation. Non-inferiority needs a justified margin and precision; no significant difference alone does not demonstrate equality. Evaluate real-world feasibility and appropriate ethical care.

# Postal questionnaires

Lesson 7.2.2 | A Level issues, debates and methods

## Core ideas

Postal questionnaires can reach participants who are geographically spread out, busy or easier to contact at home than in a lab.

Standardised questions make responses easier to compare, especially when closed questions or rating scales are used.

Low response rates can create sampling bias because the people who reply may differ from those who ignore the questionnaire.

Anonymity can encourage honest answers, but researchers still need clear consent, confidentiality and sensitive wording.

Postal questionnaires are practical for large samples, but researchers cannot easily clarify confusing questions or check who completed the form.

## Key terms

**Postal questionnaire:** A physical questionnaire sent to participants for completion and return by post.

**Self-report:** Data participants provide about their own thoughts, feelings or behaviour.

**Response rate:** The percentage of contacted people who return usable responses.

# Postal questionnaires

Lesson 7.2.2 | A Level issues, debates and methods

*Continued*

**Sampling bias:** A distortion caused when the responding sample differs from the target population.

**Closed question:** A question with fixed answer options.

**Open question:** A question that lets participants answer in their own words.

**Anonymity:** When participants' identities are not attached to their responses.

**Missing data:** Information not provided because items are skipped or forms are incomplete.

## Further detail and evidence

A postal questionnaire is sent as a physical document for completion and return by post. It differs from an online questionnaire even though both can be completed remotely. Provide a return route, clear instructions, accessible print and an appropriate response deadline.

Sampling needs a suitable address frame and a plan for nonresponse. A stamped return envelope and proportionate reminder can improve return, while confidentiality procedures protect identifiable information. Only contact people in ways covered by consent and privacy arrangements.

Use clear, neutral items with time periods and response anchors. Include open/closed questions as needed and state scoring. A pilot checks comprehension, burden and instructions; it is not merely a smaller final sample added to the main results.

# Postal questionnaires

Lesson 7.2.2 | A Level issues, debates and methods

## Applying the ideas

An employer could send an anonymous satisfaction questionnaire with an independent return address, reducing direct manager pressure. A code can permit follow-up but means responses are not fully anonymous if linked to identity; explain that distinction accurately.

**Worked example:** A health psychologist posts 600 questionnaires about sleep habits to shift workers and receives 150 usable replies. What should be said about the method and response rate? The method is a postal questionnaire because workers complete the questions remotely and return them. The response rate is 25 percent because 150 out of 600 replied. This may be practical for reaching shift workers, but the low response rate could create sampling bias if the workers who replied differ from those who did not, such as being more concerned about sleep.

**Worked example:** In a postal questionnaire about workplace stress, several participants skip sensitive items about conflict with managers. How should the researcher treat this problem? The skipped answers are missing data, and the researcher should not invent responses or pressure participants to answer sensitive items. They should report how much data is missing and consider whether the missing answers affect conclusions. Better anonymity, clearer consent and careful wording might reduce skipped items in a future questionnaire.

## Evaluation and connections

Postal completion can reach people without internet access and reduce interviewer influence. Literacy, cost, delay, lost post, low returns and uncertainty about who answered threaten usefulness. Nonresponders may differ systematically. Confidentiality may encourage honesty without removing recall or social desirability bias.

# Rating scales and forced-choice responses

Lesson 7.2.3 | A Level issues, debates and methods

## Core ideas

A rating scale asks participants to place an answer on an ordered scale, such as from strongly disagree to strongly agree.

Forced-choice responses require participants to choose from fixed options, which can make answers quick to score and compare.

Likert-type items are common rating-scale questions because they measure strength of agreement or frequency rather than just yes or no.

Balanced response options should avoid pushing participants toward one answer and should match the construct being measured.

Rating scales can produce quantitative data for patterns, averages and comparisons, but the numbers may simplify complex feelings.

Forced-choice questions can reduce vague answers, but they may frustrate participants if none of the options fits their real view.

## Key terms

**Rating scale:** An ordered set of response points used to measure degree, frequency or agreement.

**Forced-choice response:** A fixed-answer format where participants must choose from the options given.

# Rating scales and forced-choice responses

Lesson 7.2.3 | A Level issues, debates and methods

*Continued*

**Likert scale:** A rating scale that measures agreement or disagreement with a statement.

**Response option:** One answer choice available to a participant.

**Neutral option:** A middle response such as neither agree nor disagree.

**Acquiescence bias:** A tendency to agree with statements regardless of their content.

**Social desirability bias:** Answering in a way that seems acceptable rather than fully honest.

**Ordinal data:** Data where responses have an order but the gaps between points may not be equal.

## Further detail and evidence

A rating scale places a response along ordered categories or a continuum, such as 1-7 agreement or an intensity line. Define both endpoints and the meaning of direction. A forced-choice format requires selection among specified options; it may include yes/no, paired alternatives or fixed categories.

Item wording should express one idea and avoid leading or double-barrelled content. Balanced anchors and sensible options improve interpretation. Reverse wording can address acquiescence but can also confuse respondents; score it consistently if used.

Do not assume that the psychological distance between every pair of numbers is identical. A scale score remains a subjective report when it represents pain, satisfaction or belief. A fixed option can simplify coding while hiding explanations.

# Rating scales and forced-choice responses

Lesson 7.2.3 | A Level issues, debates and methods

## Applying the ideas

A seven-point justifiability scale in Giacalone quantifies an attitude, not observed sabotage. A willingness rating in Snyder measures intention, not actual shampoo use. An open follow-up can ask why, adding qualitative material alongside the numerical response.

**Worked example:** A questionnaire asks students to rate exam stress from 1, not stressed, to 5, extremely stressed. What are the strengths and limits of using this scale? The scale gives quantitative data, so the researcher can compare students, calculate patterns such as a mean and track changes over time. It is quick for participants to answer and easy to score. However, stress is complex, and a single number may hide different causes or experiences. The labels and wording also need to be clear so students interpret the scale in a similar way.

**Worked example:** In a wellbeing survey, participants must choose either 'happy at work' or 'unhappy at work'. What concern should be raised about this forced-choice item? The forced-choice format is easy to code, but the two options are too limited. A participant who feels mixed, neutral or satisfied with some parts of work but not others has no accurate answer. This could reduce validity because the data may reflect the options provided more than the participant's real experience.

## Evaluation and connections

Standardised response formats support comparison and efficient analysis. Central tendency, extreme responding, acquiescence and social desirability can distort scores. Forced choice may exclude a truthful mixed/uncertain position. Examine reliability, construct validity, culture and sensitivity to meaningful change.

# Psychometric tests

Lesson 7.2.4 | A Level issues, debates and methods

## Core ideas

A psychometric test measures a psychological characteristic using standardised tasks, questions or scoring rules.

Standardisation means the test is given and scored in the same way so that scores can be compared fairly.

Norms are comparison data from a relevant group, helping researchers interpret whether a score is typical, high or low.

Reliability matters because a test should give consistent scores when the construct has not changed.

Validity matters because the test should measure what it claims to measure, not something unrelated such as reading speed or test anxiety.

Psychometric tests can support decisions in education, work and clinical settings, but misuse can label people unfairly or ignore culture and context.

## Key terms

**Psychometric test:** A standardised test designed to measure a psychological characteristic.

**Standardisation:** Using the same instructions, materials, timing and scoring for each test taker.

**Norms:** Comparison scores from a relevant group used to interpret an individual's result.

# Psychometric tests

Lesson 7.2.4 | A Level issues, debates and methods

*Continued*

**Reliability:** The consistency of a test or measure.

**Validity:** How far a test measures what it claims to measure.

**Raw score:** The score before it is compared with norms or converted into another scale.

**Percentile:** A score showing the percentage of the norm group scoring at or below that point.

**Test bias:** A feature of a test that unfairly disadvantages some groups.

## Further detail and evidence

Psychometric tests systematically measure psychological attributes using defined items, administration and scoring. Standardisation supports comparable use. Norms, where relevant, provide a reference distribution; a criterion threshold instead compares with a defined standard.

Reliability includes internal consistency, test-retest and rater agreement where relevant. Validity includes whether items represent the intended construct and relate to suitable external evidence. High consistency can arise from repetitious items without covering the whole construct.

Examples include BDI depressive symptom scores, GAD-7 anxiety severity and JDI satisfaction facets. Some clinical ratings combine interview and judgement; not every named scale is a purely self-administered test. A score must be interpreted using the correct version and intended population.

# Psychometric tests

Lesson 7.2.4 | A Level issues, debates and methods

## Applying the ideas

A total can monitor change before/after an intervention, but consider whether the instrument is sensitive to the relevant symptoms. A high screening score supports further assessment; it does not automatically establish diagnosis, cause or the best treatment.

**Worked example:** A school uses a standardised aptitude test to decide who receives extra enrichment lessons. What should be checked before relying on the scores? The school should check that the test is reliable, valid for the ability it claims to measure and standardised for the age group being tested. Norms should come from a relevant comparison group, not a very different population. The score can help decision-making, but it should not be the only evidence because motivation, language background, anxiety and classroom performance may also matter.

**Worked example:** When a personality test is translated for students in another country, several items about workplace habits no longer make sense. What problem does this create? This creates a validity and test-bias problem because the translated items may not measure the intended personality trait in that cultural context. Students may answer based on unfamiliar wording or irrelevant examples rather than their actual characteristics. The test would need careful adaptation, piloting and comparison with suitable norms before the scores were interpreted seriously.

## Evaluation and connections

Tests are efficient and can reduce unsystematic judgement, while response bias, language, culture and inappropriate norms threaten interpretation. Repeated measurement can introduce memory or practice. Examine practical access and confidentiality. A reliable instrument used for the wrong purpose can still lead to an invalid conclusion.

# Null and alternative hypotheses

Lesson 7.2.5 | A Level issues, debates and methods

## Core ideas

A hypothesis is a testable prediction about a relationship, difference or effect in a study.

The alternative hypothesis predicts that there will be a relationship, difference or effect between variables.

The null hypothesis predicts that there will be no relationship, no difference or no effect beyond chance variation.

A directional hypothesis states the expected direction of the result, such as higher, lower, positive or negative.

A non-directional hypothesis predicts a difference or relationship without saying which direction it will take.

Hypotheses should name the variables clearly so that the prediction can be tested and interpreted.

## Key terms

**Hypothesis:** A testable prediction about what a study expects to find.

**Null hypothesis:** A prediction that there will be no relationship, difference or effect.

**Alternative hypothesis:** A prediction that there will be a relationship, difference or effect.

**Directional hypothesis:** A prediction that states the expected direction of the result.

**Non-directional hypothesis:** A prediction that expects a result but does not state its direction.

# Null and alternative hypotheses



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**Independent variable:** The variable changed or compared by the researcher.

**Dependent variable:** The outcome measured in the study.

**Chance variation:** Differences in results that could occur randomly rather than because of a real effect.

## Further detail and evidence

For A Level, write and apply null hypotheses and both directional (one-tailed) and non-directional (two-tailed) alternative hypotheses to the actual operationalised variables. Hypothesis writing is part of Paper 4 planning; Paper 2 planning does not require aims or hypotheses.

An alternative hypothesis predicts a difference or association; a directional prediction gives its expected direction, while a non-directional prediction does not. A null states no population difference/association, with observed variation attributable to chance. Operationalise conditions, measures and the population relevant to the plan.

Experimental hypotheses refer to defined IV conditions and a measurable DV. Correlational hypotheses refer to two measured co-variables and the proposed relationship. Observations and self-reports require wording that matches their actual design rather than an invented manipulated variable.

Use previous theory/evidence to justify direction where appropriate. A hypothesis should be testable before results are known. Null and alternative should concern the same variables and comparison; they should not describe different research questions.

# Null and alternative hypotheses

Lesson 7.2.5 | A Level issues, debates and methods

## Applying the ideas

**Example:** mean seven-point comfort ratings will be lower after viewing a six-inch than a 24-inch restaurant-table gap. Null: mean comfort will not differ beyond chance between those defined conditions. A correlational alternative could instead predict that greater perceived crowding relates to lower satisfaction.

**Worked example:** A researcher predicts that students who revise with practice questions will score higher than students who only reread notes. How should the alternative and null hypotheses be written? The alternative hypothesis could state that students who revise with practice questions will score higher on the test than students who only reread notes. This is directional because it predicts the direction of the difference. The null hypothesis would state that there will be no difference in test scores between the two revision groups, or that any difference will be due to chance.

**Worked example:** In a study of phone use and sleep quality, a student writes, 'Phones are bad for sleep.' What is weak about this as a hypothesis? The statement is too vague because it does not clearly name measurable variables or say what result will be tested. A better non-directional hypothesis would be that there will be a relationship between amount of phone use before bed and sleep-quality score. A directional version would predict that greater phone use before bed will be associated with poorer sleep-quality scores.

## Evaluation and connections

Statistical decisions do not prove a theory true or eliminate all alternative explanations. A non-significant result is not proof of no possible effect. The syllabus does not require calculations or unspecified inferential tests. Paper 4 plans require aims/hypotheses; the 2027 Paper 2 planning expectations differ.

# Temporal validity

Lesson 7.2.6 | A Level issues, debates and methods

## Core ideas

Temporal validity asks whether findings from one time period still apply at a later time.

A study may lose temporal validity when social norms, technology, education, law or everyday behaviour change.

Older findings can still be valuable if the psychological process being studied remains stable and later evidence supports it.

Replication helps test temporal validity by repeating a study or testing the same idea with newer samples.

Historical context matters because participants' responses may reflect the time and setting in which the data were collected.

Strong evaluation avoids dismissing evidence just because it is old; it asks what has changed and whether the finding has been updated or supported.

## Key terms

**Temporal validity:** How far findings remain valid across time.

**Replication:** Repeating a study or testing the same idea again to check whether findings hold.

**Historical context:** The social and cultural conditions at the time a study was carried out.

# Temporal validity

Lesson 7.2.6 | A Level issues, debates and methods

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**Cohort effect:** A difference linked to the generation or time period participants come from.

**Social norm:** A shared expectation about behaviour in a society or group.

**Technological change:** New tools or media that may change behaviour or research conditions.

**Generalisation over time:** Applying findings from one period to another period.

**Contemporary relevance:** How useful evidence is for explaining behaviour in the present.

## Further detail and evidence

Temporal validity concerns whether findings apply beyond the period in which evidence was collected. Technology, norms, policies, job design, medical care and advertising exposure can change. It is different from the duration of a study or reliability across repeated measurements.

Older evidence can remain useful if the relevant mechanism persists, while its particular procedure or application needs updating. A theory about interference may remain relevant even when advertisements move from print to phones; an old interface comparison may transfer less directly.

Replication with current samples/procedures can test persistence. Repeated cross-sectional studies compare periods but may change sampling; longitudinal studies follow people but mix ageing with historical change. Record what was kept constant and what changed.

# Temporal validity

Lesson 7.2.6 | A Level issues, debates and methods

## Applying the ideas

Doctor-clothing preferences in 1991 may differ with newer infection-control norms. Jedetski's early website tools may differ from present shopping platforms. Identify the particular changed feature and explain how it could affect the result, rather than rejecting a study solely because it is old.

**Worked example:** A 1970s study of bystander behaviour is used to explain how people respond to emergencies recorded on smartphones today. What temporal-validity issue should be considered? The study may still be useful if it identifies a stable process such as diffusion of responsibility, but temporal validity needs checking because modern emergencies can involve phones, filming, online sharing and different expectations about helping. Comparing the original context with today's context, plus looking for newer replications or related evidence, prevents assuming the finding applies unchanged.

**Worked example:** One classic study is criticised as old, but newer studies using different samples find a similar pattern. How should its temporal validity be judged? The criticism should not stop at saying the study is old. If newer studies find a similar pattern, that supports temporal validity because the finding appears to hold across time. Methods, samples and contexts still need comparison, but replication makes the classic evidence more useful for present-day explanation.

## Evaluation and connections

A recent publication is not automatically temporally valid for every future context. Updating a method can improve relevance but reduce comparability with the original. Evaluate stable mechanisms and context-sensitive findings separately. Several replications over time give stronger evidence than assuming either permanent truth or complete obsolescence.

# Planning studies for Paper 4

Lesson 7.2.7 | A Level issues, debates and methods

## Core ideas

Paper 4 Section B offers one planning question for each specialist option; answer one question from the four choices, normally from an option you studied. The plan is worth 10 marks and structured evaluation questions total 14 marks.

Unlike Paper 2, Paper 4 general planning features include aim(s) and hypotheses, procedure, sample and sampling technique, ethics, validity, reliability, types of data, data analysis and use of descriptive statistics. Give sufficient detail for replication.

For experiments, specify the type, IV, DV, design, controls/standardisation and counterbalancing or random allocation where applicable; add location for a field experiment. Distinguish recruiting a sample from allocating participants to conditions.

For self-reports, include open/closed format, example questions, scoring/interpretation and questionnaire technique (paper, online or postal), or interview format (structured, semi-structured or unstructured) and technique (face-to-face or telephone).

For case studies, specify the participant/unit, content, two or more collection techniques and analysis/interpretation/triangulation. For observation, specify overt/covert, participant/non-participant, naturalistic/controlled, structured/unstructured and number of observers.

For longitudinal plans (including longitudinal experiments), specify tests/tasks, scoring, frequency/interval, re-contacting participants and controls/standardisation. Paper 4 may require evaluation of all aspects of the plan.

## Key terms

**Replicable procedure:** A procedure described precisely enough for another researcher to repeat it.

**Descriptive analysis:** Summarising and interpreting observed data using tables, graphs or measures such as means and standard deviations.

# Planning studies for Paper 4

Lesson 7.2.7 | A Level issues, debates and methods

## Further detail and evidence

For correlational plans, specify both co-variables, measurement of each, and the relationship/scatter graph. Match the analysis to the data: for example, compare group means and standard deviations or interpret a scatter graph; inferential-test calculations are not added requirements.

**Ethics should be practical:** informed consent, withdrawal without penalty, minimising harm, secure coded data and suitable debriefing. Explain how each safeguard applies to the actual specialist scenario rather than listing ethical words.

**Paper 4 plan:** include aims/hypotheses, sample/sampling, ethics, replicable procedure, validity/reliability, data type, analysis and appropriate descriptive statistics. The plan is worth 10 marks and structured evaluation 14 marks. Choose one of four option-based planning questions and follow the specified method/features.

**Experiment:** identify laboratory/field type, IV conditions, operationalised DV, design, controls and allocation/counterbalancing where appropriate; field work also needs location. Self-report: give example open/closed items and scoring, questionnaire technique (paper/online/postal), or interview format and face-to-face/telephone technique.

**Observation:** specify overt/covert, participant/non-participant, setting, structured categories/unstructured notes, number of observers and recording. Correlation: define two co-variables, both measures and anticipated relationship/scatter graph. Do not claim a manipulated cause.

**Case study:** define the person/unit, information, at least two techniques and analysis/triangulation. Longitudinal: state tasks, scoring, interval, re-contact and controls. Give enough detail for replication without unnecessary invented equipment or risky procedures.

## Applying the ideas

**Example outline:** compare two accurate menu versions with identical items/prices, varying only positions. Recruit consenting adults from a defined setting and randomly allocate versions. Record the chosen item, preserve withdrawal/privacy and summarise choice frequencies. Standard instructions and fixed materials support reliability and control; limited hypothetical choice reduces real-spending validity.

# Planning studies for Paper 4

Lesson 7.2.7 | A Level issues, debates and methods

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**Worked example:** Plan a field experiment in consumer psychology on background music and restaurant spending. Include a hypothesis, design, data analysis and one ethical safeguard. Aim to investigate whether music condition affects spending per diner. A non-directional alternative predicts a difference in spending between the music and no-music conditions; the null predicts no difference. Recruit 60 consenting adult diners by opportunity sampling across six comparable lunch sessions, with 10 per session. Use independent groups and pair the sessions by weekday and lunchtime, randomly allocating one session in each pair to music and the other to no music. Use the same instrumental playlist at one fixed safe volume in music sessions; keep ambient noise, menu, prices, staff instructions and session duration as similar as possible and record spend per diner, excluding identifying payment details. Compare the conditions using means and standard deviations. Obtain appropriate consent for research participation and protect withdrawal and privacy; explain the study without pressure to spend. Consider time-slot differences as a possible confound.

**Worked example:** Evaluate one validity issue and one reliability issue in an organisational questionnaire about job satisfaction. Validity could be reduced if workers think managers can identify them, because fear of consequences may lead to socially desirable answers. Use questionnaires without names or identifying details, deny managers access to individual answers, and report only group summaries to reduce that pressure. Reliability could be reduced if different staff receive different wording or scoring instructions. Use the same items, response scale and scoring rules for everyone and check that repeated measurement is consistent when job conditions have not changed.

## Evaluation and connections

Evaluate all aspects of the actual plan, including sample/generalisability, ethics, practicality, validity and reliability. Link each strength/weakness to a consequence and feasible improvement. Preserve the supplied requirements. Unlike Paper 2, Paper 4 expects the wider planning features, including hypotheses, sampling and ethics.

Hint: check the question's method and context, then use a plan checklist: aim/hypotheses; sample; operationalised measures; replicable procedure; ethics; validity/reliability; data and descriptive analysis. Support each evaluation point with a consequence for this plan.