GCSE Psychology
Knowledge Organiser Booklet

Criminal Psychology

Key Concepts:

- **Criminal behaviour** - any act that goes against the law of the land.
- Types of crime:
  - Violent (e.g. injuring another)
  - Drug related (e.g. using illegal substances)
  - Acquisitive (e.g. theft)
  - Sexual (e.g. rape)
  - Anti-social (e.g. vandalism)
- **Social construct** - society determines what is considered criminal behaviour, so it can change over time and place.
- **Deviation from norms** - crime is when an act or behaviour goes against what is expected in society.
- **Role of culture** - collective set of norms that determines a way of life for a group of people. As cultures change, so do their norms.
- Crime is measured using **self-report** methods, which may not be reliable. Not all crimes are necessarily reported.

Core Theory #1 Criticisms:

- Ignores the role of nature
- Doesn't explain how criminal behaviour starts in the first place
- Should be easier to reduce crime if this was correct.

Core Theory #1: Social Learning Theory

We learn all of our behaviour from others.

1. **Role models/modelling -** people we look up to and respect who model behaviour for us.
2. **Identification** - we decide we want to be like these people.
3. **Observation** - we pay attention to their behaviours and retain them in our memory.
4. **Imitation** - we recall these behaviours and copy them. **Self-efficacy** (belief in ourselves). Those who lack belief in themselves may be more likely to imitate the behaviours of others.
5. **Reinforcement:**
   - **Vicarious** - observe someone being rewarded or punished for a behaviour
   - **Direct** - get rewarded or punished ourselves for a behaviour
6. **Internalisation** - the behaviour becomes part of us and no longer needs to be reinforced for it to continue. Criminals will have learned to behave in a certain way regardless of the consequences.

Core Study #1 Criticisms:

- Sample was biased
- Artificial setting - low ecological validity
- Uncontrolled extraneous variables e.g. prior experience of the game.

Core Study #1: Cooper and Mackie (1986)

- **Aim:** to investigate if playing an aggressive video game would lead to an increase in aggression in children.
- **Laboratory experiment** using an **independent measures design**. **IV** = game played. **DV** = aggression levels after playing or observing the game.
- **Target population** was a set of schools in New Jersey, USA. Parents gave consent and children filled out a **questionnaire** prior to the study.
- Participants **randomly allocated** to one of three conditions where some played and some observed others playing:
  - Missile Command (aggressive game)
  - Pac-Man (non-aggressive game)
  - Paper and pen maze games (control condition)
- Participants then were either taken to a playroom to choose a toy, or had to complete a test.
- **Results:**
  - 61% reported having a games system at home, which was taken into account. This made no difference to results.
  - Participants in aggressive game condition spent more time playing with aggressive toy.
- **Conclusion:** Girls were more aggressive after playing the aggressive game due to increased **arousal** which led to a **disinhibition effect** (more socially acceptable to play with aggressive toy as they had already been encouraged to play an aggressive game. Evidence that observing behaviour can lead to imitation.

Criminal Psychology

Applications - reducing criminal/anti-social behaviour

- **Punishments** - negative consequences to certain behaviours that aim to reduce the chance of these behaviours happening again. E.g. prisons, fines and community sentences
- **Deterrents** - something that reduces the likelihood of a crime being committed. E.g. use of media to make punishment public, vicarious reinforcement
- **Rehabilitation** - promoting **pro-social behaviour** and teaching social skills.
- **Restorative justice** - rehabilitating offenders by giving them the choice to be aware of the consequences of their actions, e.g. being introduced to their victims and seeing the effect their crime has had).

Core Theory #2 Criticisms:

- Ignores individual differences
- Unlikely criminals all share a similar personality
- Too deterministic as it ignores free will

Core Theory #2: Eysenck's Personality Trait Theory/Biological theory

- **Criminal personality** - personality traits associated with people who commit crimes. Something that is inherited through **genetic inheritance** and **innate** (born with it).
- Supertraits - we all have these to a certain extent:
  - **Extraversion** - how outgoing an individual is (Criminals are often extroverts as they need a lot of stimulation from the environment and are often thrill-seekers.)
  - **Neuroticism** - how anxious/emotional an individual is (Criminals are often neurotic as they don't easily learn from mistakes).
  - **Psychoticism** - how impulsive/aggressive an individual is (Criminals are often psychotic as they are aggressive and impulsive).
- **Biological theory:**
  - **Central Nervous system** - lower arousal of CNS and cerebral cortex because stimuli is restricted by **reticular activation system** (neural network that controls alertness). Cerebral cortex becomes hungry for stimulation which is then gained from criminal behaviour.
  - **Dopamine reward system** - neural network that is responsible for people experiencing pleasure. Extroverts respond more positively to reinforcers like sex and money, increasing dopamine release.
  - **Autonomic Nervous System** - activated during emotional situations. Becomes over-aroused in neurotic individual leading to violent behaviour.
  - **Dopaminergic neurons** - too many neurons cause overproduction of **dopamine** which leads to less inhibition of impulses during **synaptic transmission** (process where neurotransmitters are released by presynaptic neuron and bind to and activate the receptors of postsynaptic neurons).
  - High levels of extraversion and neuroticism make people difficult to condition (learning by consequences) and often more resistant

Core Study #2: Heaven (1996)

- **Aim:** to investigate if psychoticism, extroversion and self-esteem predict delinquent behaviour.
- **Longitudinal study** on adolescents from Catholic schools in Australia.
- **Self-report questionnaires** to measure personality and self-esteem and for delinquency two years later.
- **Findings:**
  - **Positive correlation** between psychoticism and delinquency.
  - Weaker correlation between extraversion and delinquency.
  - **Negative correlation** between self-esteem and delinquency.
- **Conclusion:** Psychoticism can predict delinquent behaviour, but not extraversion or self-esteem. Other factors such as peer pressure, discipline from parents and personality may also influence.

Core Study #2 Criticisms:

- Sample was culturally biased.
- Self-report unreliable
- Results may have been affected by age bias

Development

Key Concepts:

- **Development** - how we change and mature across our lifetime.
- **Stages of development:**
  - Pre-natal (from conception to birth) - develop neural tube, cerebral cortex, neurons and simple synapses.
  - Childhood (from birth to 12) - develop more neural connections, more dense synapses in the prefrontal cortex, understand cause and effect as connections strengthen.
  - Adolescence (from 13-19) - grey matter reaches maximum density, maturation of limbic system, pre-frontal cortex and frontal lobes.
  - Adulthood (20+) - fully matured pre-frontal cortex. Neurodegenerative diseases can be developed.
- **Intelligence Quotient tests (IQ)** - measuring how we learn, think and problem-solve.

Core Theory #1: Piaget's Stage Theory

- **Invariant** (do not change) and **universal** (the same for all children)
- **Schemas** (mental pictures of the world) develop over time due to **assimilation** (new information merged into an existing schema) and **accommodation** (existing schemas altered or new ones formed to fit in new information).
- **Stages:**
  - **Sensorimotor (0-2) -** object permanence (something still exists even if it is hidden from view)
  - **Pre-operational (2-7)** - animism (giving thoughts and feelings to inanimate objects), irreversibility (cannot think about things in reverse order), lack of conservation (unable to understand that an amount of something stays the same even if it changes shape or form), egocentrism (assume everyone views the world the same way they do).
  - **Concrete Operational (7-11)** - conservation (able to understand that if something changes shape or form, it still has the same volume, mass or length), decentration (able to see from another's point of view), reversibility (can think about things in reverse order), seriation (putting things in order), linguistic humour (playing with words to create jokes)
  - **Formal Operational (11+)** - abstract thought, hypothetical thinking and problem-solving.

Core Theory #1 Criticisms:

- Not all adults reach formal operational stage
- Cognitive stages are not fixed for all children
- Reductionist because it doesn't acknowledge the role of teachers

Core Study #1: Piaget (1952)

- **Aim:** to demonstrate that children in the concrete operational stage are more likely to be able to conserve than children i the pre-operational stage.
- **Natural experiment** and **cross-sectional study**. Uses **independent measures design.**
- Small sample of Swiss school children from Geneva were tested individually by showing them counters lined up in two rows. They were asked if there were the same number of counters in each row before spreading one of the rows out and repeating the question.
- **Results:**
  - Pre-operational stage = more counters in the longer row.
  - Concrete operational stage = both rows had same amount of counters.
  - Some near the end of the P-O stage were able to state that the amount of counters stayed the same, but couldn't understand why.
- **Conclusion:** Children in the concrete operational stage were more able to conserve than those in the pre-operational stage.

Core Study #1 Criticisms:

- Demand characteristics as some children were asked the same question twice
- Artificial as it is not a real-life situation
- Culturally biased

Development

Applications - changing role of education

Piaget's theory

- **Key stages** - Piaget's stages used to organise education of children
- **Readiness** - children not ready to learn certain things until they have reached a particular stage
- **Active learning** - children should actively engage with their environment to learn from it
- **Symbolic play -** children need to play 'make believe' to aid development

Learning theories

- **Growth mindsets -** teachers to encourage teachers to try hard and praise effort not intelligence
- **Meaning** - teachers focus on supporting students to think about the meaning of information.

Core Theory #2 Criticisms:

- Dweck - places failure on the student/ignores the role of nature in intelligence
- Willingham - certain things need to be learnt through memorising and drilling/ignores the role of nature in intelligence

Core Theory #2: Learning theories

Dweck's fixed and growth mindset:

- Suggests that the difference between students who do well and those who don't achieve their potential is due to their mindset:
    - Fixed = intelligence is **innate** and cannot be changed
    - Growth = intelligence develops over time
- Need to see failure as a challenge to improve, have the resilience to cope with setbacks, and have a positive attitude towards effort.
- In schools, failure can affect self-esteem so students do not like making an effort if they have a fixed mindset.
- Schools should encourage a growth mindset to improve results.
- Individuals can hold different mindsets for different abilities.
- Growth mindsets can also help to reduce bullying as they display more pro-social behaviour.
- Praising effort, not intelligence, is key to increasing learning as they will value hard work instead of performance.

Willingham's ideas:

- Myth of learning styles (the theory that students have different ways of learning) - make no difference to their learning. Knowing what they are going to learn is more important than the learning style, as is their background knowledge, ability, and interest in a subject.
- Confirmation bias - we tend to take more notice of information that supports out viewpoints, so teachers need to ensure than the method of teaching best fits the content rather than for individual learning styles.
- Meaning for learning - students should understand the meaning of what they are being taught rather than just being given lists of facts to memorise. Information will be learnt more deeply and committed to long-term memory.

Core Study #2 Criticisms:

- Culturally biased
- Reductionist as it only focused on students' mindsets
- Effect was actually very small

Core Study #2: Blackwell, Trzesniewski and Dweck (2007)

- **Aim:** to investigate whether theories of intelligence correlate with academic achievement in maths and to test the impact of academic intervention
- **Longitudinal study** of students in NYC over 5 years. **Correlational field study** investigating students' ideas (with informed consent of parents) of intelligence and achievement, and the impact this had on their actual achievement.
- Study 1:
    - Students given motivational questionnaire at the beginning of 7th grade.
- Study 2:
    - Students given motivational questionnaire at the beginning of 7th grade and assigned to either intervention group or control group.
    - 8 week workshop to improve study skills.
- **Results**
    - Study 1 - no **correlation** between mindset and motivation, but did predict maths achievement.
    - Study 2 - intervention group gained higher grades and showed more motivation
- **Conclusion:** Positive effect on motivation and effort for students with a growth mindset.

Psychological Problems

Key Concepts:

- **Mental health** often seen as abnormal, despite ideal mental health being something not many of us reach often.
- Quite **subjective** and personal experience.
- Good mental health includes high self-esteem, self-actualisation, autonomy, accurate perception of reality (Jahoda, 1958).
- Use a **mental health continuum** to define mental health on a scale to show degrees of mental health.
- Prevalence of mental health problems in UK (1 in 4 has mental health disorder).
- Difficult to measure mental health because not all problems are diagnosed, definitions change over time, and relies on self-report surveys.
- Attitudes towards mental health have changed since the **Mental Health Act (1959)** - aiming to reduce **stigma** and **discrimination.**
- Cognitive factors to **stigma** as people perceive mental health issues differently, which can lead to **discrimination**.
- **Stigma** and **discrimination** tends to be worse after diagnosis compared to before diagnosis.
- Problem of mental health labels becoming a **self-fulfilling prophecy** (behaves in a way they think they are expected to).
- Mental health issues can affect wider society:
    - Effects on public services (e.g. care in the community)
    - Effects on the law (e.g. protecting those with mental illnesses)
    - Effects on society's attitudes (e.g. conflict in communities)

Core Theory #1: Schizophrenia

A psychotic disorder where people lose their sense of reality. Covers 1% of the population.

- Symptoms:
    - Delusions (errors in reality)
    - Hallucinations (seeing things that aren't there)
    - Neologisms (breaks in train of thought)
    - Disorganised speech
    - Catatonic behaviour (doesn't respond)

Social Drift Theory

- Individuals drift to the bottom of society and lose status when they have a mental health problem.
- Working class people 5 times more likely to be diagnosed.
- Get caught in a downward spiral which involves disengagement of individuals who do not feel part of society (withdraw themselves).
- Experience a rejection by society as they stop following social norms which leads to further disengagement.

Biological Theory

- Too much dopamine which causes erratic movements, hallucinations and delusions.
- Messages from dopaminergic neurons fire too easily or too often/unusually high number of dopamine (D2) receptors resulting in more binding and more neurons firing across synapses.
- Blood flow lower in frontal cortex/prefrontal cortex defective/temporal lobes lower in volume due to lack of grey matter/hippocampus is smaller in volume.
- Neurological damage tends to happen in the womb but doesn't appear until later in life.

Core Theory #1 Criticisms:

Social Drift theory

- Difficult to establish cause and effect
- Ignores biological factors
- May be bias in diagnosis to lower classes

Biological theory

- Ignores the role of nurture
- Brain dysfunction could be an effect not a cause
- Too deterministic/reductionist

Core Study #1: Daniel et al. (1991)

- **Aim:** to investigate the role of dopamine in Schizophrenia.
- **SPECT** scan to scan brain activity during a cognitive task after being given an amphetamine to stimulate dopamine activity.
- 10 inpatients from a mental health ward in USA either given a placebo or amphetamine and completed a mock test, a test of simple motor control and a test of prefrontal activation (WCST).
- **Results:**
    - Amphetamine had minimal effect on cerebral blood flow.
    - No significant differences in the effects of the placebo or amphetamine on blood flow except a small effect in the WCST.
    - Behaviour changes from amphetamine were mild and mainly showed an improvement in symptoms.
- **Conclusion:** amphetamine increased prefrontal cortex activity during performance of a cognitive task showing a link between brain function and Schizophrenia symptoms.

Core Study #1 Criticisms:

- Sample size too small
- Cultural bias
- Ethical issues with brain scans

Psychological Problems

Applications: development of treatments

Anti-psychotics to treat Schizophrenia

- Available on prescription and can be taken in liquid or tablet form.
- Blocking dopamine receptors to stop some chemical messages being passed to the brain.
- Reduce the severity of the psychotic episode so the individual can function in society.
- Can help with positive symptoms (thoughts and feelings) as well as negative symptoms (tiredness and social withdrawal)
- Conventional psychotics = tiredness, jerky movements, loss of movement or trembling).
- Atypical psychotics = rapid weight gain.

Anti-depressants to treat Depression

- Increasing number of neurotransmitters in the brain such as serotonin or noradrenaline.
- Prevent serotonin from being reabsorbed into the pre-synaptic neuron so there is more in the synapse which helps neurons communicate better and helps people feel less depressed.

Psychotherapy /CBT

- **Psychotherapy** - "Talking" therapy introduced by Freud in late 19th century. Focuses on past.
- **CBT (Cognitive Behavioural Therapy)** - aims to change how individuals think and behave to confront irrational thoughts. Focus on current situation. 5-20 sessions.
- Depression - CBT helps re-evaluate their negative thoughts.
- Schizophrenia - CBT helps re-evaluate the voices.

Neuropsychological tests

- Measure how well the brain is functioning
- Wisconsin Card Sorting Test (Schizophrenia)
- Beck Depression Inventory (Depression)
- Brain imaging = scanning people's brains to see what activity is occurring in different areas (E.g.. PET scan)

Core Theory #2: Clinical Depression

A mood disorder where people have persistent feelings of sadness over a long period of time.

- Symptoms:
  - Low mood/sadness
  - Feeling hopeless
  - Low self-esteem
  - No motivation/lack of interest in things
  - Suicidal thoughts

ABC Model (Ellis)

- Depression is the result of irrational beliefs and thinking.
- Not the event that causes depression, but how the individual perceives the event in an irrational way.
- **A = Activation event (situation which triggers an irrational thought)**
- **B = Beliefs (how the event is interpreted by the individual)**
- **C = Consequences (how they end up feeling or behaving)**

Biological Theory/Social Rank Theory

- Depression has evolved to help us adapt and survive by reducing conflict and stopping competition.
- Allows society to maintain a stable balance without too much conflict.
- By giving in to the winner (higher social ranking), it allows the loser (lower social ranking) to remain in society rather than being outcast.

Core Theory #2 Criticisms:

ABC Model

- An individual's interpretation of an event may actually be rational (e.g. losing job)
- Too reductionist
- Assumes individual is responsible for their illness

Biological theory/Social Rank Theory

- Too reductionist
- Suggests depression is limited to 'losers' and people of lower social rank
- Ignores the idea that depression can be triggered by life events

Core Study #2: Tandoc et al. (2015)

- **Aim:** to see whether depression could be predicted by Facebook usage.
- **Self-report questionnaire** using an online survey. 736 students from USA.
- Asked to report how many hours they spent on FB per day and rate on a 5 point scale how often they: write a status, post photos, engage in "FB surveillance" of others etc.
- Also asked to rate 8 different items relating to envy on a **5-point Likert scale.**
- Completed a depression scale (**CES-D**).
- **Results:**
  - Heavy FB use showed stronger feelings of envy.
  - Fb envy was a predictor of depression.
  - No relationship between frequency of FB use and depression.
  - FB surveillance has an indirect link as it increases envy which leads to depression.
- **Conclusion:** Using FB does not directly lead to depression, but can contribute to feelings of envy. Supports Social Rank Theory.

Core Study #2 Criticisms:

- Cultural bias
- Age bias
- Social desirability bias

Social Influence

Key Concepts:

- **Conformity -** giving in to the pressure of the group.
- **Majority influence -** when the majority of a group tries to influence others in the group to conform to their beliefs.
- **Obedience -** following orders from someone we perceive as having more authority than us.
- **Collective and crowd behaviour** - the way in which people act when they are part of a group. The behaviour of crowds can often be spontaneous and unplanned, causing people to act in a way they normally wouldn't do.
- **Anti-social behaviour -** actions that go against society and harms it in some way.
- **Pro-social behaviour** - actions that benefit society and its members.

Core Theory #1 Criticisms:

- Suggests our behaviours are deterministic and we don't have free will.
- deindividuation does not always lead to violence; it can be positive too.
- Reductionist as it does not take into account individual differences,

Core Theory #1: Situational Factors

Situational Factors - how external influences, such as other people, affect our behaviour.

1. **Effect of majority influence on conformity**
   - Normative conformity - go along with the group norm to fit in but still keep their own opinions.
   - Informational conformity - go along with the group because they are unsure and so follow the lead of others.
2. **Effect of deindividuation on collective and crowd behaviour**
   - In-group - someone who is part of the group
   - Out-group - someone who is not part of the group
   - Deindividuation - when people lose their sense of individuality and feel more anonymous, (Lack of consequences for their behaviour.
3. **Effect of culture on pro- and anti-social behaviour**
   - Collectivist culture - the needs of the group are more important than the needs of the individual (more helpful to each other)
   - Individuality culture - the needs of the individual are seen as more important than the needs of the group (more independent).
   - Altruism - helping others without expecting any reward.
4. **Effect of authority figures on obedience**
   - Authority figure - someone we perceive as having more power than ourselves
   - Agency theory - Milgram proposed that people obey orders that they know to be ethically wrong because they have moved from being in an autonomous state to an agentic state.
   - Autonomous state - where an individual feels responsible for their own actions.
   - Agentic state - where an individual does not feel responsible for their actions as they are acting under orders from an authority figure.
   - Charismatic leaders theory - House et al. proposed that the personality of the leaders enables them to create a special bond with their followers. The leader is seen as almost being superhuman and is idolised by the followers.

Core Study #1: Bickman (1974):

- **Aim:** to investigate the effect of uniform on obedience
- **Field experiment** into the effect of uniform on obedience, picked people who were available on the streets of Brooklyn at the time. 3 experimenters dressed as either a policeman, a milkman or a civilian.
- Gave one of three instructions
  - Pick up this bag for me
  - This man is over parked and has no money, pay for him
  - Don't you know you have to stand on the other side of this pole, the sign says no standing
- **Findings:**
  - 89% obeyed policeman
  - 57% obeyed milkman
  - 33% obey civilian
- **Conclusion:** how we dress can suggest authority and when people think someone has the authority to punish them, they are more likely to obey

Core Study #1 Criticisms:

- Unethical
- All male sample
- Only carried out in one country

Social Influence

Applications - changing attitudes:

Minority influence

- Small groups of people can change the opinion and beliefs of larger groups.
- Campaigning to reduce stigma and discrimination associated with mental health. Act as role models.
- For minority influence to work:
  - Message must be consistent
  - Must show commitment to the cause
  - Argument must be persuasive

Majority influence

- National campaigns to reduce stigma and discrimination associated with mental health. Aim to change attitudes.

Core Theory #2 Criticisms:

- Reductionist as it ignores the influence of situational factors.
- People's locus of control can shift depending on the situation they are in.
- Authoritarian personality does not take into account differences in parenting.

Core Theory #2: Dispositional Factors

Dispositional Factors - how internal influences, such as personality, affect our behaviour.

1. **Effect of self-esteem on conformity.**
   - Self-esteem - how we perceive ourselves.
   - Someone with low self esteem is more likely to conform due to a lack of belief in their own ability.
   - People with low self esteem tend to look to others to behave in the 'correct' manner.
2. **Effect of locus of control on collective and crowd behaviour**
   - Locus of control - how much control a person feels they have over their own life.
   - Internal locus of control - feel they have the ability to control their decisions and are more confident.
   - External locus of control - feel like they have no control over their own decisions and that other people have the control.
3. **Effect of morality on pro- and anti-social behaviour**
   - Morality - understanding what is right an wrong.
   - Kohlberg's stage theory of moral development
     - Preconventional - focused on punishment and consequences
     - Conventional - focused on approval from others and obeying authority
     - Post-conventional - focused on society's influence, justice and ethics
4. **Effect of the authoritarian personality on obedience**
   - A personality type that is very obedient to authority.
   - Tend to see the world in 'black and white' and offer blind obedience to those they see as being of a higher authority to themselves.
5. **Influence of the brain**
   - People with low self-esteem tend to have reduced grey matter in the hippocampus. They are less able to control stress levels and emotions.
   - People with damage to the pre-frontal cortex are less able to understand right from wrong. Similar to psychopaths in personality.

Core Study #2: NatCen/Morrell et al. (2011)):

- **Aim:** to investigate what triggered the Tottenham riots in 2011.
- **Report** prepared using 36 **interviews** of varied age, ethnicity, gender and work status.
- Data gathered 5 weeks after the riots took place. Incident between the police and a girl was the trigger for a peaceful protest becoming violent.
- **Findings:**
  - Key motivation for involvement: benefitting from exciting experience, opportunity to loot, getting back at police.
  - Nudge (encouraged) e.g. poor job prospects, and tug (discouraged) e.g. getting caught, factors influenced people.
- **Conclusion:** behaviour is influenced by both situational and dispositional factors.

Core Study #2 Criticisms:

- Memories aren't always reliable
- Relied on self-report data
- Social desirability bias

Memory

Key Concepts:

- Information processing - brain works like a computer
  - Input (through senses)
  - Encoding (changed into a format that is easier to understand)
  - Storage (held in memory)
  - Retrieval (recalling from memory)
  - Output (using recalled information)
- **Hippocampus** (part of the **limbic system)** is involved in making new memories - they must pass through here before entering long-term storage. Important for semantic memories of facts and autobiographical memories. Memory of past events is episodic memory.
- **Cerebellum** is responsible for learning movements and procedural memory (motor skills).
- **Amnesia** - affects a person's ability to recall or form memories. Caused by brain injury, illness, some medications or illegal drugs.
  - Anterograde - unable to form new memories due to damage of the hippocampus.
  - Retrograde - cannot recall existing memories due to damage of the frontal lobe.

Core Theory #1 Criticisms:

- Too reductionist
- Isn't supported by neuropsychological evidence - LTM more than one store
- Too much importance on the role of rehearsal

Core Theory #1: The Multi-Store Model

- Human memory system made up of 3 separate stores:
  - Sensory store - information from the environment whether we pay **attention** to it or not. If we don't pay attention to it, the information **decays** (fades until forgotten)
  - Short-term memory (STM) - limited capacity (7+/-2) and duration (30 seconds). Information goes from sensory store to STM if **attention** is paid to it. If more information enters and the store is full, information becomes **displaced** (pushed out).
  - Long-term memory (LTM) - unlimited capacity and duration. Information in STM that goes through **maintenance rehearsal** (repeating the information over and over), is moved into LTM. Encoding is mainly semantic (we think about the meaning of information can be visual and auditory.
- Types of forgetting:
  - Decay - if we do not pay attention to the information that enters the sensory store then it breaks down and is no longer available. Information will decay quickly if it is not rehearsed.
  - Displacement - when STM is full, new information pushes out the old information and causes it to be forgotten if it has not been rehearsed.
  - Retrieval failure (lack of cues) - although the memory is accessible, we lack the necessary cues (triggers) to retrieve the memory. Context cues help to take you back to the place where the memory was encoded, so helps to trigger the memory. State cues help to take you back to the emotional or physical state you were in when the memory was encoded, so helps to trigger the memory.

Core Study #1 Criticisms:

- May have caused psychological distress over 21 years
- Confidentiality not maintained
- Hard to generalise

Core Study #1: Wilson et al. (2008)

- **Aim:** to report on the case of Clive Wearing (amnesic syndrome)
- **Longitudinal case study** over 21 years of Clive Wearing.
- Used **neuropsychological tests** such as **IQ tests**, and **MRI scans** to test his STM and LTM and to see the amount and location of damage in his brain.
- Developed headache and fever and then admitted to hospital with Herpes Simplex Viral Encephalitis. Virus destroyed large parts of his brain. Developed auditory hallucinations and showed abnormalities in **hippocampal formations**, **amygdala** and other brain areas, but IQ tests were in the average range, but less than they would have been before his illness.
- **Results:**
  - Severe brain abnormalities, both retrograde and anterograde amnesia, inability to form new memories, loss of semantic memory and damaged episodic memory.
  - Wearing showed delusions and failed to accept problems with his memory.
  - Lacked autobiographical consciousness (unable to create new autobiographical memories).
- **Conclusion:** Sense of self affected and brain damage has led to amnesia and memory issues. Unable to rehearse information to commit to LTM.

Memory

Applications: techniques used for recall in advertisements

Cues

- Advertisers use cues to create a certain context or feeling when advertising their products.
- When the consumer is in the same situation or emotional state, the advert will act as a cue to trigger their memory of the product.
- Non-verbal cues such as a model in the advert can increase how much we want the product, too.

Repetition

- Advertisers use repetition to build a familiarity with their brand and to promote positive feelings about their product.
- Simply repeating a slogan or message will increase the likelihood of it entering LTM.

Avoiding overload

- Overload = Too much information entering a memory store.
- In advertising, this can occur when customers are exposed to too much information in an advert which can lead to displacement.
- Slogans need to be kept short and product details at a minimum.

Autobiographical advertising

- Reminding people of a time in their lives when they were young and free to encourage positive memories associated with their product.

Measuring memory

- Weschler Memory Scale - evaluates the extent of brain damage in patients with a brain injury or dementia.
- Tests whether different types of memory are functioning correctly.

Core Theory #2: Reconstructive Memory

Memory is influenced by our prior experiences and schemas (mental representation of an object or situation).

- **Schemas** - people construct their memories based on prior experiences, but we don't tend to recall them in **chronological order**. We can be flexible and access what we need to when we need to. Our own opinions and beliefs can influence the memory.
- **Experience** - memory is influenced by prior experiences, so it is not always entirely accurate when recalled.
- **Expectation** - help us make quick judgements about how to act in different situations. May not always be correct, but help to respond quickly.
- **Confabulation** - making up details to create a more complete memory to fill in any blanks. People don't do this on purpose.
- **Distortion and leading questions** - memories can differ from the event which took place. Leading questions can influence what people remember.

Core Theory #2 Criticisms:

- Too reductionist
- Doesn't explain how memories are processed
- Difficult to test

Core Study #2 Criticisms:

- Age bias
- Unethical to manipulate memory
- Lacked ecological validity

Core Study #2: Braun et al. (2002)

Experiment 1

- **Aim:** to see whether autobiographical advertising affects how consumers remember a prior childhood experience.
- **Laboratory experiment** with an **independent measures design**. Used **questionnaires** and **self-report**.
- Participants shown either a Disney advert or a control advert and then had to complete a questionnaire on 20 childhood events (Life Events Inventory) including 'met and shook hands with a favourite TV character'.
- **Results:**
  - 65% who received autobiographical advert mentioned memories of Disney World.
  - 74% reported the advert caused them to imagine the experience.
  - More positive thoughts about Disney compared to control group.

Experiment 2

- **Aim:** to see whether false information in an advert could implant false memories.
- **Indepenent measures design** on 167 psychology students in USA.
- Same as experiment 1, but more life events added in (shaken hands with Bugs Bunny/Ariel).
- **Results:**
  - Higher amount of confidence in false memory with autobiographical advert.
- **Conclusions:** autobiographical adverts influence how consumers recall their past and can create false memories.

Sleep & Dreaming

Key Concepts:

- **Universal** behaviour
- **Instinctive** and **necessary for survival** (evolved behaviour)
- Functions of sleep: Keeps us safe, healthy brain that functions normally, physical repair to return the body to a normal, healthy state, emotional stability (feeling normal and psychologically healthy).
- **Sleep cycle (90 minutes)**
  - Stage 1 - 10%
  - Stage 2 - 50%
  - Stage 3 - 10%
  - Stage 4 - 10%
  - Rapid Eye Movement (REM) - 20%
- **Neuropsychology**
  - **Endogenous pacemakers -** internal biological clocks that manage circadian rhythms (e.g. Suprachiasmatic nucleus)
  - **Exogenous Zeitgebers** - features of the environment that manage circadian rhythms (e.g. light)
  - **Hypothalamus** - part of the brain that controls key bodily functions
  - **Melatonin** - hormone that induces sleep. Released by the pineal gland.

Core Theory #1: Freudian Theory of Dreaming

A theory that looks at behaviour as a produced of the different parts of the personality.

- Human mind is mainly made by of the **unconscious mind** (part of the mind that people are not aware of but holds thoughts and memories).
- Actions are motivated by unconscious urges and desires.
- Id (instinctive drive), ego (keeps a balance between reality and desires) and superego (moral compass).
- **Repression** (defence mechanism) - pushing unpleasant thoughts into the unconscious mind to protect yourself.
- Dreams act as **wish fulfilment** of their deepest urges and desires that have been repressed.
- Dreams have **manifest content** (actual content of the dream) and **latent content** (what the true meaning of the dream is).

Core Theory #1 Criticisms:

- Too subjective
- Difficult to test and based on unreliable research
- Cultural and historical bias

- **Sleep disorders**
  - **Sleep onset insomnia** - problems falling asleep. Often caused by anxiety, caffeine, heavy meal before bedtime, playing computer gams etc.
  - **Sleep maintenance insomnia** - problems staying asleep. Often caused by depression, alcohol, restless legs syndrome, sharing a room with a snorer, menopause etc.

Core Study #1: Freud (1918)

- **Aim:** to explain and treat the Wolfman's depression through dream analysis.
- **Case study** involving a series of **interviews** with Sergei Pankejeff (Wolfman). **Longitudinal study** over 15 years.
- Analysed childhood dream involving wolves in a tree outside Pankejeff's window.
- **Results:**
  - Pankejeff had witnessed his parents having sex at a young age, so had unconscious desires to be seduced by his father.
  - Afraid of father's power over mother's pleasure, he developed **castration anxiety**.
  - Repressed unconscious fear of his father.
- **Conclusion:** unconscious mind influences behaviour as traumatic events are pushed into the unconscious mind as a safety mechanism. Repressed memories find their way back into the conscious through dreams.

Core Study #1 Criticisms:

- Small sample
- Cannot easily be proven by research.
- Study is too subjective.

Sleep & Dreaming

Applications - treatments for insomnia:

- **Neurological damage to the hypothalamus** - injury or disease to the hypothalamus, where the SCN is located, can lead to sleep issues such as insomnia. This can be due to melatonin production issues due to the SCN not processing light etc. Some patients given a substitute melatonin.
- **Relaxation techniques** - rebalance nervous system. Anxiety causes SNS to respond, but relaxing encourages PNS to balance the nervous system.
    - Clearing the mind
    - Deep breathing
    - Relieving tension in the body
- **Sleep Hygiene Education**
    - Physical environment should promote good sleep. Dark, quiet, good temperature, comfortable bedding, no screens.
    - Reducing alcohol, caffeine and nicotine intake.
    - Do regular exercise, avoid naps and expose yourself to natural daylight.

Core Theory #2: Activation Synthesis Theory

Dreams occur when the mind tries to make sense (synthesise) of the brain activity happening during sleep (activation). Dreams have no real meaning.

1. Just before and during REM sleep, signals arise from the **pons** (message station in the brain) in the **brainstem**, and from the **neurons** that move the eyes, and activate the **limbic system** (memories and emotions) and **occipital lobe.**
2. These signals cause a surge of stimulation through the brain activating the **cerebral cortex**. This tries to attach meaning to the signals.
3. In order to synthesise the signals, the brain draws upon stored memories and produces strange images.

Core Theory #2 Criticisms:

- Reductionist as dreams are more complex than this
- Doesn't explain recurring dreams
- Patients with damage to the brainstem do not stop dreaming.

Core Study #2: Williams et al. (1992)

- **Aim:** to assess the bizarreness of dreams and fantasies to support the AST.
- **Natural experiment** comparing dreamsn and fantasies using **self-report.**
- 12 students at Harvard asked to keep written journal of dreams and fantasies. These were then selected for **quantitative analysis** and scored on a bizarreness scale on plot, thoughts of character, emotions of character and ad hoc (anything else).
- Reports were judged separately by 3 judges so that **inter-rater reliability** could be tested.
- **Findings:**
    - Judges agreed 80% of the time.
    - 7/12 participants had dreams with higher bizarreness scores than fantasies.
- **Conclusion:** brain activity during REM sleep is why dreams are more bizarre than fantasies during wake time, but there is some overlap when the brain is awake but inattentive.

Core Study #2 Criticisms:

- Relied on self-report
- Social desirability bias
- Sample difficult to generalise

Research Methods

Hypotheses and variables

- **Hypothesis** = prediction
- **Alternative hypothesis** = predicts a difference in results (There will be a significant difference…)
- **Null hypothesis** = predicts no difference in results (There will be no significant difference…)
- **Directional hypothesis** = predicts the direction results will go
- **Non-directional hypothesis** = does not predict the specific directions results will go
- **Variables** = anything that can change
- **Independent variable** = what the researcher manipulates or changes
- **Dependent variable** = what is being measured by the researcher
- **Extraneous variables** = anything that can influence the results
- **Standardisation** = controlling extraneous variables by keeping them the same across conditions
- **Confounding variables** = anything that does change the results
- **Cause and effect** = one variable affecting a change in another
- **Co-variable** = something that changes in relation to another variable

Experimental design

- **Experimental design** = the way participants are allocated into conditions
- **Repeated measures design** = all participants take part in each condition
- **Independent measures design** = participants are different in each condition

Experimental methods

- **Experiments** - measure the effect of an IV on a DV
  - Laboratory = controlled, artificial environment where the researcher manipulates the IV.
  - Field = natural environment where the researcher manipulates the IV.
  - Natural = IV not directly controlled by the experimenter but is naturally occurring.
- **Interviews** - uses self-report method to talk about their own thoughts, behaviours or experiences.
  - Structured = pre-determined questions
  - Unstructured = questions vary depending on the interviewee's answers
- **Questionnaires** - uses self-report method to answer a series of written questions
  - Open questions = no fixed responses so participants can respond how they wish
  - Closed questions = participants have to choose from a set of responses e.g. multiple choice or rating scales
- **Observations** - researcher watches the behaviour of the participants
  - Naturalistic = observing people in a real life setting
  - Controlled = observing people in an artificial environment
  - Overt = observing people with their knowledge
  - Covert = observing people without their knowledge
  - Participant = observing people while joining the group
  - Non-participant = observing people from a distance
- **Case studies** - collecting detailed information on one person or a small group of people to gain qualitative data.
- **Correlations** - measuring two co-variables to see if there is a relationship between them to gain quantitative data.
  - Positive correlation = when two variables travel in the same direction
  - Negative correlation = when two variables travel in the opposite direction
  - Zero correlation = when two variables show no relationship
  - Correlation coefficient = a score that measures the strength and direction of the relationship between two co-variables.
- **Longitudinal study** - a study that takes place over a long time period.
- **Cross-cultural study** - a study that takes place across different cultures.

Research Methods

Populations and sampling

- **Sample** = a group selected from a larger population
- **Target population** = entire set of people psychologists want to research
- **Representative** = accurate reflection of a larger group
- **Generalisability** = ability to draw conclusions that apply to a larger

Sampling Methods

- **Random sampling** - using chance
- **Opportunity sampling** - using convenience
- **Self-selected sample** - using volunteers

Types of data

- **Quantitative data =** data involving numbers
- **Qualitative data** = descriptive data involving words
- **Primary data** = information collected first hand
- **Secondary data** = information used but collected by another researcher

Ethical Issues/guidelines

- **Ethics** - what is morally right or wrong
- **Protection from psychological harm** - participants should not be caused distress, discomfort or embarrassment.
- **Deception** - psychologists should not unnecessarily deceive participants by misleading them.
- **Informed consent** - participants should be informed about the study so they can make a choice about taking part.
- **Debriefing** - dealing with ethical issues by informing them of the aim at the end of the study to fully understand what has taken place. Counselling may be offered in some cases.
- **Right to withdraw** - participants can leave at any point or have their data removed from the study.
- **Confidentiality** - making sure participants are kept anonymous and unidentifiable.

Reliability, validity and bias

- **Reliability** = how consistent or replicable something is (can it be repeated to get the same results?)
  - Internal reliability = making sure the measure is consistent within itself
  - External reliability = making sure it is consistent across situations
  - Inter-rater reliability = where two or more researchers agree on a set of results
- **Validity** = how true or accurate something is
  - Ecological validity = how far it can be generalised to real life
  - Construct validity = how far a variable is measured in relation to the whole concept
  - Population validity = how far the sample represents the target population
- **Bias** = when a study is influenced by the experimenter or the participants
  - Demand characteristics = cues from the study that give away the aim of the experiment, which causes the participants to behave differently to try to help the researcher.
  - Observer effect = participants acting differently because they know they are being observed
  - Social desirability bias = pressure to respond in a way they think is expected or acceptable
  - Gender bias = favours one gender over another
  - Cultural bias = favours particular cultures over others
  - Age bias = favours certain age groups over others
  - Experimenter bias = favours one psychological theory over another
  - Questioning bias = phrasing questions to favour one view over others

Research Methods/Evaluation

Evaluating Studies

G **Generalisability** - can we generalise the results of this study to the target population? How big was the sample, was it representative?

R **Reliability** - Can this study be replicated? Would we get the same results again? How good are the controls?

A **Application** - Do the findings of this study suggest any practical applications? Is it relevant to any real-life situations?

V **Validity** - Is this study measuring what it says it is measuring? Are the tasks given to the participants natural? Is the setting natural?

E **Ethics** - Has this study breached any of the ethical guidelines? Were participants at risk, their privacy invaded, their rights violated? Were they lied to?

Evaluating theories

D **DETERMINISM**

Is there a choice in people's behaviour or not? What factors determine their behaviour?

R **REDUCTIONISM**

Does it over simplify behaviour? Or does it take lots of factors into account (holism)

U **USEFULNESS**

Where can it help us in real life?

M **METHODOLOGY**

What methods does it use - good or bad?

S **SUBJECTIVE**

Is it based on opinion or fact? The more scientific something is the more **objective** it is, the less scientific it is, often the more **subjective** it is.

Analysing data

Descriptive Statistics

- **Measures of central tendency** = an average taken from a data set (mode, median, mean)
- **Measures of dispersion** = how spread out the scores are (range)
- **Standard form** = a way of writing very large or small numbers using the digits 1-9.
- **Significant figures** = the amount of digits that carry meaning (how accurate it is)
- **Normal distribution** = where data follows a "bell shaped" curve
- **Skewed distribution** - where data has an asymmetric curve to one side

Tables, charts and graphs

- **Frequency table/tally chart** = records how often different measures occur
- **Bar chart** = presents data to represent frequencies of different categories
- **Pie chart** = presents data using proportions
- **Line graph** = presents data using a line to show changes in frequency
- **Histogram** = presents data to show changes in frequencies or sets of scores
- **Scatter diagram** = presents data by plotting scores to see if there is a relationship between two variables

Psychological debates

Nature vs. Nurture

- **Nature** = all of the genetic and hereditary factors that influence who we are—from our physical appearance to our personality characteristics.
- **Nurture** = all the environmental variables that impact who we are, including our early childhood experiences, how we were raised, our social relationships, and our surrounding culture.
- Today, most experts recognize that both factors play a critical role. Not only that, they also realize that nature and nurture interact in important ways all throughout life.

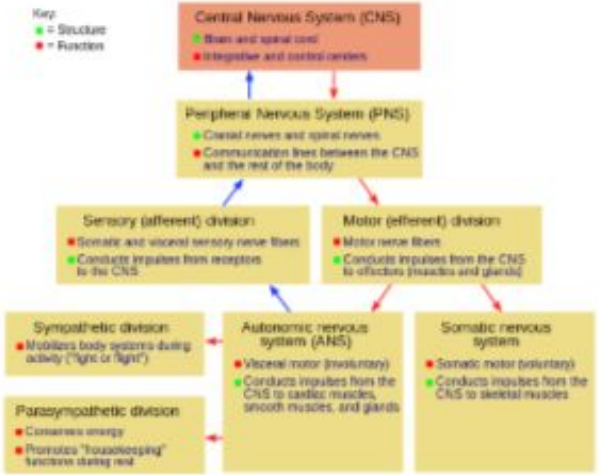
Freewil vs. determinism

- **Freewill** = we have a choice in how we behave. Mental illnesses can undermine this.
- **Determinism** = all behavior is decided already and therefore behaviour is predictable. Can be determined by genetics, environmental factors, society, personality etc.

Reductionism vs. holism

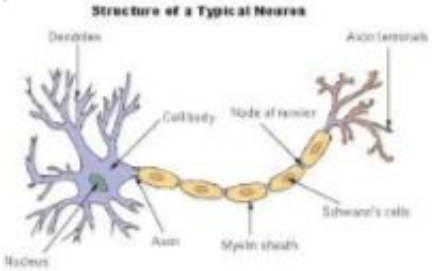
- **Reductionism** = the belief that human behavior can be explained by breaking it down into smaller component parts. The best way to understand why we behave as we do is to look closely at the very simplest parts that make up our systems, and use the simplest explanations to understand how they work.
- **Holism** = the belief that human behaviour can be explained by looking at the whole picture.

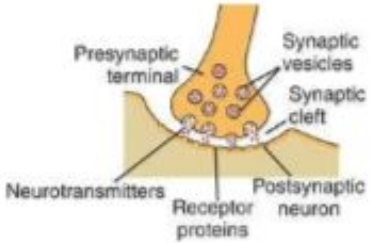
GCSE Psychology: The brain and neuropsychology



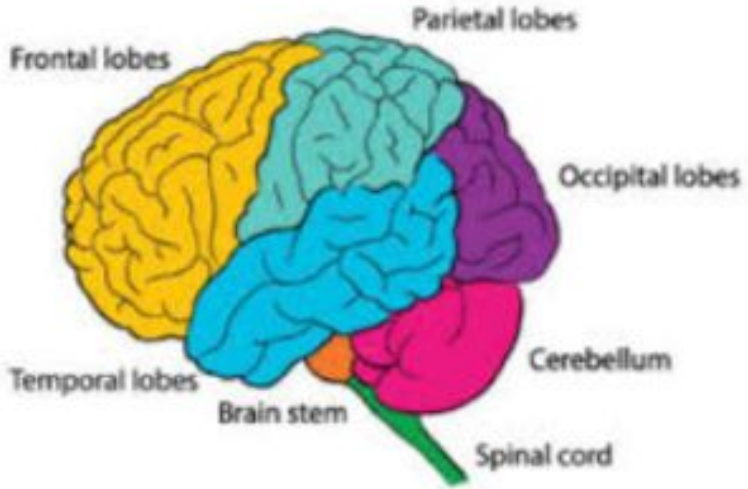
Nervous system	
Sensory information	Information which is picked up by the sense organs of the body and passed on to the CNS.
Stimulus	Something that is detected by the sense receptor which the nervous system will react to.
Fight or flight response	An autonomic reaction to threat stimulated by the ANS and maintained by the endocrine system, which activates the body's reserves of energy to prepare for it.
Emotion	The moods or feelings that a person experiences.

Neurons and synaptic transmission	
Neuron	A specialised nerve cell which generates and transmits an electrical impulse.
Sensory neuron	A nerve cell that picks up information from sense receptors and carries it to the CNS.
Motor neuron	A nerve cell that takes messages from the CNS to muscles to cause them to move.
Relay neuron	A nerve cell that passes messages within the CNS.
Neurotransmitter	A chemical which is released into the synapse by one neuron, and picked up by the next neuron.
Hormone	Special chemical messengers in the body that are created in the endocrine glands.
Excitation	When a neurotransmitter binds with a receptor on the next neuron, and increases the chance that the next neuron will fire an electrical impulse.
Inhibition	When a neurotransmitter binds with a receptor on the next neuron, and decreases the chance that the next neuron will fire an electrical impulse.
Neuronal growth	When a neuron repeatedly excites another neuron, leading to a change (or process of growth) in one or both of the neurons.
Reuptake	A process by which a neurotransmitter is reabsorbed into the synaptic knob after it has been used during synaptic transmission.
Synapses	The small gap between the dendrite of one neuron and the receptor site of the next one.
Synaptic transmission	The process by which messages are passed from one neuron to another by sending neurotransmitters across the synaptic gap, so they can bind with receptors on the next neuron.





Brain structure and function	
Frontal lobe	The area of the brain that controls cognitive processes such as thought and memory.
Occipital lobe	The area of the brain where visual information is processed.
Parietal lobe	The area of the brain responsible for integrating information from other areas to form complex behaviours.
Temporal lobe	The area of the brain responsible for aspects such as the comprehension and production of spoken language.
Cerebral cortex/Pre-frontal cortex	The folded outer layers of the cerebellum. Controls complex cognitive behavior, personality expression, decision making, and moderating social behaviour.
Cerebrum	The largest part of the brain in humans, which consists of two large cerebral hemispheres.
Cerebellum	Receives information from the sensory systems, the spinal cord, and other parts of the brain and then regulates motor movements.
Hypothalamus	Responsible for secreting hormones and neurotransmitters.
Brainstem	Controls the flow of messages between the **brain** and the rest of the body, and it also controls basic body **functions** such as breathing, swallowing, heart rate, blood pressure, consciousness, and whether one is awake or sleepy.
Pons	Message station between different areas of the brain.
Grey matter	contains most of the brain's neuronal **cell** bodies.
White matter	Carries nerve impulses between neurons.



Other	
MRI (magnetic resonance imaging)	A type of scan that uses strong magnetic fields and radio waves to produce detailed images of the inside of the body.
EEG (elecroencephalograph)	A type of scan used to show brain activity.
PET (positron emission tomography)	A type of scan used to show brain processes.
Neurological damage	Damage to an area of the brain that results in the destruction of brain cells.