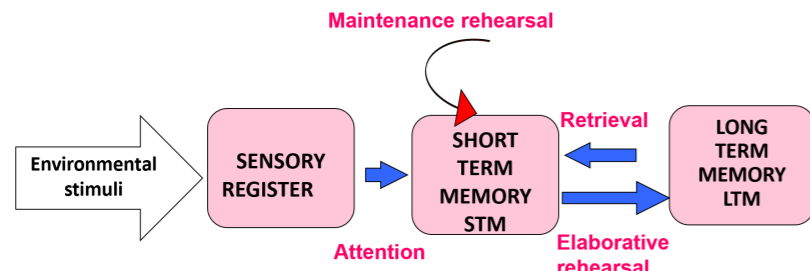


Psychology: Knowledge Organiser. Paper 1: Memory

The Multi-Store Model of Memory

- Atkinson and Shiffrin (1968)
- Memory is made up of 3 components: sensory register, STM & LTM
- Memories are formed sequentially and information passes from one component to the next.
- Each component has a specific type of coding, duration and capacity.



	Sensory Register	Short-Term Memory	Long-Term Memory
Capacity	Very large	Limited Jacobs: 7+/-2	Unlimited
Duration	Very limited (250 ms)	Limited Peterson and Peterson: 20 seconds)	Lifetime/years Bahrick
Coding	Unprocessed—all 5 senses	Baddeley: Acoustic	Baddeley: Semantic (meaning)

- ☺ Brain scanning techniques support the existence of separate STM and LTM stores: **Beardsley**.
- ☺ Case study evidence supports the distinction between STM and LTM: **Clive Wearing**
- ☹ Evidence contradicts the idea that STM is a unitary store: **KF case study**. Furthermore, evidence also suggests that there are multiple types of LTM.
- ☹ Alternative model of memory: stronger supporting evidence for WMM.

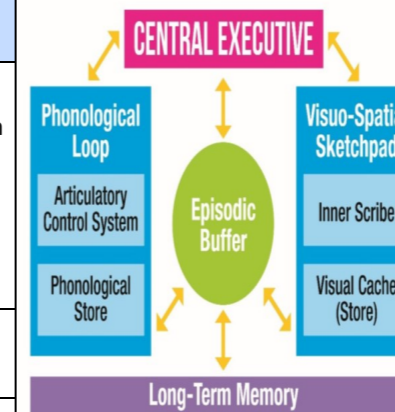
EWT: Misleading information

- Leading questions: **Loftus and Palmer: experiment 1**: 45 PPs shown films of car accident and asked a specific question—verb manipulated: How fast were the cars going when they X each other?"
- Smashed = 40.5mph and contacted = 31.8mph. Shows accuracy of EWT affected by leading questions.
- **Loftus and Palmer: experiment 2**: 150 students "Did you see any broken glass" (there was none).
- 32% questioned with verb smashed said yes compared to 14% of participants questioned with the verb hit. Shows questions can distort memories.
- ☹ Low ecological validity. eyewitnesses to real accidents have a stronger, emotional connection—may not be susceptible to leading questions in the same way.
- ☹ lacks population validity: others may be more accurate in their judgement and less susceptible to misleading questions.
- ☺ Application of their findings to the criminal justice system.
- Post event discussion: Gabbert et al: 71% of PPs who discussed an event before recall mistakenly recalled information and 60% said the girl was guilty despite not seeing her.
- ☹ Low ecological validity: does not reflect everyday examples of crime.
- ☺ High population validity: university students and older adults—little difference found
- ☹ Further research required: was it post event discussion or conformity that explains findings?
- ☺ Real world application: keep eyewitnesses apart.

The Working Memory Model

- Baddeley and Hitch (1974)
- A model of STM
- Multi-component system, which consist of a central executive, phonological loop and visuo-spatial sketchpad.
- STM is an active system that allows us to work things through: two tasks can be carried out simultaneously In STM if they are being dealt with by different parts.

	Central Executive	Phonological Loop	Visuo-Spatial Sketchpad
Function	Control centre (boss) of the WMM; supervisory function and controls the slave systems	Temporary storage system for verbal information, held in speech-based form.	Temporary storage system for visual and spatial information.
Capacity	Limited capacity	Limited capacity	Limited capacity
Coding	Any sensory modality	Acoustic information	Visual and spatial information



- ☺ Research evidence on dual task techniques supports the existence of multiple components within STM and supports the idea of a separate phonological loop and visuo-spatial sketchpad: **Baddeley and Hitch study**
- ☺ The research into **KF case study** supports the WMM and the idea of two slave systems, the phonological loop and the visuo-spatial sketchpad, therefore providing support to the WMM and the idea of a multi-component STM system.
- ☹ Lack of clarity about the central executive: too vague and simplistic: **Eslinger et al**.

EWT: Anxiety

- Weapon Focus Effect: witness focus attention on the weapon—causes anxiety - leads to difficulties in recalling the other details accurately
- **Johnson and Scott: Lab experiment**: witnesses who saw a man holding a pen: 49% identified culprit compared to witnesses who saw man holding a knife: 33%. Shows anxiety reduces accuracy in EWT.
- ☹ Further Low ecological validity and ethical issues broken
- ☺ Reduced demand characterises
- ☹ **Pickel**: Weapon focus is caused by surprise rather than anxiety.
- **Yuille and Cutshall: Real life shooting**; witnesses were very accurate 5 months later. Those who reported the highest levels of stress were the most accurate. Shows real life anxiety = positive effect on accuracy.
- ☹ Doesn't account for individual differences (**Bothwell**).

EWT: Cognitive Interview

- Improving EWT: 4 techniques

 1. Report everything: free recall.
 2. Context reinstatement: mentally recreate the situation. Context dependent forgetting.
 3. Changed perspective: other witness. Disrupts schema.
 4. Recall in reverse order: different chronological order. Prevents dishonesty and reporting schemas.

- Key study: Geiselman—pps interviewed using the CI recalled significantly more correct information than those using the standard interview.
- ☺ Supporting evidence: **Kohnken et al**
- ☹ Increases the amount of inaccurate information (**Kohnken**).
- ☺ Real world application
- ☹ Real world application—practical issues.

Types of LTM

- All types of LTM are categorised as either explicit (declarative) or implicit (non declarative).
- Explicit memories: knowledge for events and facts (knowing that).
- Implicit memories: skilled behaviours (knowing how)

	Episodic	Semantic	Procedural
Explicit or implicit	Explicit	Explicit	Implicit
Type of memory	Personal experience	Knowledge	Performed tasks or skills
Brain region	Hippocampus	Temporal lobe	Cerebellum and motor cortex

- ☺ Neuroimaging evidence supports there are different types of LTM: **Tulving et al**.
- ☺ Case study evidence to support different types of LTM: **HM & PM**.
- ☹ case study evidence needs to be treated with caution
- ☺ Real world application: **Belleville et al**

Forgetting: Interference

- Proactive: Past learning interferes with new learning. Key study: **Keppel and Underwood**.
- Retroactive interference: New learning interferes with past learning. Key study: **Baddeley and Hitch**.
- ☺ Supporting evidence for retroactive interference: **McGeogh et al**.
- ☹ Most of the research examining interference is carried out in a laboratory: the findings do not represent everyday examples of interference and are limited in their application to human memory.
- ☹ Limited real world application.
- ☹ Evidence suggests that some people are less affected by proactive interference than others: **Kane and Engle**.

Forgetting: Retrieval failure

- Context dependent: Memory recall is better when the environment is the same as where it was learnt. Key study: **Godden and Baddeley**
- State dependent: Memory recall is better when your mental state is the same as when you learnt it: Key study: **Carter and Cassaday**
- ☺ Research support: **Godwin (1969) and Darley (1973)** support emotional physiological state at time of encoding is important at the time of retrieval.
- ☺ Real world application: exams—study by **Smith** and the cognitive interview.
- ☹ Information we learn is related to a lot more than cues e.g. meaningful material.
- ☹ Issues determining cause and effect

Psychology: Knowledge Organiser. Paper 1: Social Influence

Types of conformity

- Internalisation: accepting group norms, results in a private as well as public change of opinions/behaviour.
- Identification: is wanting to be like the group, public and private change.
- Compliance: is public change only, superficial.

Explanations for conformity

WHY people conform

- Informational social influence (ISI) is about information, the desire to be right. Cognitive process
- Normative social influence (NSI) is about norms, desire to be liked by other group members and to fit in. Emotional process.
- ☺ Research support NSI: **Asch**: When no normative group pressure (wrote answers), conformity down to 12.5%. Research support: ISI: **Jenness**: difficult task 'guess the number of jelly beans' more conformity following group discussions.
- ☹ Do not account for individual differences: **Perrin and Spencer** only 1 conforming engineer in 400 trials.
- ☺ Real world applications: **Schultz et al** found guests in an experimental room reduced need for fresh towels by 25% compared to controls.

Variables affecting conformity: Asch

- Procedure: line lengths (standard line and choice of 3 comparison lines), 123 American male student participants, confederates gave wrong answers.
- Findings: naïve participants conformed 36.8% of time, 74% at least once.
- Variables investigated by Asch
- Group size: three confederates 31.8% conformity, more made little difference.
- Unanimity: presence of a dissenter reduced conformity
- Task difficulty: conformity increased with harder task, showing informational social influence.
- ☺ Supporting research: **Crutchfield** found similar levels of conformity to Asch—30%
- ☺ Scientific procedure of Asch's method: control group 3 mistakes in 720 trials. Increases validity
- ☹ Lacks temporal validity: 'child of its time' conformity higher during this time. **Perrin and Spencer: engineers**.
- ☹ Limited application of findings: doesn't reflect real life conformity.

Conformity to social roles: Zimbardo

- Procedure: 21 student volunteers: mock prison, randomly allocated to roles. Uniforms created social roles. Instructions about behaviour underlined social roles e.g. prisoners asking for parole, guards told they had complete power.
- Findings and conclusions: Identified with roles—guards became increasingly aggressive. Prisoners rebelled but passive after guards responded, SPE ended early (after 6 days).
- Most conformed to their social roles, shows the power of social roles.
- ☺ Real world application: findings can be used to explain torture of prisoners in Abu Gharib.
- ☺ Control: selection of participants increased internal validity.
- ☹ Lack of realism: participants displayed demand characteristics 'play acting stereotypes'. *counterpoint: 90% of prisoner conversations were about prison life.
- ☹ Findings have not been replicated: **Reicher and Haslam**.

Obedience: Milgram's research

- Baseline study procedure: 40 naïve American male volunteers gave 'shocks' to a 'learner'. An experimenter (white lab coat) ordered participants to continue giving shocks, using standardised prods. Shock machine went to 450 V.
- Findings and conclusions: all participants gave at least 300 V, 65% gave 450 V. Qualitative data: participants showed anxiety e.g. sweating. Prior to study 14 students predicted 3% would give 450 V.
- Conclusion: ordinary people are willing to obey a legitimate authority figure, to the extent to which they will hurt an innocent person.
- ☺ Supporting evidence: French reality TV show—80% went to 460 V
- ☹ Low internal validity: Participants guessed shocks were fake.
- ☺ Similar findings when using real shocks on puppy's **Sheridan and King**: 54% males and 100% females.
- ☹ Lacks external validity: high levels of obedience due to artificial environment.
- ☺ Milgram's findings have been replicated outside the lab: **Hofling** 21/22 nurses obeyed unjust instructions from a doctor.

Minority Influence

- Internalisation: minority influence private as well as public view is changed.
- Consistency: minority members share the same belief and retain over time.
- Commitment: Gains attention. E.g. through extreme activities (argumentation).
- Flexibility: Avoid rigidity, accept reasonable counterarguments, balance with consistency.
- Explaining the process: minority over time gradually becomes majority through conversion (snowball effect).
- Moscovici et al's research: The blue-green slides' study, 8.2% conformed to consistent minority, 1.25% conformed to inconsistent minority.
- ☺ Research support for consistency: **Moscovici**—'blue green slides' & **Wood** 'meta analysis'.
- ☺ Research evidence support for flexibility: **Nemeth** ski lift accident simulated jury. Implications from this research.
- ☹ Methodological issues with the research: unlike real world (e.g. jury decisions) so studies lack external validity.

Obedience: Situational variables

- Proximity: Teacher & learner—same room, obedience from 65% to 40%. Touch —Teacher forced learners hand on plate 30% obedience. Remote instruction—orders from experimenter over phone, 20.5% obedience. Explanation: less proximity, more psychological distance and more obedience.
- Location: Experiment conducted in run-down building, 47.5% obedience. Explanation: university has authority, run-down office hasn't so less obedience.
- Uniform: Member of public in everyday clothes gave orders, 20% obedience. Explanation: uniform is a strong symbol of authority.
- ☺ Research support: uniform conveys authority/increases obedience (**Bickman**).
- ☺ Scientific procedures: high levels of control across all variations = high internal validity.
- ☹ Variations lack internal validity: variations = especially contrived, participants knew procedure was fake.
- ☹ Practical applications = limited, offensive to generalise findings to Nazis and the holocaust victims.


Obedience: Situational explanations (social-psychological)

- Agentic state: Become 'agent' of authority, losing personal responsibility. Autonomous state: free to act according to conscience. Switch from autonomous to agentic state is called agentic shift. Binding factors reduce moral strain and avoid damaging effects of obedience.
- Legitimacy of authority: Accept some people's authority, agreed by society. Hand over control to trusted authority, learned to do so in childhood. History shows leaders often use legitimate authority destructively.
- ☺ Supporting evidence (legitimate authority): **Bickman** & can explain real life war crimes (My Lai).
- ☺ Research support (agentic state) Milgram's resistant participants shock when experimenter took responsibility.
- ☹ Agentic state does not explain all research findings.

Obedience: Dispositional explanations

- Adorno—unquestioning obedience is based on personality. Extreme respect for authority and submissiveness to it, contempt for 'inferiors'. Originates in childhood through strict parenting. Child's hostility towards parents displaced onto weaker others (scapegoating). Authoritarian personality = Highly obedient to authority.
- Adorno et al's research: procedure: F-scale measured authoritarianism of 2000 Americans. Findings: high F-scale scorers showed deference to people of higher status, fixed cognitive style and prejudiced attitudes.
- ☺ Research support obedient participants had high F scale scores (**Ems and Milgram**).
- ☹ Limited explanation: can't explain obedience across a whole culture. Alternative explanation: situational factors.
- ☹ Politically biased: related to right-wing authoritarianism, can't explain left wing authoritarianism.

Resistance to social influence.

- Social support: Conformity reduces if a peer dissents (**Asch**) because they act as a model—shows majority is not unanimous. Obedience reduces if there is one dissenter, undermines legitimacy of authority (**Milgram** study 65% down to 10%).
- ☺ Research: **Albrecht et al**: having a buddy helped teens resist smoking pressure.
- ☺ Findings = real world application: disobedient peers applied to German women protest in the Rosenstrasse
- Locus of control: Internals place control within themselves, externals place it outside. There is a continuum with high internal LOC at one end and high external LOC at the other end—low internal and low external lying in between. Internals can resist social influence, more confident, less need for approval.
- ☺ Supporting evidence: **Holland**: internals less likely to obey in Milgram-type procedure. **Shute**: internal LOC conformed less to expressing pro drug attitudes.
- ☹ Contradictory evidence: people now more independent but also more external (**Twenge**). 

Social Influence and Social Change

- Lessons from; minority influence: drawing attention, consistency, argumentation principle, snowball effect, social cryptomnesia. conformity research: Dissenter breaks power of majority (**Asch**), campaigns use NSI. Obedience research: Disobedient model promotes social change (**Milgram**), gradual commitment (**Zimbardo**).
- ☹ Role of minority influence can be questioned: **Bashir** found some minority groups are associated with stereotypes that the majority don't want to be associated with. How much role do they have—effects are fragile.
- ☺ Research support for NSI: reduced peoples energy use (**Nolan**) ☺ Student drinking behaviour didn't change due to NSI (**DeJong**)
- ☹ Role of deeper processing—majority not minority influence makes people think more deeply (**Mackie**)

Psychology: Knowledge Organiser. Paper 1: Attachment

Caregiver-infant interactions

- From a very young age babies have meaningful interactions with caregivers.
- Reciprocity: baby & caregiver take turns, respond to and elicit responses from each other. Like a dance. Babies have alert phases in which they seek interactions. Babies take an active role. They are not passive recipients of care.
- Interactional synchrony: babies & caregivers mirror each others expressions and gestures. The beginnings of synchrony can be seen in babies as young as two weeks (**Meltzoff and Moore**). Good levels of synchrony are associated with good quality attachments.
- ☺ Filmed observations of interactions, analysed later, can establish inter-rater reliability and babies not aware of being observed. Increases validity.
- ☹ Difficultly observing babies: hard to know what their expressions/gestures mean.
- ☹ Developmental importance: behaviours can be reliably observed but this doesn't reveal their importance.
- ☺ Counterpoint: evidence (e.g. **Isabella et al**) does support the importance of early interaction in attachment.

Schaffer's stages of attachment

- Asocial: first few weeks, baby behaves in same way to humans as inanimate objects.
- Indiscriminate: preference for (familiar) people, no strangers/separation anxiety.
- Specific: at about 7 months with one primary attachment figure (65% were to the mother).
- Multiple attachments: by 12 months most babies form several more attachments.
- Schaffer & Emerson's research: 60 Glasgow babies observed at home by mothers, reported on separation anxiety and stranger anxiety. Findings: babies developed attachment through a fixed sequence of stages.
- ☺ Good external validity: mothers did observe so babies not stressed by presence of a researcher.
- ☹ Poor evidence for asocial stage, babies have poor coordination, so may just seem asocial.
- ☹ Real-world application: day care ok in asocial and indiscriminate stages, starting at specific attachment stage is undesirable.

Explanations of attachment: Bowlby's theory

- Attachment is innate and adaptive: evolutionary survival advantage.
- Social releasers: innate cute behaviours activate attachment in adults. Critical period: maximally sensitive up to 6 months although may extend to up to 2 years. Monotropy: attachment to one person, is different and special. Internal working model: first attachment is template for later relationships.
- ☺ Research support: **Lorenz** (critical period) & **Hazan & Shaver** (internal working model).
- ☹ Validity of monotropy challenged, primary attachment may not have unique qualities. (**Schaffer & Emerson**).
- ☺ Counterpoint: research support for social releasers, babies distressed when 'cute' signals ignored (**Brazelton**).
- ☹ **Rutter**: 'Sensitive period' instead of 'critical period'.

Explanations of attachment: learning theory

- Classical conditioning: UCS (food) produces UCR (feeling of pleasure). Caregiver (NS) associated with food becomes CS, produces pleasure (CR) and feelings of love for caregiver (an attachment is formed).
- Operant conditioning: crying reinforced because produces caregiver response. Negative reinforcement, caregivers response reinforced because crying stops.
- Drive reduction: attachment is a secondary drive learned by association of caregiver with hunger satisfaction.
- ☺ Some conditioning (association with comfort) could still be involved in selecting the primary attachment figure. ☹ Counterpoint: babies are more active in attachment than this theory suggests.
- ☹ Animal studies show that attachment does not depend on feeding (**Lorenz/Harlow**).
- ☹ Human studies: primary attachment figure not always the person who does feeding (**Schaffer & Emerson**), quality of attachment related to interactional synchrony not feeding (**Isabella et al**).

Cultural variations in attachment

- Van IJzendoorn & Kroonenberg's** research: meta-analysis of 32 studies using Strange Situation in 8 countries/cultures. Findings: secure attachment most common (range from 50% China to 75% Britain). Conclusion: more insecure-resistant type in collectivist cultures (e.g. Japan) than individualist (e.g. US).
- Cultural similarities: **Tronick et al**: supports secure attachment is most common globally. Cultural differences: **Grossman et al**: In German culture, child rearing practises favour independence.
- ☺ Most of the studies were conducted by indigenous psychologists. ☹ Van IJzendoorn's sample was biased.
- ☹ Confounding variables: studies in different countries not matched for sample or method. ☹ Imposed ethic: attachment behaviours may have different meanings to different cultures.

The role of the father

- Attachment to fathers: father primary attachment object in just 3% of cases (**Schaffer & Emerson**). Secondary attachment formed with father within 18 months (75% of cases).
- Distinctive role for fathers: attachment between mother & baby more crucial in later teen attachments (**Grossmann et al**). However, quality of fathers' play with babies linked to later attachments, different role for fathers. Fathers can be primary attachment figures: adopt behaviours typical of mothers (**Field**).
- Key to primary (emotional) attachment is responsiveness of adult (e.g. interactional synchrony) not gender.
- ☹ Research confusion, researchers address different issues on fathers role.
- ☹ Conflicting evidence for distinct role: children without fathers do not grow up different.
- ☺ Real world applications: advising parents about the flexibility in the role of the father.

Romanian orphan studies: institutionalisation

- Rutter et al**: ERA study, 165 Romanian orphans adopted in UK, 52 British adoptees as controls. Findings: children adopted before the age of 6 months had mean IQ of 102 at age 11, adoption after 2 years had mean IQ of 77. Sensitive period: no attachment before 6 months has long term effects (disinhibited attachment).
- Zeanah et al**: BEI project, assessed group of 95 institutionalised Romanian children using Strange Situation. Findings: In institutionalised group only 19% secure attachment, 44% disinhibited attachment (compared to 74% and 20% retrospectively for controls).
- ☺ Real world application: improved caring in institutions (key workers for each child). ☺ Confounding variables: fewer in these studies, no early trauma. ☹ Counterpoint, poor conditions in Romanian orphanages could be a confounding variable. ☹ Lack of adult data e.g. late adopted children may 'catch up'.

Animal studies of attachment

- Lorenz's** research: large clutch of goose eggs, half saw mother within hours of hatching half saw Lorenz. Goslings followed whichever was the first moving object they saw. Conclusion: imprinting occurs only in critical period.
- ☺ Research support: **Regolin et al** observed chicks imprint on shapes. ☹ Generalisability to humans: attachment systems in birds less complex and not two way.
- Harlow's** research: 16 very young rhesus monkeys raised with 'surrogate mothers'. The young monkeys preferred cloth covered mother to plain wire one with milk. Conclusion: contact comfort more important than food in attachment.
- ☺ Real-world value: helps professionals (e.g. social workers) to promote bonding & applied to zoos and breeding programmes.
- ☹ Generalising to humans, monkeys better than birds but human mind and behaviour is still more complex.

Ainsworth's strange situation

- Ainsworth's strange situation: controlled observation in lab, assess quality of caregiver—infant attachment. Behaviours measured including proximity seeking, separation anxiety, stranger anxiety and reunion behaviour.
- Seven episodes (3 min) e.g. stranger enters, caregiver leaves, stranger returns.
- Findings: secure (66% of British babies), secure base and moderate anxiety, easily calmed by caregiver. Insecure avoidant (22%) no secure base, no stranger or separation anxiety, avoids reunion. Insecure resistant (12%) extreme anxiety, resist comfort on reunion with caregiver.
- ☺ Good inter-rater reliability: 94% observers agree on attachment type (**Bick**)
- ☹ issues with overt observation on the mothers behaviour.
- ☹ Culture bound test: strange situation behaviours have different meanings across different cultures.

Bowlby: maternal deprivation

- Continuous maternal care needed for healthy development. Deprivation is loss of emotional care, negative effects if during the first 2.5 years (critical period).
- Intellectual development: deprivation reduces IQ (**Goldfarb**, institutionalised children). Emotional development: deprivation leads to affectionless psychopathology (no guilt).
- Bowlby's research: procedure, interviewed 44 young thieves and families. Findings: 14 affectionless psychopaths, 12 of these separated from mothers before 2 years of age.
- ☺ Real world application: how children are looked after in hospitals.
- ☹ Flawed evidence: Bowlby conducted interviews himself (bias). ☹ Privation not deprivation (**Rutter**), some of the 44 thieves may have been 'prived, deprivation may be less damaging.
- ☹ Sensitive not critical period: Czech twins recovered from severe deprivation (**Koluchova**).

Influence of early attachment on later relationships

- Internal working model (IWM) first attachment is template for future relationships (**Bowlby**).
- Relationships in later childhood: securely attached children form better friendships (**Kerns**) and are less likely to become bullies (**Myron-Wilson et al**).
- Relationships in adulthood: parenting and romantic style based on IWM attachment type passed on in families (**Bailey et al**) and related to romantic relationships (**Hazan & Shaver**).
- Hazan & Shaver: analysed 620 replies to a 'love quiz'. Findings: securely attached adults = long lasting relationships, insecure avoidant types tended to be jealous and feared intimacy.
- ☺ Strong support linking attachment to later development (**Fearon et al**). Longitudinal support (**Simpson**).
- ☹ Association doesn't mean causality: third factor, environment.
- ☹ Relies on retrospective classification asking adults about their early lives.

Psychology: Knowledge Organiser. Paper 1: Psychopathology

Definitions of abnormality

- Statistical Infrequency: abnormal behaviour is that which is statistically rare/uncommon. Abnormality is determined by looking at the distribution of a behaviour in society.
 - ☺ Practical application in the diagnosis of intellectual disability disorder. Fits with clinical assessment.
 - ☹ Unusual characteristics can be desirable: high IQ. Not all unusual characteristics need treatment.
 - ☹ Not everyone benefits from a label (e.g. low IQ but is not distressed and working etc) therefore not appropriate for diagnosis of all people.
- Deviation from social norms: abnormal behaviour is that which goes against the unwritten rules and expectations in a given culture/society.
 - ☺ Practical application: could be useful in the clinical diagnosis for some mental disorders e.g. anti-social personality disorder.
 - ☹ Culturally relative: social norms vary with culture. Consequences could be people being labelled as abnormal if they have different norms.
 - ☹ Does not offer a complete way of defining abnormality by itself, what about degree and context?
- Failure to function adequately: Abnormal behaviour is that which causes a person distress and an inability to cope with everyday life. Rosenhan and Seligman's characteristics: observer discomfort, unpredictability, irrationality, maladaptiveness, personal suffering and distress.
 - ☺ Practical application: recognises the patients experience rather than just making a judgement. FFA = useful model for assessing abnormality.
 - ☹ Issue with individual differences can result in people with the same disorder being diagnosed differently (some people can still 'function').
 - ☹ Issues with practical applications as does not apply to all & difficult to establish which behaviours should be considered as maladaptive.
- Deviation from ideal mental health: abnormal behaviour is defined by the absence of ideal characteristics for psychological normality. **Jahoda's** characteristics: High self esteem, self actualisation, integrity, autonomy, accurate perception of reality and mastery of the environment.
 - ☹ Practical applications – can be applied to treatment, providing treatment goals focused on positive behaviours & broad range of criteria.
 - ☹ Culturally relative, some of the criterial could be considered as western in origin. E.g. 'personal growth' and 'development'. Fails to provide a universal definition for abnormality.
 - ☹ Sets unrealistic criterial, large number of people could be seen as abnormal & would set realistically high standards in treatment.

Characteristics of phobia, depression and OCD

	Behavioural characteristics	Emotional characteristics	Cognitive characteristics
Phobia	Avoidance	Anxiety and fear	irrational beliefs
Phobia	panic e.g. crying	unreasonable	recognises fear is excessive
Depression	Reduced activity	Lowered mood	Pay attention & focus on negatives
Depression	Disrupted sleep patterns & appetite	Feeling worthless and low self-esteem:	Inability to concentrate
OCD	Compulsions	High levels of anxiety	Obsessive and unpleasant thoughts
OCD	Avoidance	depression.	Insight.

Behavioural explanations: Phobia

- Phobias can be learned. **Mowrer**: two-process model
- Acquisition of phobia: classical conditioning. Learning to associate something that initially causes no fear (neutral stimulus) with something that triggers a fear response (unconditioned stimulus). Example: **Little Albert**.
- Maintenance of phobia: operant conditioning. Avoidance from phobic stimulus reduces anxiety and is negatively reinforcing (escape an unpleasant situation).
 - ☺ Practical applications—has been used to develop successful behavioural therapies. The 2 process model explains how phobias can be maintained and this is addressed in the treatments where participants avoidance behaviour is prevented.
 - ☹ Not everyone who experiences a traumatic event develops a phobia. **DiNardo**: 50% of dog phobic's had unpleasant encounter but so did 50% of healthy controls who didn't develop a phobia. An alternative explanation could explain DiNardo's findings: diathesis stress model.
 - ☹ conflicting evidence: **Bregman** failed to condition a fear response in infants. Therefore casting doubt on the claim that we acquire phobias through conditioning.

Behavioural treatments: Phobia

- Systematic desensitisation: 'unlearning' maladaptive behaviours, based on classical condition. Gradually reduces anxiety through counterconditioning. Phobia is learned so that a phobic stimulus (conditioned stimulus: CS) produces fear (conditioned response: CR) unlearn this through: CS paired with relaxation - this becomes the new CR. Reciprocal inhibition. Formation of anxiety hierarchy with relaxation practised at each level.
- Flooding: Immediate exposure to phobic stimulus. Very quick learning through extinction—as no option of avoidance.
 - ☺ Evidence of effectiveness: Gilroy followed up 42 people who had SD for spider phobia and found that the SD group were less fearful than a control group who were treated with relaxation.
 - ☺ Is appropriate: quicker than cognitive therapies and more suited to those with learning disabilities.
 - ☹ Only treats the symptoms (palliative) not the cause: symptom substitution.

Biological explanations: OCD

- Genetic explanation: identified candidate genes that are implicated in OCD: SERT gene. OCD is polygenic, **Taylor**: 230 different genes. OCD is aetiologically heterogeneous.
 - ☺ supporting evidence: **Nestadt** did a review of twin studies and found 68% concordance rate for MZ twins compared to 31% DZ twins.
 - ☹ Existence of environmental risk factors: **Cromer** found over half the OCD patients in their sample had a traumatic event in the past.
 - ☹ To many candidate genes—little predictive value.
- Neural explanations: 1. Low levels of serotonin results in normal transmission of mood-relevant information not taking place. High levels of dopamine associated with compulsive behaviours. 2. Brain structure: basal ganglia (involved in formation of habits) - patients who suffer brain injuries in this region often develop OCD. Orbitofrontal cortex (converts sensory information into thoughts and actions): higher activity.
 - ☺ Supporting evidence: SSRIs that work on serotonin system reduce OCD symptoms.
 - ☹ No brain system has been found that always plays a roll in OCD.
 - ☹ Ignores psychological factors: but psychological treatments are effective for OCD.



Cognitive explanations: Depression

- Depression is caused by faulty thinking
- **Beck**: Faulty information processing = more prone to depression. Depressed people are more likely to focus on the negative (cognitive biases). Negative self-schemas maintain the cognitive triad which is a negative view of three key aspects of a persons life which lead to depression (the self, the world, the future).
- **Ellis**: Depression arises from irrational thoughts—ABC model. A: activating event. B: negative irrational beliefs. C: When an activating event trigger irrational beliefs there are emotional and behavioural consequences (depression).
 - ☺ Supporting evidence: **Grazioli et al** found that pregnant woman who were assessed as cognitively vulnerable before birth, were more likely to suffer postnatal depression. **Clark et al**: reviewed research and found that cognitions identified by Beck can be seen before depression develops.
 - ☺ Practical application in therapy: CBT.
 - ☹ Irrational thoughts could be a symptom, not the cause—research is correlational, do irrational thoughts cause depression OR does depression lead to negative thinking?
 - ☹ Does not take into account evidence that suggest some forms of depression may have a biological cause. E.G SSRIs = effective treatment for depression.

Cognitive treatments: Depression

- CBT consists of cognitive and behavioural aspects. Important elements include:
- Homework: vital in testing irrational beliefs against reality and putting new rational beliefs into practise.
 - Behavioural activation: works to decrease avoidance and isolation and increase engagement in activities.
 - Client as scientist: test the reality of their irrational beliefs.
 - Beck's CBT: challenge negative thoughts about the self, the world and the future.
 - Ellis's REBT: extends the ABC model to ABCDE: D = dispute (challenge irrational beliefs) and E = effect.
 - ☺ Evidence to support its effectiveness: **DeRubeis** found CBT was as effective as drug therapy. **Hollon** followed up DeRubi's participants and found only 31% if those who had CBT relapsed in comparison to 76% of those with drug therapy! CBT = curative
 - ☹ Only appropriate treatment for some—not those who have low motivation
 - ☹ Appropriate to use in a wide variety of situations and ways—flexibility can be used remotely (implications for the economy).

Biological treatments: OCD

- Antidepressant drugs: selective serotonin reuptake inhibitor (SSRI): prevent the reabsorption and breakdown of serotonin in the brain. This increases its levels in the synapse—serotonin continues to stimulate the postsynaptic neuron.
- Anti-anxiety drugs: Benzodiazepines: BZs slow down activity of the central nervous system by mimicking the form of GABA—so they can attach to GABA receptors on receiving neurons, which opens a channel that increases the flow of chloride ions into the neuron making it more difficult for other neurotransmitters to stimulate the neuron. This reduces brain activity and thus anxiety.
 - ☺ Evidence of effectiveness: **Soomro et al** reviewed 17 studies on the use of SSRIS with OCD patients, finding them to be more effective in reducing symptoms in the short term.
 - ☺ Appropriate treatment: cost effective and non-disruptive.
 - ☹ Effectiveness can be reduced by serious side effects.
 - ☹ Drugs provide a palliative treatment rather than curative (implications).

Psychology: Knowledge Organiser. Paper 2: Research Methods

Experiments

- Experimental: researcher varies independent variable and measures the effect on the dependent variable.

	Strength	Limitation
Laboratory experiment: controlled environment, IV manipulated, effect on DV measured	EVs controlled & easily replicated.	Low generalisability & low external validity.
Field experiment: natural setting, IV manipulated, effect on DV measured	Higher ecological validity (generalisable) and reduction in demand characteristics.	EVs are harder to control, and ethical issues raised.
Natural experiment: IV varies anyway i.e. natural. Setting/DV may be natural or in a lab	High ecological validity & ethical option	difficult to replicate.
Quasi-experiment: IV pre-existing difference, DV as for natural experiment.	Comparisons between preexisting types of people.	No random allocation and can share limitations of lab ex.

Experimental designs

	Strength	Limitation
Independent groups design: one group condition A, another group condition B—random allocation.	Demand characteristics less of an issue and no order effects.	Participant variables act as EV/CV & need twice as many participants.
Repeated measures design: each participant does all conditions of IV. Counterbalancing to control order effects	No participant variables (same people) therefore controls this EV & fewer participants compared to IG design.	Order effects. Demand characteristics. Can't use the same materials in both conditions.
Matched pairs design: two separate groups but participants paired on participant variable/s.	Fewer participant variables—reduced through matching and no order effects.	Imperfect matching and needs twice as many participants as RM.

Sampling

- Population: Target group of interest to researcher. Sample: smaller subset of population. Generalisation: applying findings beyond the sample. Bias: Samples under or over represent certain groups.
- Random sampling: Everyone in population equal chance. Select via lottery method. ☺ Potentially unbiased. ☹ Representative-ness not guaranteed.
- Systematic sampling: Create sampling frame (e.g. alphabetical order) then select every nth name. ☺ Unbiased, objective. ☹ Sample could be unrepresentative.
- Stratified sampling: Identify subgroups (strata), select in proportion to numbers in the population. ☺ Representative & generalisable. ☹ Imperfect stratification.
- Opportunity sampling: Select by asking people nearby. ☺ Convenient. ☹ Inevitably biased unlikely to be representative.
- Volunteer sampling: Participants select themselves e.g. advert. ☺ Minimal input from researcher. ☹ Volunteer bias, unlikely to produce a representative sample.

Control of variables

- Random allocation: avoids bias.
- Standardisation: ensure key aspects of research kept the same.
- Counterbalancing: ensures each condition in a RMD is tested first or second in equal amounts. Controls order effects so they are distributed evenly.
- Demand characteristics: participants working out what is going on. Control with single blind design.
- Investigator effects: Any effect of the investigators behaviour on the research outcome. Control with double blind design.

Ethical Issues

- Ethical issue: conflict between rights of participants and aims of research. So we have BPS code of ethics. Ethics committee
- Ethical issues and how to deal with them:
 - Informed consent: Participants make informed decision to take part. Presumptive consent, retrospective consent.
 - Deception: Misleading/withholding information. Debrief: told real aims & right to withdraw data.
 - Protection from harm: No more risk than everyday life. Right to withdraw at any stage & debrief.
 - Privacy and confidentiality: right to control information & confidentiality protected. Personal details protected. Participants referred to as number or initial.

Correlations

- Shows relationship (strength and direction) between co-variables.
- Scattergram: one co-variable on each axis.
- Correlation vs experiment: no IV manipulated, no cause and effect.
- Types of correlation: positive, negative and zero
- Correlation coefficient: number between -1 and +1. Closer to '1' = stronger the correlation.
- ☺ Useful starting point: future experiments & measure things that ethically may not be able to in experiments.
- ☹ No cause and effect shown and intervening variables missed, wrong conclusions.

Types of data

- Qualitative data: non-numerical data expressed in words. ☺ Richness in detail. ☹ Difficult to analyse.
- Quantitative data: numerical data. ☺ Comparisons possible: graphs. ☹ Expresses less meaning.
- Primary data: Data comes directly from the source purpose of investigation. ☺ Tailored to the study itself. ☹ Requires time & expense.
- Secondary data: Data that does not come directly from source and is not specific to the purpose of the study. ☺ Inexpensive. ☹ Quality may be poor or mismatch aims.
- Meta-analysis: combines data from large number of studies, calculate an effect size. ☺ conclusions have a greater validity. ☹ Publication bias.

Observational Techniques

- All observations: limitation ☹ Observer bias.
- Naturalistic: where target behaviour would normally occur. ☺ High external validity. ☹ Low control.
- Controlled: some control over variables. ☺ Replication & standardisation. ☹ Low external validity.
- Covert: unaware being studied. ☺ Fewer demand characteristics. ☹ Ethics.
- Overt: participants aware being studied. ☺ More ethical. ☹ Demand characteristics.
- Participant: researcher part of group. ☺ Greater insight. ☹ Loss of objectivity.
- Non-participant: separate from group. ☺ More objective. ☹ Loss of insight.
- Behavioural categories: target behaviour broken up into observable categories (operationalisation).
- Event sampling: target behaviour/event recorded every time it occurs. ☺ Record infrequent behaviour. ☹ Complex behaviour over simplified.
- Time sampling: observations at regular intervals (e.g. every 15 seconds). ☺ Reduces observations. ☹ Miss things outside of time frame.

Self report techniques

- Social desirability bias.
- Questionnaires: pre-set list of items. ☺ Simplicity & less influence of interpersonal variables. ☹ Social desirability bias & issues with question wording.
- Structured interview: predetermined. ☺ Easier to replicate. ☹ Interviewer cannot elaborate.
- Unstructured interview: no set questions. ☺ Insight & validity ☹ More chance of interviewer bias.
- Semi-structured: some set question but further questions based on previous answers.
- Interviews improved by interview schedule (reduces bias), rapport (relaxes interviewees).
- Closed questions: limited responses. ☺ Easier to analyse. ☹ Responses are restricted.
- Open questions: own words (qualitative) ☺ Detailed, unexpected responses. ☹ Difficult to analyse.

Aims & Hypotheses

- Aim: what researcher intends to investigate.
- Operationalised: clearly defined and measurable.
- Hypothesis: testable statement.
- Null hypothesis: predicts no effect or relationship.
- Directional hypothesis: based on previous research. States direction.
- Non-directional hypothesis: no theory or past research. Does not specify direction.

Measures of central tendency

- Mean: arithmetic average, add up all scores and divide by number of scores. ☺ includes all scores ☹ Distorted by extreme values.
- Median: all scores in ascending order, middle value. ☺ less affected by extreme scores ☹ extreme values may be important.
- Mode: most common value. ☺ relevant to categorical data. ☹ overly simple.

Measures of dispersion

- Range: difference between highest and lowest +1. ☺ Easy to calculate. ☹ No account of distribution.
- Standard deviation: dispersion of values around the mean, larger SD means more spread out. ☺ more precise than range. ☹ distorted by extreme values.

Display of quantitative data

- Tables: raw scores in columns and rows.
- Scattergram: continuous data, correlation, data pairs.
- Bar charts: categories, bar height represents frequency.
- Histogram: data is continuous. No space between bars.

Distributions

- Normal distribution: bell shaped, mean, median, mode all together.
- Negative skew: modal scores higher, tail to left (e.g. easy test).
- Positive skew: modal scores lower, tail to right (e.g. hard test).

Pilot studies

- Trial run: small scale test of procedure and techniques before doing full scale study. Aims of piloting: find what does not work e.g. timings, stimulus, standardised instructions.

Psychology: Knowledge Organiser. Paper 2: Research Methods

Statistical Testing

- Significance: difference/association due to chance?
- Probability: the likelihood of an event. Accepted level $p = 0.05$ to accept/reject null hypothesis.
- Calculated value: outcome of test.
- Critical value: look up in table.
- Statistical tables: used to check significance.
- Finding critical value: significance level, N of df, one or two tailed test (directional or non-directional hypothesis).
- Use table of critical values and compared calculated and critical value, if calculated value is significant then reject null hypothesis.
- $p \leq 0.05$ means there is a 5% chance that the results of a particular sample occurred even if there was no real difference in the population (i.e. the null hypothesis is true).
- The rule of R: statistical tests with the letter 'R' on their name are those where the calculated value must be equal to or less than the critical value.
- Type I error: null hypothesis rejected when 'true' - optimistic. More likely if significance level is too lenient e.g. $p = 0.10$.
- Type II error: null hypothesis accepted when 'false', pessimistic. More likely if significance level is too stringent (e.g. $p = 0.01$).
- Criteria for parametric tests: unrelated and related t-tests, Pearson's r, Interval level data, normal distribution and homogeneity of variance (standard deviation).

	Test of Difference		Test of Association or correlation
	Unrelated Design	Related Design	
Nominal Data	Chi-Squared	Sign test	Chi-squared
Ordinal Data	Mann-Whitney	Wilcoxon	Spearman's rho
Interval Data	Unrelated t-test (parametric)	Related t-test (parametric)	Pearson's r (parametric)

Levels of measurement

- Quantitative data can be divided into different levels of measurement.
- Nominal: frequency data in categories
- Ordinal: data in order, intervals subjective (e.g. rate on 1 o 10 scale).
- Interval: data measured on units of equal size (e.g. metres or minutes).

Calculating the sign test

1. Sign of difference between condition A and B
2. Calculate total + and -
3. Ignore participants with the same score in condition A and B and ensure you take this off N (number of participants).
4. Total of less frequent sign (S).
5. Calculated S equal to or less than the critical value for calculated value to be significant.

Reporting psychological investigations

- Abstract: short summary, main parts.
- Introduction: review of literature, logical progression to hypothesis.
- Method: design, sample, materials, procedure, ethics, detailed replication.
- Results: descriptive and inferential statistics (tests), raw data in appendix.
- Discussion: summary, links to earlier research, limitations, implications.
- Referencing: use standard format for books, journals and websites.

Writing a consent form

- Must contain sufficient information for the participant to make an informed decision about whether to take part or not.
- A consent form must include both procedural issues and ethical issues.
- Format: requires participants agreement: include a space to print or sign name.

Writing standardised instructions

- Ensure each participant has exactly the same instructions.
- Must be clear & succinct and written using formal language.
- Explain procedures.
- Check understanding of instructions: finish with 'do you have any questions?'
- No ethics required in this document.

Writing a debrief

- Debriefing: all is explained to the participant who is thanked at the end of his/her contribution. Happens at end of study.
- Must be written in verbatim format.
- Start your debrief with: thank you. Then the aim of the study, refer to ethical guidelines: right to withdraw data & confidentiality. Experimental design: if IGD explain other condition. Finish with: do you have any questions?

Psychology and the economy

- Findings of research benefit financial prosperity.
- Attachment: promotes role of father, parents then both more able to contribute to economy.
- Treatment of mental disorders: work days lost from depression, effective treatments (e.g. drugs, CBT) contribute to economy.

Case studies

- Detailed in-depth study of individual/group/institution/event, longitudinal.
- Unusual cases (e.g. rare disorder), typical cases (e.g. childhood memories).
- Qualitative (e.g. interviews) and quantitative data (e.g. psychological tests).
- ☺ Can provide new insights & allows study of both unusual and typical behaviour.
- ☹ Small, unique sample, low generalisability.

Content analysis

- Indirect study of communications.
- Form of observation: of spoken interaction and/or written communications, examples from media.
- ☺ High ecological validity & easy to replicate and check reliability.
- ☹ May lack objectivity and communication studied out of context—reduces validity.

Reliability

- Reliability: measuring consistency.
- Ways of assessing reliability: test-retest (test same people twice), inter-observer (compare observations from different observers) and correlation coefficient (two sets of scores should correlate at least +.80 for reliability).
- Improving reliability: questionnaires: rewrite questions. Interviews: improve training avoid leading questions. Observations: operationalise behavioural categories, training. Experiments: standardise procedures.

Validity

- Validity: measure of legitimacy (genuine effect).
- Internal validity: control within a study e.g. reduce CVs/EVs, demand characteristics.
- External validity: ecological validity, temporal validity.
- Ways of assessing validity: face validity (test looks like it measures what it should) & concurrent validity (findings similar to well established test: correlation coefficient > +.80).
- Improving validity: experiments: use control group & standardised procedure, single and double blind design. Questionnaires: make anonymous. Observations: covert, operationalised behavioural categories. Gather qualitative data: and use triangulation (different sources).

Analysis of qualitative data

- Content analysis and coding: categorise information into meaningful units and then count number of words or phrases. Qualitative data after analysis is converted into quantitative data.
- Thematic analysis and themes: Familiarisation with data, initial coding, searching for themes—that are descriptive. Data stays qualitative.

Features of science

- Objectivity: researcher maintains distance, unbiased.
- Empirical method: data collected through direct experience.
- Replicability: findings repeatable across contexts, shows validity.
- Falsifiability: possibility of being proved false, theories must be testable.
- Theory of construction: create general law, derive and test hypothesis.
- Hypothesis testing: theories generate hypotheses to assess theory's validity.
- Paradigms/shifts: shared set of assumptions (which may change), psychology lacks a paradigm.
- **Popper & Kuhn.**

Peer review

- Peer review: assessment of scientific work by others who are specialists. Happens before publication—Independent scrutiny that considers: validity, significance and originality.
- Purpose: quality assurance.
- Strengths: aims to protect quality of research.
- Limitations: anonymous checkers, so may criticise rival research. Publication bias and groundbreaking research buried.

Writing a hypothesis

- Experimental hypothesis: 'difference'
- Directional: 'There will be more/less'
 - Non-directional: 'There will be a difference in'.
- Correlational hypothesis: 'relationship'.
- Directional: 'There will be a positive/negative correlation'.
 - Non-directional: 'There will be a correlation between'.
 - Null hypothesis: 'There will be no correlation'.
 - Ensure you write a clear and testable hypothesis that is operationalised.

Psychology: Knowledge Organiser. Paper 2: Approaches

Origins of psychology

1879	Wundt opened first experimental psychology laboratory. Psychology emerged as a discipline & emergence as a science as some of the methods used = scientific.
1900	Freud established: psychodynamic approach. Highlighted importance of the unconscious mind on behaviour & developed psychoanalysis, which was the first 'talking therapy'.
1913	Watson and later on Skinner established the behaviourist approach. Believed all behaviour is learnt and that psychologists should only study observable behaviours (scientific).
1950s	Rogers & Maslow developed humanistic approach. Rejected deterministic views of behaviourism & emphasised importance of free will—focus on whole person (holism)
1960s	Cognitive approach emerged with the introduction of the computer. Interested in studying mental processes and believe we can make inferences about how the mind works based on results from laboratory experiments.
1960s	Bandura proposed social learning theory. He considered the role of cognitive factors in learning, drawing together ideas from traditional behaviourism and the newly established cognitive approach.
1980s	Biological approach —dominant approach in psychology. Advances in technology, for example MRI scans, allowed an increased understanding of the brain and biological processes.
2000	Cognitive neuroscience has emerged in the forefront of psychology. This brings together the biological and cognitive approaches and investigates how biological structures influence mental states.

Emergence of psychology as a science

1879	Wundt = first to show empirical methods could be applied to mental processes: emergence of psychology as a science.
1900s	Early behaviourists rejected introspection.
1930s	Behaviourist approach dominated; carefully controlled laboratory experiments.
1950s	Cognitive approach studied mental processes scientifically
1980s	Biological approach introduced technological advances.

Wundt and Introspection

- Wundt established the first psychology laboratory in 1879.
 - Introspection: the first systematic experimental attempt to study the mind by breaking up conscious awareness into basic structures of thoughts, images and sensations.
 - Structuralism: introspection led to identifying the structure of consciousness by breaking it up into the basic structures.
- ☺ Aspects of Wundt's work are scientific e.g. Use standardised procedures:
 ☹ Aspects of Wundt's research are subjective—participants were reporting 'private' mental processes: don't meet scientific criteria.

Learning Approaches: Behaviourist approach

- Assumptions: Focus on observable behaviour only, controlled laboratory experiments & use of non-human animals.
 - Classical conditioning: **Pavlov** learning through association: conditioned dog to salivate (UCR) when bell rings (CR).
 - Operant conditioning: **Skinner** learning via consequences—researched using rats in specially designed cages. Types of reinforcement positive and negative—both have positive consequence. Punishment = unpleasant consequence.
- ☺ scientific credibility: well controlled research & use of animals
 ☺ Real world application: therapies and token economy systems.
 ☹ Environmentally deterministic
 ☹ Difficulties in extrapolation from animal research to human behaviours

Learning Approaches: Social Learning Theory

- Assumptions: learning indirectly, in a social context through observation & imitation.
 - **Bandura**: we observe others behaviour and note consequences. Behaviour that is rewarded = likely to be imitated = vicarious reinforcement.
 - Mediation processes: 1. attention 2. retention 3. motor reproduction 4. motivation.
 - Identification with role models = important.
 - **Bandura et al 1961**: children who watched an adult behaving aggressively towards a bobo doll—were much more aggressive towards the doll.
 - **Bandura and Walters (1963)** Children who saw aggression rewarded were much more aggressive when given a bobo doll (vicarious reinforcement).
- ☺ Emphasises the importance of cognitive factors; overcoming issues with behaviourist approach.
 ☺ Real world applications: media.
 ☹ Relies to heavily on evidence from contrived lab studies.
 ☹ Disregards biological factors and their influence on social learning.

Cognitive Approach

- Assumptions: argues that mental processes should be studied scientifically e.g. memory.
 - Inference: mental processes are 'private' so are studied indirectly by making inferences (assumptions).
 - Schema: mental framework to interpret incoming information, become more complex with experience.
 - Theoretical models: e.g. memory represented as having input, storage and retrieval stages.
 - Computer models: programme computers to model human thinking (artificial intelligence).
 - Cognitive neuroscience: scientific study of how brain structures affect mental processes.
- ☺ Scientific, objective approach to studying the mind e.g. lab studies and cognitive neuroscience.
 ☺ Many real world applications: depression, EWT.
 ☹ Machine reductionism—oversimplification
 ☹ Inference & artificial stimuli: low external validity.



Biological Approach

- Assumptions: everything psychological is at first biological and the mind and body are the same.
 - Genetics: genes determine psychological characteristics (concordance rates) are used to investigate the genetic basis of behaviour.
 - Genotype: a person's genetic make-up. Phenotype: the expression of the genotype (influenced by environment)
 - Neurochemistry: thought and behaviour depends on chemicals (neurotransmitters) in the brain e.g. serotonin in OCD.
 - Theory of evolution: genetically determined behaviour that is adaptive & is naturally selected.
- ☺ Precise and highlight scientific methods: Fmri and EEG.
 ☺ Real world application—the use of proactive drugs for mental illness.
 ☹ Provides 'causal explanations' but evidence comes from associations only.
 ☹ Biological determinism.

Humanistic Approach

- Assumptions: free will is emphasised & focus is the study of subjective experience of unique individuals.
 - Maslow's hierarchy of needs: 5 levels: physiological deficiency needs, safety, love/belongingness, self-esteem and self actualisation.
 - Self actualisation: person's desire to be the best they can possibly be.
 - Congruence: personal growth aims for harmony between self-concept and ideal self.
 - Conditions of worth: imposed by parents, may prevent personal growth.
 - Counselling psychology (**Rogers**) genuine, empathetic, unconditional positive regard.
- ☺ Major influence on psychological counselling.
 ☺ Positive approach to psychology.
 ☹ Culturally bias.
 ☹ Limited real world application when compared to other approaches.

Psychodynamic Approach

- Assumptions: unconscious mind = important influence on behaviour.
 - Tripartite structure of personality: id, ego & superego.
 - Defence mechanisms: used by the ego: repression, denial and displacement.
 - 5 psychosexual stages determine adult personality: oral, anal, phallic, latency, genital. Conflict leads to 'fixation'.
 - Oedipus complex occurs at the phallic stage in boys, penis envy in girls.
- ☺ Influence and real world application: psychoanalysis 'talking therapy'.
 ☹ Untestable concepts—unfalsifiable
 ☹ Significant gender bias: alpha biased.

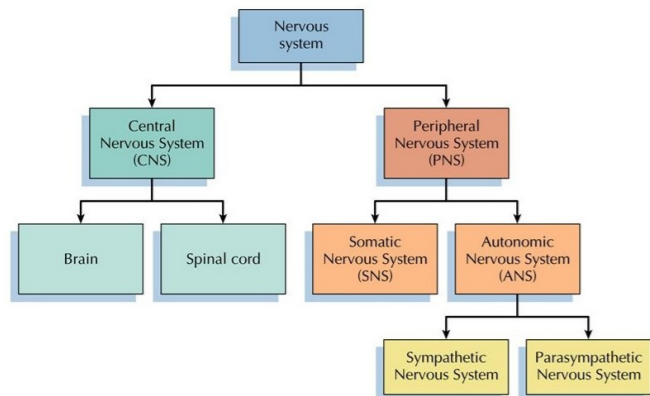
Comparison of approaches

Approach	Biological	Behavioural	SLT	Cognitive	Psychodynamic	Humanistic
Free will vs determinism	Biological determinism	Environmental determinism	Soft determinism	Soft determinism	Physic determinism	Free will
Nature vs Nurture	Nature	Nurture	Nurture	Nature & Nurture	Mostly nature	Mostly nurture
Reductionism vs holism	Biological reductionism	Environmental reductionism	Reductionist	Experimental reductionism	Reductionism and holism	Holism
Idiographic vs nomothetic	Nomothetic	Nomothetic	Nomothetic	Nomothetic	Nomothetic & idiographic	Idiographic
Scientific	Scientific	Scientific	Mostly Scientific	Mostly Scientific	Not scientific	Not scientific

Psychology: Knowledge Organiser. Paper 2: Biopsychology

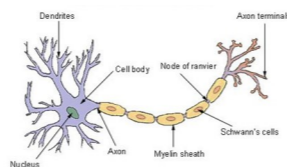
The nervous system.

- The nervous system is a specialised network of cells in the human body and is our primary internal communication system. It has 2 key functions: collect and respond to information from the environment and co-ordinate the working of different organs and cells in the body.
- Make sure you know the functions of each division.



Neurons

- Neurons typically consist of a cell body, dendrites and an axon.
- Sensory neurons: carry messages from PNS to CNS, have long dendrites and short axons. Found in receptors such as eyes, ears, tongue and skin.
- Relay neurons connect sensory neurons to the motor or other relay neurons. They have short dendrites and short axons. They are found between sensory input and motor outputs.
- Motor neurons connect the CNS to effector such as muscles and glands. They have short dendrites and long axons. Are found in the central nervous system and control muscle movements.



Synaptic transmission

- Electrical impulses (action potentials) reach the presynaptic terminal. Action potentials trigger release of neurotransmitters.
- Neurotransmitters cross the synapse from vesicles. Neurotransmitters combine with receptors on the postsynaptic membrane.
- Stimulation of postsynaptic receptors by neurotransmitters result in either excitation or inhibition. Excitatory: post synaptic neuron more likely to fire an impulse. Inhibitory: post synaptic neuron less likely to fire an impulse. Excitatory and inhibitory influences are summed.

Endocrine system

- Works alongside the nervous system. Is a network of glands that secrete hormones. Uses blood vessels to deliver hormones to target sites.
- Adrenal glands: secrete adrenaline/controls the sympathetic division in the fight or flight response.
- Pineal gland: releases melatonin which is responsible for important biological rhythms including the sleep-wake cycle. When released melatonin causes drowsiness and lowers body temperature, helping to induce sleep.

Fight or flight response

- Example of endocrine system and autonomic nervous system working together.
- Stressors trigger the sympathetic nervous system: prepares body for fight or flight. Signals adrenal medulla to release adrenaline into the blood stream. Adrenaline causes: heart to beat faster, pushing blood to muscle and other vital organs. Breathing rapid, release of blood glucose. Parasympathetic branch returns the body to its normal 'rest and digest' state.
- ☺ Valuable knowledge and shows how systems work together.
- ☹ Limits our behaviour to 2 responses: what about 'freeze'?
- ☹ Beta bias: females have a different stress response to males (**Taylor**).

Localisation of function in the brain

- The theory that different areas of the brain are responsible for different functions.
- Frontal lobe: motor cortex / movement. Parietal lobe: somatosensory area / sensory. Occipital lobe: visual. Temporal lobe: auditory.
- Broca's area, left hemisphere: Left frontal lobe / speech production. Wernicke's area, left hemisphere: Left temporal lobe / language comprehension.
- ☺ Wealth of evidence to support functions are localised: **Petersen, Dougherty**.
- ☹ Functions are not localised to just one region, other regions take over following brain injury. Equipotentiality theory: higher mental functions are not localised.
- ☹ Beta bias: women have larger Broca and Wernicke's areas than men, which the theory ignores.
- ☹ Biologically reductionist: reducing complex processes to one specific brain region.
- ☹ More important to investigate how brain areas communicate with each other rather than focusing on specific brain areas.

Lateralisation and split brain research

- Hemispheric lateralisation: idea that the 2 hemispheres of the brain are functionally different.
- Left hemisphere: language centre of the brain, controls the right hand & receives information from right visual field. The right hemisphere: focuses on visuo-spatial tasks, controls the left hand & receives information from the left visual field.
- Sperry**: split brain research, participants who had a surgical procedure where the corpus callosum is cut. Key findings: a number of key differences between the two hemispheres: left hemisphere is dominant in terms of visual speech and language. Right hemisphere is dominant in terms of visual-motor tasks.
- ☺ Identified advantages of lateralisation: increases neural processing capacity, **Rogers et al**.
- ☹ Lateralisation may occur in young adults.
- ☹ Language may not be restricted to the left hemisphere: **Turk et al**.

Plasticity & functional recovery

- Brain plasticity: brain has the ability to change throughout life e.g. synaptic pruning and new neural connections.
- Maguire**: experience (driving a taxi) can change the structure of the brain (enlarged hippocampus).
- Draganski**: learning induced changes in the brains of medical student—in the posterior hippocampus, following final exams.
- Functional recovery: form of plasticity, brain's ability to redistribute or transfer functions. Structural changes can include: axonal sprouting, reformation of blood vessels, recruitment of homologous areas on opposite side of brain.
- ☺ Supporting evidence to support brain's considerable plasticity: **Khun et al**.
- ☺ Supporting evidence for functional recovery: **Tajiri et al**.
- ☹ Plasticity is greater in children than adults: **Elbert et al**.
- ☺ Real world: neurorehabilitation.

Circadian rhythms

- 24 hour cycle. Example: sleep/wake cycle.
- Sleep/wake cycle: driven by body clock, synchronised by the suprachiasmatic nuclei (SCN). Light = primary input.
- Siffre** study: 2 months underground, sleep/wake cycle increased by lack of external cues.
- ☺ Support for importance of light: **Aschoff et al**
- ☺ Practical applications to shift work.
- ☹ Does not account for individual differences: **Duffy et al**.
- ☹ Problems with research methodology.

Infradian and ultradian rhythms

- Infradian rhythms: less than one cycle in 24 hours. Menstrual cycle about 28 days, governed by hormones (oestrogen/progesterone). Exogenous zeitgebers synchronise cycle, menstrual cycles synchronised using pheromones from armpits (**Stern and McClintock**).
- ☺ Evolutionary basis: synchronisation may have adaptive function.
- ☹ Methodological limitations: many factors affect menstrual cycle.
- Ultradian rhythms: more than one cycle in 24 hours. Sleep: 90 minute cycle of 5 stages. 1&2 light sleep, alpha waves and sleep spindles. 3&4 deep sleep, slow wave sleep, delta waves. 5 REM sleep (dreams), theta waves.
- ☺ Supporting evidence for distinct stages of sleep (**Dement et al**).
- ☹ Individual differences & 'sleep lab' generalisability.

Ways of studying the brain

- Functional magnetic resonance imaging (fMRI) uses magnetic field and radio waves to monitor blood flow when a person performs a task. ☺ high spatial resolution. ☹ low temporal resolution.
- Electroencephalogram (EEG): measures electrical activity within the brain via electrodes that are fixed to an individual's scalp using a skull cap—detecting neuronal activity. ☺ high temporal resolution. ☹ low spatial resolution.
- Event related potentials (ERPs) similar equipment to EEG—key difference = stimulus is presented to a participant and researcher looks for activity related to the stimulus. ☺ Possible to determine how processing is affected by specific experimental manipulation. ☹ Poor spatial resolution.
- Post-mortem examinations: analysis of a person's brain following their death e.g. Broca's brain. ☺ allow for a detailed analysis of the brain. ☹ lack validity as there are neuronal changes, confounding influences (e.g. drug treatment, age) and sample size.

Endogenous pacemakers & exogenous zeitgebers

- Endogenous pacemakers (EPs) & the sleep/wake cycle. Primary EP: suprachiasmatic nucleus (SCN), receives information about light from optic chiasm. SCN indicates day length to pineal gland which secretes melatonin when dark. Sleep/wake cycle stopped in chipmunks when SCN destroyed.
- ☺ Supporting evidence for importance of SCN: **Ralph et al**.
- ☹ Need to look beyond the 'master clock': **Damiola et al**.
- Exogenous zeitgebers (EZs) and the sleep/wake cycle. Time givers': reset EPs by entrainment. Light the key EZ, entrains SCN to 24 hours, even via backs of knees (**Campbell et al**). Social cues: babies circadian rhythms and jet lag entrained by bed-times and mealtimes.
- ☺ Supporting evidence: **Skene et al**, blind people with some light perception have normal circadian rhythms those without have abnormal circadian rhythms.
- ☹ Case study: man blind from birth with sleep/wake cycle of 24.9 hours could not adjust despite social cues (**Miles et al**).

Psychology: Knowledge Organiser. Paper 3: Issues and debates

Gender bias

- Psychologists seek universality but bias may be inevitable as they are products of their time.
 - Alpha bias: exaggerates differences, tends to devalue females. Examples: Freud, girls have weaker identification with same-sex parent than boys, so weaker conscience.
 - Beta bias: ignores or underestimates differences e.g. when conducting research. Examples: fight or flight response based on male animals and assumed to be universal, tend and befriend more common in females, an evolved response for caring for young (**Taylor et al**).
 - Androcentrism: male centred, leads to alpha and beta bias, non-male behaviour judged as abnormal, e.g. premenstrual syndrome.
- ☹ There are implications raised from psychological studies and theories that are gender biased: may lead to misleading assumptions and fail to challenge negative stereotypes—validating discriminatory practises.
- ☹ Gender bias promotes sexism in the research process. Male researchers more likely and their expectations about women (e.g. expect irrationality) may mean that female participants underperform in studies (Nicolson).
- ☺ Gender bias has resulted in greater reflexivity (recognising the effect of own values and assumptions may have on the nature of their work).

Free will and determinism

- Free will-determinism debate: is our behaviour selected without constraint (free will) or caused by internal/external factors (determinism)?
 - Free will: we are self determining, biological and environmental influences can be rejected, the humanistic approach.
 - Hard determinism: all human actions have a cause. Soft determinism: freedom within restricted range of choices.
 - Biological determinism: ANS causes stress response, genes cause mental health problems.
 - Environmental determinism: we are sum total of reinforcement contingencies: free will is an illusion.
 - Psychic determinism: behaviour caused by unconscious childhood conflicts.
 - Scientific emphasis: every event has a cause, allows prediction and control of events.
- ☺ Determinism is more consistent with the aims of science.
- ☹ The law: hard determinism not consistent with legal principle of moral responsibility.
- ☺ Free will: even if we do not have free will—evidence suggests (**Roberts**) the fact that we believe we do may have a positive impact on mind and behaviour.
- ☹ Against free will: research evidence: participants asked to randomly flick wrist and say so, brain activity came before (**Libet et al**).

Cultural bias

- Cultural bias: 68% of research participants from US, 80% are students.
 - WEIRD participants: Westernised, Educated people from Industrialised, Rich Democracies.
 - Ethnocentrism: superiority of own cultural group, others seen as deficient. Example, strange situation, reflects values of US culture, meant many Japanese babies classed as insecure (**Takahashi**).
 - Cultural relativism: norms and ethics only make sense in their cultural context.
 - Universality: etic approach looks at behaviour from outside (looks for universals, whereas emic approach is from inside a culture). Imposed etic e.g. Ainsworth's Strange Situation.
- ☹ Wealth of evidence to show cultural bias is still an issue in psychology. Alongside this some of the most influential studies in psychology are culturally biased.
- ☹ Ethnic stereotyping: early IQ tests were ethnocentric, but then used as evidence that certain ethnic/cultural groups were genetically inferior (Gould).
- ☺ Emergence of cultural psychology: takes emic approach to avoid ethnocentrism e.g. local researcher and culturally-based techniques.

The nature-nurture debate

- Nature: heredity, influence of genes on behaviour, innate influences.
 - Nurture: environment, the mind starts as a blank slate (behaviourist approach).
 - Measuring nature-nurture concordance (estimates how much trait is inherited), used to estimate heritability (proportion within a population due to genes—IQ is .5 (50%) half nature, half nurture).
 - The interactionist approach: Cannot separate nature and nurture, relative contribution is what matters e.g. attachment (parenting versus temperament of child).
 - Diathesis-stress model: vulnerability + trigger e.g. OCD (inherited gene + trauma).
 - Epigenetics: lifestyle and events (e.g. smoking, trauma) leave 'marks' on our genes, switching them on or off, permanent and can be passed on.
- ☺ Support for nature: twin study evidence. You can use an example from any topic.
- ☺ Support for nurture: evidence from studies of social learning theory or classical/operant conditioning. You can use an example from any topic.
- ☹ Implications of both nativism (nature) and empiricism (nurture).
- ☹ Strong support for adopting an interactionist approach as opposed to only nature or nurture.

Idiographic and nomothetic approaches

- Two positions on how to investigate human behaviour: idiographic (detail, single cases) or nomothetic ('laws' or norms).
 - Idiographic: one person/group/institution. Qualitative methods e.g. thematic analysis of interviews, may make generalisations. Examples: Rogers (unconditional positive regard, based on individual clients), Freud (phobia, Little Hans).
- ☺ With its in-depth qualitative methods of investigation, it arguably provides a more complete account of an individual.
- ☹ The idiographic approach on its own is restricted, no baseline for comparison, also can be unscientific and subjective e.g. case studies.
- Nomothetic: 'laws' applied to individuals. Quantitative methods, hypothesis testing, statistical analysis, seek to quantify behaviour. Examples: Skinner (laws of learning), Sperry (split brain research).
- ☺ Scientific credibility: establishes objectivity through standardisation, control and statistical testing.
- ☹ Losing the whole person: loss of understanding when focusing on statistics e.g. knowing there is a 1% lifetime risk of developing schizophrenia tells us very little about what life is like for someone who has the disorder.
- Objective versus subjective: nomothetic assumes objective measurement is possible through standardisation, idiographic believes only individual experience matters.

Holism and reductionism

- Holism-reductionism debate: look at whole person or constituent parts.
 - Holism: whole is greater than the sum of its parts, e.g. humanistic, qualitative approaches.
 - Reductionism: law of parsimony, reducing to simplest (lowest level) principles.
 - Levels of explanation: e.g. explain OCD at socio-cultural, psychological, psychological, physical, environmental/behavioural, physiological, neurochemical level. Can debate which is best.
 - Biological reductionism: physiological, neurochemical, evolutionary, genetic e.g. OCD reduced to serotonin activity.
 - Environmental reductionism: behaviour reduced to stimulus responses (behaviourism), e.g. love/attachment is learned through classical conditioning (UCS+NS=love).
- ☺ In support of Holism: some behaviours can only be understood by higher level explanations or holistic ones (e.g. Stanford prison experiment).
- ☹ Against holism: lack practical value. Holistic accounts become complex and impractical e.g. difficult to treat depression when causes include past experiences, relationships etc.
- ☺ In support of reductionism: scientific approach. Reductionism is the basis of operationalisation, enables objective experiments/observations.
- ☹ Against reductionism: oversimplify complex behaviour. E.g. reductionism approaches in terms of genes/neurotransmitters don't include context and therefore lack meaning (e.g. when pointing your finger).

Ethical implications of research studies and theory

- Ethical implications: being concerned about the consequences of theory/studies.
 - Socially sensitive research (SSR): research that has consequences for the participants or the groups they represent (**Siber and Stanley**).
 - Applies to all research but some more than others e.g. research on memory versus research on depression.
 - Research question: if focus is on 'alternative relationships' then heterosexual ones may be assumed to be excluded, biased from the start.
 - Dealing with participants e.g. victims of domestic abuse may worry about confidentiality, stress of discussing experience.
 - The way findings are used may give scientific credence to prejudice e.g. US IQ tests used to restrict immigration. Also media interest.
- ☺ Socially sensitive research can have benefits for the groups being studied—e.g. homosexuality was seen as a mental illness but the Kinsey report showed it was normal (**Kinsey et al**).
- ☹ However, there may also be negative consequences e.g. the criminal gene has implications for individuals claiming no personal responsibility.
- ☺ Real world application: decisions on child care, crime etc use SSR e.g. ONS (Office for National Statistics). Demonstrates that psychologists have an important role to play in providing high quality research on socially sensitive topics.
- ☹ Poor research design: **Burt's** research in 1950s on IQ led to 11+ exam but later showed to be fraudulent, but too late to change the consequences. Socially sensitive topics need to be planned with care to ensure findings are valid because of the enduring effects on particular groups of people.

Psychology: Knowledge Organiser. Paper 3: Schizophrenia

Symptoms

- Serious mental disorder affecting 1% of the population.
- Classification: identify symptoms that go together = a disorder, then identify disorder based on symptoms (= diagnosis). Classification either DSM-5 (one positive symptom), ICD-10 (Two negative symptoms).
- Positive symptoms: hallucinations, distorted sensory experiences may be based on real stimulus, e.g. hearing voices. Delusions, beliefs with no basis in reality, e.g. person thinks they are Jesus.
- Negative symptoms: speech poverty, reduced amount and poor quality of speech. Avolition: severe loss of motivation, low activity levels.

Psychological explanations: family dysfunction

- Family dysfunction: schizophrenia is caused by abnormal patterns of communication within the family.
- Double bind theory: contradictory family communication, child can't win (**Bateson et al**).
- Expressed emotion: family criticism and hostility, initial cause or later relapse.
- ☺ Research evidence: **Tienari et al** found adopted children who had schizophrenic biological parents were more likely to develop the disorder (than those with non schizophrenic biological parents) - but only if the adopted family was rated as disturbed. **Berger** found that schizophrenics reported a higher recall of double bind statements by their mothers than non-schizophrenics.
- ☹ Information from childhood experience was gathered after the development of symptoms, disorder may have distorted patients childhood experiences.
- ☹ Ethical implications: parent blaming.

Biological explanations

Genetic basis

- Candidate genes: polygenic (several risk factors), 108 genetic variation increase risk (**Ripke**).
- Genes associated with increased risk included those coding for the functioning of a number of neurotransmitters including dopamine.
- ☺ Research support: family risk, increases with genetic similarity e.g. 2% for an aunt, 9% for sibling (**Gottesman**). Adoption studies (**Tienari**) found that children of schizophrenia sufferers are still at heightened risk of schizophrenia when adopted into families with no history of the disorder.
- ☹ Environmental factors: clear evidence to show that environmental factors also increase risk: psychological factors e.g. childhood trauma.

Neural correlates

- Original DA hypothesis: high DA in subcortex (hyperdopaminergia). Explains e.g. poverty of speech (link to Broca's area disrupted).
- Updated DA hypothesis: high DA in subcortex plus low DA in cortex (hypodopaminergia). Explains e.g. negative symptoms.
- DA levels affected by both genetic vulnerability and childhood and adolescent stress (**Howes et al**)
- ☺ Supporting evidence for the dopamine hypothesis: **Leucht et al** found from their meta analysis that all drugs that normalise levels of dopamine were significantly more effective than placebos.
- ☹ Correlation-causation problem.

Biological therapies

Typical antipsychotics

- Dopamine antagonists: introduced in 1950s, associated with dopamine hypothesis. Block dopamine, chlorpromazine blocks receptors, normalises neurotransmission. Sedation effect, chlorpromazine affects histamine receptors, has calming effect.

Atypical antipsychotics

- Aimed to improve effectiveness and minimise side effects, in use since 1970s. Clozapine binds to dopamine, glutamate and serotonin receptors. Enhances mood (good for suicide prevention).
- ☺ Evidence for effectiveness, chlorpromazine better than placebo (**Thornley et al**), clozapine better than typical antipsychotics, especially treatment resistant cases (**Meltzer**).
- ☹ Counterpoint: short-term studies, some data sets with positive findings published more than once, sedative effects may explain positive results (**Healy**).
- ☹ Serious side effects, mild (e.g. sleepiness), serious (tardive dyskinesia) and occasionally fatal (neuroleptic malignant syndrome).
- ☹ Mechanisms unclear, most antipsychotics based on dopamine hypothesis which may be wrong. Theoretically they should not work.

Psychological explanations: Cognitive explanation

- Dysfunctional thought processing: processing information differently to those without the disorder.
- Metarepresentation: can't recognise thoughts as ones own, leads to hallucinations/delusions.
- Central control, cant suppress automatic responses (triggers other thoughts), leads to speech poverty.
- ☺ Research support: people with schizophrenia take much longer to complete the Stroop task, showing impaired cognition (**Stirling et al**).
- ☹ A proximal explanation: explains symptoms of schizophrenia now but not their origins, whereas genes/family dysfunction are distal explanations.

Psychological therapy for schizophrenia

Cognitive behaviour therapy (CBT)

- Deals with irrational thinking and with behaviour. Individually or groups, 5-20 sessions. Therapist helps client make sense of symptoms e.g. understand the origins of voices. Normalisation, hearing voices creates anxiety, reduce by seeing them as 'normal'.
- ☺ Evidence of effectiveness: 34 studies, moderate benefit for positive and negative symptoms (**Jauhar et al**).
- ☹ Quality of evidence, different studies focus on different CBT techniques so not clear which ones may help particular clients (**Thomas**).
- Family therapy: reduce negative emotions, expressed emotion (EE) creates stress, dealing with EE prevents clients relapse. Improve family's ability to help, therapeutic alliance, understanding of schizophrenia, care for each other. Works by reducing levels of stress and EE.
- ☺ Evidence of effectiveness: relapse rates down 50-60%, more effective at beginning of symptoms (**McFarlane**).
- ☺ Benefits to whole family, reduces negative impact on family and strengthens ability of family to support the identified patient (**Lobban and Barrowclough**).

Management of schizophrenia

- Early practice common in the 1960s, **Ayllon and Azrin** gave gift tokens for tidying.
- Rationale: being in hospital leads to institutionalisation, e.g. bad hygiene.
- Quality of life in hospital improved e.g. wearing make-up, making friends.
- 'Normalises' behaviour—prepares for life after hospital e.g. making bed, getting dressed.
- What is involved: tokens (e.g. coloured discs) given immediately for desirable behaviour, swapped later for rewards.
- The theory: operant conditioning, tokens are secondary reinforcers, exchanged for primary reinforcers.
- ☺ Evidence of effectiveness, seven studies showed reduced negative symptoms and unwanted behaviours (**Glowacki et al**).
- ☹ Counterpoint: small evidence base so may be affected by the file draw problem (only positive findings published).
- ☹ Ethical issues: token economy gives professionals power to control behaviour, imposing their norms on others. Also restricting pleasures in seriously ill people.
- ☹ Alternative approaches e.g. art therapy has a comparable evidence base, is a pleasant experience without side effects or ethical issues (**Chiang et al**).