

Paper 1

Link study technique/methodology to the concept!!

BIOLOGICAL APPROACH TO BEHAVIOUR

LOCALIZATION

- **Restate Q + study**
- **Explain theory/concept (+how we know):**
 - Localization of function is the theory that certain parts of the brain correspond to certain functions and reflects the idea that behaviour, emotion, and/or thoughts originate in specific regions of the brain.
 - Often, however, some behaviors are quite complex and thus involve the interaction of different parts of the brain. This relates to two different theories of localisation: strict and relative.
 - Strict localisation proposes that specific parts of the brain are solely responsible for specific functions – like Broca's area, located in the left frontal lobe, which is responsible for speech production.
 - while relative localisation argues that specific parts may be responsible for certain functions but not exclusively as other parts may also assist in the functioning – like language processing or vision.
 - One example of localisation is the role of the hippocampus in the storage of memory, transferring information from STM to LTM, or how the Basal Ganglia is believed to be a brain region where functions related to procedural and habitual memory are localized.
- **Link to study:** In order to investigate localization, particularly how the brain changes to external stimuli could result in changes in the brain, Maguire et al is one study that aimed to:
- **Study:** Maguire et al

- **Aim:** To investigate how the brain structure of London taxi drivers differs from the average brain due to exceptional spatial knowledge contingent with their occupation.
- **Method:** Quasi-experiment (IV not manipulated by researchers as two pre-existing groups were compared); correlational study (driving experience was correlated with grey matter volume); brain imaging
- **Participants:**
 - Experimental group: 16 right-handed male taxi drivers
 - Control group: 50 healthy right-handed male subjects who did not drive a taxi
- **Procedure:**
 - MRI scans were compared between the two groups of participants to identify structural differences linked to experience.
 - Researchers also correlated the number of years of taxi driving with MRI scan results to examine how experience might influence brain structure.
 - The data from the MRI was measured using two techniques: **voxel-based morphometry (VBM)**, which measured the density of grey matter in brain regions, and **pixel counting**, which involved counting pixels in the images to calculate the area of the hippocampus.
 - This comparison between these participant groups and use of MRI allowed researchers to infer how navigational experience, or spatial memory specifically, affected the brain.
- **Results:**
 - First, pixel counting revealed that the posterior hippocampus of taxi drivers were significantly larger relative to those of control subjects and the anterior hippocampus were significantly smaller.
 - Additionally, the VBM showed that the volume of the right posterior hippocampus correlated with the amount of time spent as a taxi driver

- However, no difference in the overall volume of the hippocampi between taxi drivers and controls
- **Conclusion:** Since the posterior hippocampus is known to be involved when previously learned spatial information was being used (one function), and the anterior hippocampus for encoding of new environmental layouts (another function), this study lends support to the theory of localization, and that Redistribution of grey matter in the hippocampus occurs in taxi drivers in response to gaining navigational experience
- This demonstrates how the structure of the brain changes in response to environmental demand
- **Connect to Q:**
- **Real-world relevance:** Knowing that different brain areas have specialized roles is crucial for medicine and neuroscience, as it helps doctors identify how injuries or diseases in certain regions can lead to specific behavioral or cognitive impairments.

NEUROPLASTICITY

- **Restate Q + study**
- **Explain theory/concept (+how we know):**
 - Neuroplasticity refers to the brain's ability to alter its structure and function in response to learning, environmental changes, and physical injuries. This adaptability occurs through several key mechanisms: cortical remapping, dendritic branching, and synaptic pruning.
 - Cortical remapping enables the brain to **reorganise** itself, forming **new neural** connections to **compensate** for damage, **adapt** to new experiences, or **learn** new skills. This process ensures that functions normally carried out by damaged areas can be taken over by other regions.
 - Dendritic branching refers to the growth and expansion of dendrites—the branch-like structures of neurons—allowing them to form more synaptic connections with other neurons. This increased connectivity is critical for

learning and adapting to new experiences. Long-term potentiation, another important process, strengthens the synaptic connections between neurons, making communication across the brain more efficient and long-lasting, which is crucial for memory formation.

- Lastly, synaptic pruning is the process by which excess or weak synaptic connections are eliminated, optimising the efficiency of brain networks by refining the remaining, more frequently used connections. Together, these processes allow the brain to continually adapt to both internal and external changes, demonstrating its dynamic flexibility.

- **Link to study:**

- **Study:** Maguire et al

- **Aim:** aimed to explore whether the brains of London taxi drivers had structurally adapted due to their extensive navigation experience – that is if neuroplasticity had taken place.
- **Method:** Quasi-experiment (IV not manipulated by researchers as two pre-existing groups were compared); correlational study (driving experience was correlated with grey matter volume); brain imaging
- **Participants:**
 - Experimental group: 16 right-handed male taxi drivers – average experience of 14.3 years
 - Control group: 50 healthy right-handed male subjects who did not drive a taxi
- **Procedure:**
 - MRI scans were compared between the two groups of participants to identify structural differences linked to experience.
 - Researchers also correlated the number of years of taxi driving with MRI scan results to examine how experience might influence brain structure.
 - The data from the MRI was measured using two techniques: voxel-based morphometry (VBM), which measured the density of grey matter in the

brain, and pixel counting, which involved counting pixels in the images to calculate the area of the hippocampus.

- This comparison between these participant groups and use of MRI allowed researchers to infer how navigational experience, or spatial memory specifically, affected the brain.

- **Results:**

- First, pixel counting revealed that the posterior hippocampus of taxi drivers were significantly larger relative to those of control subjects and the anterior hippocampus were significantly smaller.
- Additionally, the VBM showed that the volume of the right posterior hippocampus correlated with the amount of time spent as a taxi driver

- **Conclusion:** This suggests that the intense memorisation and navigational demands led to neuroplastic changes. Specifically, the expansion of the posterior hippocampus may be attributed to dendritic branching and long-term potentiation—processes that allow for greater synaptic connections and stronger neural pathways in response to the drivers' navigation skills. Additionally, the anterior hippocampus experienced synaptic pruning, where less-used connections were eliminated, possibly to enhance efficiency in spatial memory. This study provides strong evidence of neuroplasticity, demonstrating how the hippocampus adapts to the demands of extensive spatial navigation.

- **Connect to Q:**
- **Real-world relevance:** This has many real life applications such as sense-substitution – idea that other senses may be used to make up for the lost sense, and brain-machine interface for artificial sensory organs and bionic limbs, as well as in daily life to understand how the brain evolves as we develop.

a) SYNAPTIC PRUNING

- **Restate Q + study**

- **Explain theory/concept (+how we know):** synaptic connections, refining neural networks to enhance cognitive efficiency. This occurs primarily during early childhood and adolescence but continues throughout life as part of learning and memory formation. By removing unused or inefficient connections, synaptic pruning allows the brain to allocate resources to the most important and frequently activated neural pathways. This optimisation enhances **processing speed**, **memory retention**, and **overall cognitive function**. Synaptic pruning often works with other processes, such as dendritic branching, which increases neural connectivity, and long-term potentiation, which strengthens the efficiency of remaining synapses. Together, these mechanisms ensure that the brain maintains an organised and efficient network of neural connections.
- **Link to study:**
- **Study:** Maguire
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:** This suggests that extensive navigation experience led to the strengthening of neural pathways in the posterior hippocampus while reducing unnecessary connections in the anterior hippocampus. Synaptic pruning likely played a key role in this adaptation, as the brain eliminated weaker or less relevant connections in the anterior hippocampus to optimize spatial memory and navigation skills. By refining neural networks, synaptic pruning allowed taxi drivers to specialise in the cognitive demands of spatial navigation, thus demonstrating how the environment and experiences can shape the brain's structure.
- **Connect to Q:**
- **Real-world relevance:** (same as above)

b) Neural Networks

- **Restate Q + study**
- **Explain theory/concept (+how we know):** The formation of neural networks refers to the process by which neurones establish and strengthen connections to facilitate learning, memory, and cognitive function. This occurs through several key mechanisms: cortical remapping, dendritic branching, and synaptic pruning. Cortical remapping enables the brain to reorganise itself, forming new neural connections to compensate for damage, adapt to new experiences, or learn new skills. This process ensures that functions normally carried out by damaged areas can be taken over by other regions. Dendritic branching refers to the growth and expansion of dendrites—the branch-like structures of neurones—allowing them to form more synaptic connections with other neurones. This increased connectivity is critical for learning and adapting to new experiences. Long-term potentiation, another important process, strengthens the synaptic connections between neurones, making communication across the brain more efficient and long-lasting, which is crucial for memory formation. Lastly, synaptic pruning is the process by which excess or weak synaptic connections are eliminated, optimising the efficiency of brain networks by refining the remaining, more frequently used connections. Together, these processes allow the brain to continually adapt to both internal and external changes.
- **Link to study:**
- **Study:** Maguire
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:** This suggests that the intense memorisation and navigational demands led to the formation and strengthening of neural networks.

Specifically, the expansion of the posterior hippocampus may be attributed to dendritic branching and long-term potentiation—processes that allow for greater synaptic connections and stronger neural pathways in response to the drivers' navigation skills. Additionally, the anterior hippocampus experienced synaptic pruning, where less-used connections were eliminated, possibly to enhance efficiency in spatial memory. This study provides strong evidence for how experience shapes neural networks, demonstrating that repeated cognitive demands can lead to structural and functional changes in the brain.

- **Connect to Q**
- **Real-world relevance:** (same as above)

NEUROTRANSMITTERS

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Neurotransmission is the process by which neurons communicate with one another across synapses using chemical messengers known as neurotransmitters. This process begins with an **action potential**, an electrical impulse, that travels down the **axon of a neuron**. When the action potential reaches the **axon terminal**, it triggers the opening of **voltage-gated calcium channels**, leading to an **influx of calcium ions**. These ions prompt **synaptic vesicles** containing neurotransmitters to merge with the **presynaptic membrane** in a process called **exocytosis**. The neurotransmitters are then released into the **synaptic cleft**, where they **diffuse** across and bind to **specific receptor sites on the postsynaptic neurone**. If the signal is strong enough to meet the **threshold potential**, a new action potential is generated in the **postsynaptic neurone**, continuing the transmission of the signal.
 - Dopamine is a naturally occurring neurotransmitter in the brain that plays a key role in the brain's reward and pleasure system, regulating motivation, attention, and feelings of euphoria. In the context of romantic love,
 - heightened dopamine activity is associated with intense feelings of attraction, excitement, and reward when viewing or thinking about a romantic partner.

This makes dopamine crucial for the emotional and motivational aspects of love, explaining why new love can feel exhilarating and ‘addicting’.

- **Link to study:**
- **Study:** Fisher, Aron & Brown
 - **Aim:** To investigate the effect of dopamine on behaviour, specifically romantic love.
 - **Method:** Experiment, repeated-measures design
 - **Participants:** 17 participants with average age of 21
 - **Procedure:** Having found that using photographs of participants’ beloveds was an effective method for eliciting feelings of romantic passion, the researchers employed the following procedure:
 - First, while in the fMRI, the participants were shown a photo of their beloved for 30 seconds.
 - This was followed by a 40 second distraction task.
 - Then a photo of an acquaintance was shown for 30 seconds.
 - This was followed by a 20 second count-back task.
 - The researchers also correlated the duration and intensity of the participants' love and how this affected brain activity.
 - **Results:** fMRI results showed that different brain areas were activated when participants viewed photos of their beloved versus acquaintances. Viewing beloveds activated the **right ventral tegmental area (VTA)**, a dopamine-rich region linked to the brain’s reward system, pleasure, arousal, focused attention, and motivation. The **right caudate nucleus** was also activated, a region associated with detecting and anticipating rewards.
 - **Conclusion:** These findings support the hypothesis that romantic love engages dopamine-rich reward and motivation areas, suggesting that love functions as a motivational system driving us toward our partner. This mechanism may help facilitate experiences of pleasure when with the same person over time.
- **Connect to Q:**

- **Real-world relevance:** This study highlights neurotransmitters' fundamental role in human attachment and bonding. Furthermore, it's also used for other applications such as medication for mental disorders which are externally administered in contrast to naturally occurring.

TECHNIQUES USED TO STUDY THE BRAIN

- **Restate Q + study**
- **Explain theory/concept (+how we know):** The choice of techniques used to correlate the brain with behaviour is based on a variety of factors including opportunity, available technology and cost. There are strengths and limitations to the different techniques used to study the effects of the brain on behaviour; however, the contribution of different techniques has helped to understand behaviour.
 - MRI machines create detailed images of the brain's structure. They work by using powerful magnets which create a magnetic field aligning to the hydrogen atoms abundant in the human body, as it is made up of mostly water. The machine also produces a radio frequency which the protons absorb energy from and be knocked out of alignment. When the magnetic field is turned off, the protons gradually return back to their original positions. This produces radio signals that can be measured by the receivers in the scanner and is processed by a computer to create detailed images. OR FMRI
- **Link to study:**
- **Study:** Maguire
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:** This information was ascertained through imagery generated as a consequence of the emitted energy from the hydrogen atoms realigning in the

body. This allows researchers the opportunity to view the brain and its structure without an invasive procedure, and helps them find support for theories such as localisation of function and neuroplasticity.

- **Connect to Q:**
- **Real-world relevance:** They allow scientists to observe and map brain function in real time, improving our understanding of neural processes, aiding research and medical applications as well.

HORMONES

- **Restate Q + study**
- **Explain theory/concept (+how we know):** A hormone is a chemical that is secreted by the **endocrine glands** into the blood stream which then distributes it around the body. The secretion of hormones is regulated by the **pituitary gland**, influencing and coordinating behaviours and thoughts.
 - One hormone that affects human behaviour is cortisol: produced by the adrenal cortex in response to stress and to restore homeostasis. Chronic stress may result in prolonged cortisol secretion and this can lead to physiological changes such as damaged immune system and impairment of learning and memory. This is because of high amounts of cortisol results in atrophy of the hippocampus
- **Link to study:**
- **Study:** Newcomer
 - **Aim:** To investigate how levels of cortisol interfere with verbal declarative memory.
 - **Method:** Lab experiment: randomized, controlled, double-blind experiment running for four days. All participants gave informed consent.
 - **Participants:** A self-selected sample (recruited through advertisement) of 51 normal and healthy people aged 18–30 was used.
 - **Procedure:** There were three experimental conditions:

- A high level of cortisol (tablet of 160 mg per day), equivalent to cortisol levels in the blood as a consequence of a major stressful event.
 - A low level of cortisol (tablet of 40 mg per day), equivalent to cortisol levels in the blood as a consequence of a minor stressful event.
 - A placebo (tablet of no active ingredient)
- **Results:** The high-level group performed worse on the verbal declarative memory test than the low-level group. They performed below placebo levels after day 1. The low-level group (mild stress) showed no memory decrease.
- **Conclusion:** The experiment shows that an increase in cortisol over a period has a negative effect on memory.
- **Connect to Q:**
- **Real-world relevance:** Studying hormones helps us understand how they influence human mood, behavior, and emotional responses, with applications in mental health support, stress management, and promoting overall wellbeing.

PHEROMONES

- **Restate Q + study**
- **Explain theory/concept (+how we know):** A pheromone is a chemical that is secreted by glands to act outside of the body, unlike hormones which are secreted internally from the endocrine glands into the bloodstream. Pheromones communicate their signals to members of the same species, meaning they are conspecific. Mammals use the vomeronasal sensory organ (VNO) to detect pheromones. This is a collection of neurones deep within the nose that transmit signals via the accessory olfactory bulb to the hypothalamus.
 - Mammals use the vomeronasal sensory organ (VNO) to detect pheromones. This is a collection of neurones deep within the nose that transmit signals via the accessory olfactory bulb to the hypothalamus. Two potential human pheromones, androstadienone (AND) and estratetraenol (EST), are believed to influence gender perception and attraction. AND is associated with traits

considered masculine and is expected to attract heterosexual females and homosexual males. Conversely, EST is linked to traits considered feminine and is expected to attract heterosexual males and homosexual females.

- **Link to study:** laboratory (true) experiment
 - IV: mixture of cloves with or without AND or EST
 - DV: people's tendency to distinguish between male and female stick figures
- **Study:** Cutler, Friedman and Coy
- **Connect to Q:**
- **Real-world relevance:** Studying pheromones helps us understand how chemical signals influence social communication, attraction, and behavior in humans and animals.

GENES AND BEHAVIOUR

- **Restate Q + study**
- **Explain theory/concept (+how we know):** A gene is a length of DNA which codes for a polypeptide, which forms into a protein and transforms into one of many possible units, including neurotransmitters, hormones and enzymes. The variations of genes are called alleles, which can carry different characteristics. Although no one gene could be said to code for one behaviour, it has been established that specific genes may contribute to specific behaviours or conditions, such as depression. The 5-HTT gene transports serotonin around the brain. Dysfunction and mutations of the 5-HTT gene (which results in changes in the transport of serotonin) has been linked to depression and anxiety. The 5-HTT gene consists of long and short allele variants which may contribute to disorders such as depression.
- **Link to study:**
- **Study:** Caspi et al
 - **Aim:** Investigate a link between stressful life events and depression on individual with different functional polymorphisms of 5-HTT genes
 - **Method:** Longitudinal study; quasi-experiment

- **Participants:** An opportunity sample of 847 participants aged 26 years
- **Procedure:**
 - The sample was split into three groups, depending on the length of the alleles on their 5-HTT transporter gene: Group 1 – two short alleles; Group 2 – one short and one long allele; Group 3 – two long alleles
 - The participants were asked to report any stressful life events that had taken place between their 21st birthday up to their 26th birthday. The Diagnostic Interview Schedule was used to assess incidences of depression over the past year.
 - The researchers carried out correlational analyses between the following co-variables:
 - each participant's stressful life events and incidences of depression;
 - the length of each participant's alleles and incidences of depression;
 - perceived stress and length of each participant's alleles.
- **Results:** More depression in response to stressful life events was reported from the participants who had two short 5-HTT alleles compared to the other two groups. The participants with two long alleles reported fewer depression symptoms overall.
- **Conclusion:** There may be a relationship between short 5-HTT alleles and depression – i.e. stressful life events are more likely to trigger depression in people with this genetic make-up. Long 5-HTT alleles may provide protection against stress-induced depression. The onset of depression appears to be an interaction between environment (stressful events) and genetic make-up.
- **Connect to Q:**
- **Real-world relevance:** Studying genetic effects on behavior helps us understand how inherited factors influence traits like personality, intelligence, or susceptibility to

mental health disorders, with applications in personalized medicine, early intervention, and educational or therapeutic strategies.

GENETIC SIMILARITIES/TWIN & KINSHIP STUDIES

- **Restate Q + study**
- **Explain theory/concept (+how we know):**
 - Falconer's model
 - Genes carry instructions for traits, including behaviour, intelligence, and personality. These instructions are encoded in DNA, organised into chromosomes. Each chromosome contains thousands of genes, all of which have two versions called alleles inherited from each parent, which serve as biological blueprints for proteins that regulate bodily functions and influence traits. While genes do not directly determine behaviour, they influence sensitivity or predisposition to factors such as stress or depression. A key method used to explore the influence of genes on behaviour is twin studies. Twin studies gather groups of monozygotic (identical) and dizygotic (non-identical) twins and measure their behaviours using a range of tests. After gathering behaviour data, the researchers compare the similarities between monozygotic and dizygotic twins by calculating the concordance rate. Concordance rates represent the probability that if one twin exhibits a specific trait or condition, the other twin will also exhibit it. Because both MZ and DZ twins are typically raised in similar environments, differences in their concordance rates for a given trait can be attributed primarily to genetic differences. Higher concordance rates in MZ twins compared to DZ twins suggest a stronger genetic influence.
- **Link to study:**
- **Study:** Kendler et al
 - **Aim:** to explore the genetic role in major depressive disorder by examining a large sample of twins
 - **Method:** Correlational; online interviews

- **Participants:** 15,493 twin pairs from the Swedish Twin Registry, only including twins whose zygosity (whether they were identical or fraternal) could be confirmed
- **Procedure:** Data was collected through telephone interviews conducted by trained interviewers, where twins were assessed using modified DSM-IV criteria for lifetime depression. The researchers gathered information about the twins' shared environment (childhood experiences living together) and individual-specific environments (personal adult life events) to assess environmental influences.
- **Results:** The results indicated that concordance rates for depression were significantly higher in monozygotic (MZ) twins compared to dizygotic (DZ) twins.
 - Also that the participants who had inherited one or more short version of the allele demonstrated more symptoms of depression and suicidal thoughts in response to stressful life events. The effect was strongest for those with three or more stressful life events. Simply inheriting the gene was not enough to lead to depression, but the genes' interaction with stressful life events increased one's likelihood of developing it.
- **Conclusion:** This supports the idea that genetic factors contribute to susceptibility to major depressive disorder rather than environmental factors alone. Additionally, because both MZ and DZ twins typically experience similar childhood environments, differences in concordance rates can be attributed primarily to genetic variation rather than shared environmental influences. This comparison shows how genes impact susceptibility and predisposition of depression.
 - This suggests that the short allele contributes to a heightened sensitivity to stress, likely due to its impact on serotonin transport and, consequently, mood regulation.
- **Connect to Q:**

- **Real-world relevance:** Studying twins and family members helps us understand how genetics and environment shape behavior, shedding light on the nature vs. nurture debate and informing personalized interventions.

EVOLUTIONARY EXPLANATIONS OF BEHAVIOUR

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Genes are constantly being switched on and off by signals from inside and outside the body. Internal signals include the presence of hormones or other chemicals, or indeed other genes. Hormones are frequently produced as a result of environmental events and work by altering gene expression. There are countless environmental events that also affect gene expression. The signal activates special proteins that can promote or block the expression of a gene. Sometimes genes are permanently switched off through **methylation of the DNA** molecule as part of the developmental process. This effect on genes is sometimes referred to as **epigenetics** as there is no alteration in the actual structure of the DNA. Mutations occur when there is an actual alteration of the DNA.
 - The theory of evolution is the process by which organisms change from generation to generation as a result of a change in heritable characteristics, proposed by Charles Darwin. The modern theory of evolution which combines Darwin's theory with discoveries of genetics is based on the following premises:
 - Need to survive and reproduce
 - Differential fitness: the concept that individuals in a population have different survival and reproduction rates due to variations in their heritable
 - Survival of the fittest: well adapted organisms have a higher chance of surviving and reproducing, and those who can't die out.
 - Natural selection: Organisms that are less adapted do not pass on their genes, and these genes disappear from the population gene pool. Stronger genes get passed down, and the gene pool gets stronger.

- Disgust is one such characteristic that has been hypothesized to have evolved as a protection from risk of disease
- **Link to study:**
- **Study:** Curtis, Aunger & Rabie
 - **Aim:** to determine if disgust was an evolutionary behaviour that evolved as a survival instinct. Researchers reasoned that if disgust was a product of evolution, then the following conditions would have to be filled:
 - Disgust should be felt more strongly when faced with a disease-salient stimulus as opposed to a similar stimulus with less salience
 - Disgust should operate in a similar way across cultures
 - Disgust should be more pronounced in females since they have to protect their babies in addition to themselves
 - Disgust should become weaker as the individual's reproductive potential declines with age (there is less responsibility to care about offspring)
 - Disgust should be stronger in contact with strangers than with close relatives because strangers potentially can carry novel pathogens
 - **Method:** correlational study; survey
 - **Participants:** people from 165 countries → sample size was slightly less than 40,000 after data cleaning (e.g. all participants who had watched the BBC documentary were excluded because they could have been exposed to the hypothesis of the study)
 - **Procedure:** First, respondents were asked a set of demographic questions on their age, sex, country, and so on
 - Then they were asked to rate 20 photos (appearing 1 by 1 on separate screens) for disgust on a scale from 1 (not disgusting) to 5 (very disgusting)
 - Of these photos, 14 comprised 7 pairs of disease-salient vs. less salient stimuli (e.g. one photo depicted a white towel with a blue stain on it, and

the paired photo depicted in reddish-yellow resembling blood and bodily secretions

- **Results:** All predictions found support. 1) ratings of disgust in response to disease salient stimuli were higher than ratings of disgust to less disease salient photos. 2) results were consistent across cultures 3) results more pronounced in females 3) ratings of disgust reduced with age
- **Conclusion:** Results of the study supported the evolutionary explanation: disgust is a biologically based response to disease-salient stimuli that reduces the risk of disease. An evolutionary explanation is a model. The model is tested into observational data, and if it fits well, our confidence in the correctness of this model increases. Since in this study all four predictions formulated on the basis of the model were supported, one can say that the evolutionary explanation of disgust stood the test.
- **Connect to Q:**
- **Real-world relevance:** Studying evolutionary explanations helps us understand why certain behaviors—like mate selection, parental care, or fear responses—developed for survival, with applications in improving mental health treatments, relationship research, and understanding modern social behavior.

RESEARCH METHODS

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Laboratory experiments are a key research method in cognitive psychology. They enable researchers to establish cause-and-effect relationships by manipulating an independent variable (IV) and observing its impact on a dependent variable (DV). To ensure precision and accuracy, variables must be operationalised—defined in specific, measurable terms. Researchers compare a control

group, where the IV is not applied, to an experimental group, where it is. Control is achieved through standardised procedures, which ensure consistency across all participants, maintaining uniform conditions such as instructions, environment, and timing. The design of the experiment, such as using repeated or independent measures, minimises confounding variables and participant effects. Statistical analysis, such as inferential techniques like t-tests, helps determine whether observed differences are significant, adding credibility to the findings. Through this structured approach, laboratory experiments provide a reliable and replicable method for investigating cognitive processes.

- **Link to study:**
- **Study:** ANY CLEAR-CUT EXPERIMENT
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:**
- **Connect to Q:**
- **Real-world relevance:** Understanding research methods is essential for ensuring that psychological findings are valid, reliable, and unbiased. This allows researchers to draw accurate conclusions about human behavior and apply them effectively in real-world settings such as education, therapy, and policymaking.

ETHICAL CONSIDERATIONS

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Informed consent is a crucial ethical consideration in cognitive psychology, ensuring participants understand and agree to all aspects of a study before taking part. This process involves providing clear

information about the study's aims, methods, procedures, and any potential risks or benefits. Informed consent also emphasises participants' right to withdraw from the study at any time without penalty, which is especially important if the research triggers distress. When working with people who cannot commit themselves, like children, researchers must obtain consent from a legal guardian. Additionally, informed consent covers confidentiality, reassuring participants that any personal data will be anonymised and protected to uphold privacy. This ethical practice not only respects the autonomy and well-being of participants but also reinforces the integrity of psychological research by ensuring transparency, respect, and protection throughout the study.

- **Link to study:**
- **Study:** STUDY USING/NOT USING INFORMED CONSENT
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:**
- **Connect to Q:**
- **Real-world relevance:**

ETHICAL CONSIDERATIONS: KARL LASHLEY

- **Study:** Karl Lashely (weak localization)
 - **Aim:** to see if psychological functions are distributed rather than localized
 - **Method:**
 - **Participants:** Lab rats
 - **Procedure:** In this study, he trained a rat to go through a maze without mistakes in search of food, then removed a part of its cortex and observed what effect this

would have on its memory of the maze. He removed 10–15% of the cortex on different trials.

- **Results:** – The results of these experiments did not support Lashley's original hypothesis and led him to formulate the following ideas.
 - The principle of mass action: the memory of the maze depended on the percentage of cortex destroyed, but not on the location of the lesion.
 - Equipotentiality: The idea that one part of the cortex can take over the functions of another part of the cortex when necessary.
- **Conclusion:** Based on these observations Lashley concluded that memory is not localized; it is widely distributed across the cortex as a whole. Even if one part of the cortex is lost, other parts may take over the functions of the missing part
- **Evaluation:**
 - Rats in the study were harmed because invasive surgery was performed on their brain. Such studies must ensure that this degree of suffering is absolutely necessary for the purposes of research, that potential benefits of research results justify the experimental procedure, that the minimum number of animals is used, and that approval is obtained from the Ethics Committee.
 - Strengths: – Studying animals helps uncover the way the human brain (memory especially) works, has the potential to help humans, Lashley was one of the first to try and demonstrate localization of function

COGNITIVE APPROACH TO BEHAVIOUR

MULTI STORE MEMORY MODEL

- **Restate Q + study**

- **Explain theory/concept (+how we know):** The Multi-store model was proposed by Atkinson and Shiffrin in 1968. This model describes memory to be held in three different locations, or 'stores'. The initial memory store is the Sensory memory, which is only limited to our perception. Its main components are the iconic memory, which keeps everything that enters our field of vision and echoic memory, which holds everything that we acoustically perceive at any moment. It does not process information and its primary function is to hold information until it is either transferred to the short term memory store or lost. The following store is the Short Term memory. For information to transfer from the Sensory memory to the short term memory, attention is required. The capacity has traditionally been assumed to be limited to around seven items plus or minus 2 and with rehearsal information can last in the short term memory for up to 30 seconds. Finally the long term memory store is a place for storing large amounts of information for indefinite periods of time. The capacity is believed to be virtually unlimited with an unestablished duration. The rehearsal of material in STM plays a key role in determining what is stored in long-term memory. One aspect in exploring these stores is the study into the primary effect - the ability to only remember the first items of a list - and the recency effect, where the last items of a list are remembered
- **Link to study:**
- **Study:** Glanzer and Cunitze
 - **Aim:** to investigate the serial position effect in order to establish claims by the MSMM, such as the STM and LTM being different memory stores.
 - **Method:** Experiment; repeated measures design
 - **Participants:** 46 army listed men
 - **Procedure:** They were given a list of 15 words shown on a projector for 1 second each with 2 second intervals between each word. The words were common one-syllable words and the researchers read the words as they appeared. After the list was complete, the participants were either instructed to free-recall as many words as they could remember in any order or do a distraction task.

- Condition 1: Free-recall task immediately after seeing the numbers
- Condition 2: Saw a number and counted for 10 seconds, then did free-recall
- Condition 3: Counted for 30 seconds, then did free recall
- They each did this with 15 lists.
- **Results:** The results of this study showed that, in Condition 1, both primacy and recency effects were shown. In Condition 2, with the 10-second distraction task, there was a significant reduction in the recency effect, but this was more so in Condition 3, than 2.
- **Conclusion:** This acts as support for the Multi-memory store model as it shows how, by preventing rehearsal with the distraction tasks, the participants were unable to transfer the words to their long term memory store, providing evidence for the two different stores.
- It demonstrates that the duration of STM is approximately 30 secs.
- It additionally shows that information in the short term memory can be displaced and lost.
- This is because as participants hear words, they start subvocally rehearsing them. Early words are repeated more, so enter the LTM, and thus primacy effect is evident. When recalling immediately, last words are easily remembered, as they are still in STM. With filler task, rehearsal is suppressed, causing recency effect to disappear as recent traces are lost due to lack of rehearsal.
- **Connect to Q:**
- **Real-world relevance:** Understanding memory models allows us to enhance cognitive performance, design effective teaching methods, and develop interventions for memory loss or misinformation

WORKING MEMORY MODEL

- **Restate Q + study**

- **Explain theory/concept (+how we know):** The working memory model, proposed by Baddeley and Hitch in 1974, was one of the first to develop on the Multi-store model, aiming at further understanding and conceptualizing human memory and processes over time. The model suggests that Short term memory is not a single store but rather consists of a number of different stores and it argues that multi-tasking is possible if different stores are being engaged. The STM is said to consist of the phonological loop, which is the auditory component. Then there is the episodic buffer, which holds information temporarily - and the visio-spatial sketchpad, the visual component. These three stores are all controlled by the central executive which is an attention control system that monitors and coordinates the operations of the subordinates. Within the phonological loop, there is the articulatory control system, which is responsible for verbal rehearsal. When this rehearsal is interrupted, a process known as articulatory suppression occurs, which hinders recall by preventing the phonological loop from functioning properly.
- **Link to study:**
- **Study:** Baddely and Hitch
 - **Aim:** To investigate if the STM has separate components as the WMM claims
 - **Method:** Lab experiment
 - **Participants:** 34 undergraduate psychology students
 - **Procedure:** Condition 1: Given simple tracking task that involved holding a pointer in contact with a moving spot of light. They were asked to perform an imagery task which involved describing the letter F (VSS for both tasks)
 - Condition 2: given the tracking task and a verbal task (VSS and PL)
 - **Results:** Very difficult to track the spot of light and describe the letter F in condition 1. In condition 2, they were more capable of carrying out both tasks.
 - **Conclusion:** The two visual tasks were completed less successfully because competing for the limited storage in VSS. The visual and verbal task were completed better because they were using separate components (VSS and PL) therefore not competing for limited storage.

- **Connect to Q:**
- **Real-world relevance:** Understanding memory models allows us to enhance cognitive performance, design effective teaching methods, and develop interventions for memory loss or misinformation

SHCEMA THEORY

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Schema is the theory of how humans process incoming information, relate it to their existing knowledge and use it. Schemas are mental representations that are derived from prior experience and knowledge. Schema helps us predict what to expect based on what has happened before in similar situations. It is used to organise knowledge, assist recall, guide our behaviour and help us make sense of current situations, effectively simplifying the world around us. The theory is based on the assumption that humans are active processors of information. It is useful for understanding how people characterise information as well as understanding how stereotypes, memory distortion and false memories arise.
 - There are 3 types of schemas: social schemas, scripts, and self-schemas
 - It can affect retrieval of information, and encoding of information
- **Link to study:**
- **Study:** Anderson and Pichert
 - **Aim:** To investigate if schema processing influences encoding and retrieval.
 - **Method:** Laboratory experiment
 - **Participants:**
 - **Procedure:** All of the participants were given two schemas; one in the encoding process of the story, and one in the retrieval to see if they were influenced by the last schema when they had to recall the information.
 - They read the same story about the details of a house based on 72 points.

- During the encoding process, half of the participants were told to imagine themselves as a house-buyer, and the other half a burglar.
 - Once the participants read the story with their first schema, they performed a distracting task for 12 minutes before their recall was tested.
 - Then there was a delay in another 5 minutes.
 - When the recall was tested, half of the participants from both groups were given a different schema than their original one. The other half of both groups were asked to retain their original schema.
- **Results:** -The researchers found that the participants in the changed schema recalled 7% more points in the second recall than in the first one.
 - The participants who were asked to switch schemas recalled more points than the other half who kept the same schema.
 - There was a 10% increase in point recall associated with the second schema and recall of first schema declined.
 - The group which continued with the first schema actually remembered fewer ideas at the second trial.
- **Conclusion:** This experiment showed that schema processing has an effect on encoding as well as retrieval of information, because the new schema could only have influenced recall at the retrieval stage.
 - Research also showed that people encoded info which was irrelevant to their prevailing schema, since those who had the buyer schema at encoding were able to recall burglar information when the schema changed and vice versa.
- **Connect to Q:**
- **Real-world relevance:** Schema theory explains how prior knowledge shapes perception and memory, with applications in education, therapy, eyewitness testimony, and artificial intelligence.

THEORY OF DECISION-MAKING AND THINKING

- **Restate Q + study**
- **Explain theory/concept (+how we know):** The theory of planned behaviour (TPB), proposed by Martin Fishbein is a descriptive theory that aims to explain the relationship between attitudes and behaviours when making choices. It posits that an individual's choice of particular behaviour is based on the expected outcomes of that behaviour.
 - Believing that a particular behaviour will lead to a particular desired outcome creates a predisposition known as behavioural intention
 - There are 3 factors that determine behavioural intention:
 - Attitudes: the individual perception of the behaviour
 - Subjective norms: perceived societal pressure regarding this behaviour
 - Perceived behaviour control: the individuals belief in their ability to carry out the behaviour
 - DIAGRAM
- **Link to study:**
- **Study:** Albarracin et al
 - **Aim:** To investigate predictive validity of the theory of planned behaviour for people's decisions to use or not to use condoms (this is essential to enhance prevention of sexually transmitted diseases).
 - **Method:** Meta-analysis
 - **Participants:** 42 published and unpublished research papers with a total of 96 data sets.
 - **Procedure:** All data sets from published research were combined in a single large data matrix, which was then used to analyse the model of planned behaviour.
 - **Results:**

- TPB turned out to be a successful predictor of condom use. The correlation between intention and behaviour in this model was 0.51.
 - There were significant correlations between behavioural intentions (on the one hand) and norms, attitudes and perceived control (on the other hand).
 - **Conclusion:** It was concluded that people are more likely to use condoms when they have formed an intention to do so. In their turn, these intentions are based on attitudes, subjective norms and perceived behavioural control. On a broader scale, the study also confirms predictive validity of the TPB in the specific domain of condom use.
 - **Connect to Q:**
 - **Real-world relevance:** Studying thinking and decision-making models helps us understand why people behave and make decisions the way they do, with applications in areas like health, education, marketing, and public policy.
- a) Rational Thinking:
- **Restate Q + study**
 - **Explain theory/concept (+how we know):**
 - **Link to study:**
 - **Study:**
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:**
- b) **Connect to Q:**
- c) **Real-world relevance:**

d) Intuitive Thinking:

- **Restate Q + study**
- **Explain theory/concept (+how we know):**
- **Link to study:**
- **Study:**
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:**
- **Connect to Q:**
- **Real-world relevance:**

RELIABILITY OF COGNITIVE PROCESSES

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Memory can be unreliable, and the theory of reconstructive memory is one theory that suggest how memory can be unreliable at times.
 - confabulation—a memory based on a fabricated, distorted or misinterpreted memory often believed to be true in spite of contradictory evidence
 - schema processing—memory processing based on prior knowledge in the form of schemas that could result in distortion
 - false memories—recalling an event that never happened and believing it to be true.

- Suggests that memory is not passive retrieval of information from a long-term store, but rather an active recreation of the event in the mind every time it is remembered
- Memory may be influenced by external post-event information: our beliefs, past experience, cultural factors, context in which we are recalling the information, etc.
- Over time, information obtained during the perception of the event and external post-event information can become integrated to the extent that we cannot tell them apart
- **Link to study:**
- **Study:** Loftus and Palmer
 - **Aim:** To investigate the influence of schemas on reconstructive memory
 - **Method:** Experiment; independent measures design
 - **Participants:** Convenience sample of university students
 - **Procedure:** Participants were shown recordings of traffic accidents, then given a questionnaire with the critical question: “About how fast were the cars going when they [verb] each other?”
 - IV: emotional intensity of the verb in the critical question
(‘smashed’/‘collided’/‘bumped’/‘hit’/‘contacted’)
 - DV: speed estimate (mph)
 - **Results:** mean speed estimates varied significantly for the 5 groups:
 - ‘Smashed’: 40.5mph
 - ‘Collided’: 39.3mph
 - ‘Bumped’: 38.1mph
 - ‘Hit’: 34.0mph
 - ‘Contacted’: 31.8mph
 - **Conclusion:** Demonstrates the misinformation effect: misleading postevent information influences eyewitness accounts of an event, but there are 2 potential explanations for this:

- Genuine memory change (the question causes a change in the participant's representation of the event)
 - Response bias (memory of the event does not change, but verbs of a higher emotional intensity causes participants to give higher estimates when they are uncertain)
 - Nevertheless, further experimentation revealed that the first explanation was accurate.
- **Connect to Q:**
- **Real-world relevance:** helps us know how accurately people perceive, remember, and think, with applications in education, eyewitness testimony, therapy, and improving everyday decision-making.

BIASES IN THINKING AND DECISION-MAKING

- **Restate Q + study**
- **Explain theory/concept (+how we know):**
 - heuristics •
 - anchoring
 - representativeness
 - availability
 - cognitive biases
 - confirmation bias
 - optimism bias
 - selective attention
 - illusory correlations.
- **Link to study:**
- **Study:**
 - **Aim:**
 - **Method:**

- **Participants:**
- **Procedure:**
- **Results:**
- **Conclusion:**
- **Connect to Q:**
- **Real-world relevance:**

EMOTION ON COGNITION

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Psychological and neuroscientific research has revealed that emotion and cognition are intertwined. Memories of emotional events sometimes have a persistence and vividness that other memories seem to lack, but there is evidence that even highly emotional memories may fade over time.
 - • flashbulb memories • theory of the emotional brain • the amygdala's influence on memory encoding • appraisal • state-dependent memory
 - A key aspect of investigation into emotion's impact on cognition is the concept called Flashbulb Memory, proposed by Brown and Kulik.
 - Flashbulb memories are vivid memories of the circumstances in which one first learned of a surprising or emotionally arousing event
 - There are two variables that need to attain sufficiently high levels in order for the FBM to occur:
 - Surprise:
 - Personal Consequentiality: which causes emotional arousal
 - If these variables reach sufficient levels, they trigger a maintenance mechanism: overt and covert rehearsal which reinforces the degree of elaboration of the event in memory

- Mechanism of formation: photographic representation of events that are surprising and personally consequential and therefore emotionally arousing – they have high survival value
- Mechanism of maintenance: includes over rehearsal (conversations with other people in which events are reconstructed)
 - Covert rehearsal (replaying even in one's memory)
 - Rehearsal consolidates memory traces and the memory is experienced as very vivid even years later
- DIAGRAM

- **Link to study:**

- **Study:** Brown and Kulik

- **Aim:** To investigate the determinants of ashbulb memories about assassinations, highly newsworthy events, and personally significant events.
- **Method:** Correlational data; based on a questionnaire centred around 10 very unexpected or novel events. There was an element of quasi-experiment: difference was investigated between white Americans and black Americans because it was hypothesized that assassinations of different public figures would have different consequences for these populations.
- **Participants:** 40 white Americans and 40 black Americans, aged 20–60.
- **Procedure:** Participants filled out a questionnaire that was centred around 10 events. Nine of the events involved political figures (mostly assassinations) and the other event was a personal one that was unexpected and shocking. Participants were asked to write a free recall of circumstances in which they first received news of the event. They also rated each event on a 7-point Personal Consequentiality scale and the frequency of rehearsal (the approximate number of times the participant had related the memory to somebody else).
- **Results:** Black participants were more likely to have vivid, elaborate ashbulb memories about those national leaders who were most involved with US civil rights (such as Martin Luther King or Malcolm X). Assassination of these leaders

had more personal consequentiality to black participants than to white participants.

- Occurrence of ashbulb memories correlated (in both white and black participants) with ratings of personal consequentiality.
- Occurrence of ashbulb memories also correlated with frequency of overt rehearsal.
- **Conclusion:** Results of the study match the predictions of the theory. They support the role of personal consequentiality in the formation of ashbulb memories (the model of formation). They also support the role of overt rehearsal in sustaining these memories (model of maintenance). However, the study did not directly test the role of eliciting surprise (all the events used in the questionnaire were just assumed to be sufficiently surprising) or covert rehearsal.
- **Connect to Q:**
- **Real-world relevance:** Studying how emotions affect cognition and memory helps us understand how feelings influence thinking, with applications in education, therapy, eyewitness testimony, and improving decision-making.

SOCIOCULTURAL APPROACH TO BEHAVIOUR

SOCIAL IDENTITY THEORY

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Social Identity Theory suggests that an individual's sense of identity is shaped by their group memberships. People do not solely define themselves by personal characteristics but also by the social groups to which they belong, such as their nationality, ethnicity, or membership in a sports team. An individual may have multiple social identities based on the different groups they are

part of. Tajfel argued that there are three steps to Social Identity Theory. The first step, **social categorization**, involves classifying people into groups based on shared characteristics, such as gender, race, or hobbies. This process simplifies social interactions by organizing individuals into familiar categories, helping people understand where they fit within society. This leads to the **creation of in-groups** (those we identify with) and **out-groups** (those we do not). **Social identification** follows, where individuals adopt the behaviors, and values of their in-group. By conforming to their group's standards, individuals strengthen their connection to the group and differentiate themselves from out-groups. Here, **positive distinctiveness** is the drive for a social group to be seen as unique and better than other groups. **Social comparison** occurs when individuals evaluate their in-group against out-groups to enhance their self-esteem. By perceiving their in-group as superior and the out-group as inferior, individuals achieve a sense of positive self-worth. This can lead to favoritism towards the in-group and prejudice or discrimination against out-groups.

- **Link to study:**
- **Study:** Tajfel et al
 - **Aim:** To investigate effects of social categorization on intergroup behaviour, particularly positive distinctiveness of SIT
 - **Method:**
 - **Participants:** 48 boys of the same age and from the same school
 - **Procedure:** Firstly the boys individually rated paintings by artists Klee and Kandinsky without knowing who was the painter. Participants were randomly allocated into groups (though they were told it was on a basis for a preference of artwork for Kandinsky or Klee, but was in fact random).
 - Told they were participating in a decision making experiment
 - They individually assigned points based off a matrix to their group or another group.
 - They were allowed no face to face contact or communication.
 - Strategies they could use:

- maximum joint payoff (MJP): the choice that corresponds to the highest total number of points
 - maximum in-group payoff (MIP)
 - maximum difference in favour of the in-group (MD): the point in the matrix that maximizes the difference between the payoffs for the members of the two groups.
- **Results:** Boys tended to favour ingroup members over outgroup members (ingroup favouritism)
 - Boys maximised differences between groups (category accentuation effect), even if it was potentially disadvantageous to their own group
- **Conclusion:** The idea of being in a group is enough to induce own group bias (minimal group paradigm). Subjects sacrifice group and personal gain to achieve favourable intergroup differences. Thus this study lends support in particular to the idea of positive distinctiveness.
 - This supports Social Identity Theory's claim that individuals derive self-esteem from their group memberships and are motivated to see their group as superior to others. Despite the seemingly meaningless groupings created by the experimenters, the participants were able to identify with their respective groups and create a positive social identity by giving their in-group more points. Tajfel demonstrated that a "minimal group" is all that is necessary for individuals to exhibit discrimination against an out-group.
- **Connect to Q:**
- **Real-world relevance:** Studying social identity theory helps us understand how group membership influences behavior, attitudes, and self-perception, with applications in reducing prejudice, improving teamwork, informing organizational behavior, and guiding social policies.

a) Social Groups

- **Restate Q + study**
- **Explain theory/concept (+how we know):**
- **Link to study:**
- **Study:**
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:**
- **Connect to Q:**
- **Real-world relevance:**

SOCIAL COGNITIVE THEORY

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Social cognitive theory argues that behaviours are learned from observing others around us and imitating their behaviour based on the consequences. A way in which this occurs is through **vicarious reinforcement**, which is an encouragement to imitate or avoid certain behaviours, as we can learn what is rewarded and what is punished. It also suggests that we are more inclined to imitate people with whom we can relate to, whether that be by gender or by race. Often with this type of learning models serve as indirect models, in a way that they are not attempting to influence behaviour. The theory suggests 4 cognitive factors – **attention, retention, motivation and potential** – are necessary in order to successfully carry out a behaviour ourselves. This means the learner must pay attention to the model, remember these behaviours, must want to replicate them and must be physically and mentally capable to carry them out. In addition, having self-efficacy, which is a belief that we are able to imitate the behaviour, is required.

- A combination of Bandura's social learning (1961) and self-efficacy (1977) theories. Posits that learning occurs in a social context. Consists of 6 constructs:
- Reciprocal determinism – states that the influence of the individual, behavior, and environment is dynamic and bidirectional
- Behavioral capacity – an individual's ability to perform a behavior
- Observational learning – an individual's ability to observe and replicate a behavior done by a model
- Reinforcements – internal or external factors that can positively or negatively affect the continuation or discontinuation of a behavior
- Expectations – anticipated consequences of the behavior, which can affect the outcome
- Self-efficacy – an individual's confidence in their ability to successfully perform a behavior
 - 4 sources of self-efficacy:
 - **Mastery experiences:** Successfully completing a task strengthens self-efficacy by providing direct evidence of one's capability
 - **Vicarious experiences:** Observing others successfully perform a task increases self-efficacy by showing that similar success is attainable
 - **Social persuasion:** Encouragement or positive feedback from others enhances self-efficacy by reinforcing belief in one's abilities
 - **Emotional and physical stress:** Lower anxiety and positive mood improve self-efficacy, while stress or fatigue can weaken it
- **Link to study:**
- **Study:** Bandura, Ross & Ross
 - **Aim:** To find out how observing an adult model influences children's subsequent behaviour.

- **Method:** The key method is a laboratory experiment (the IV was manipulated, the DV was measured). The way researchers measured the DV (children's subsequent behaviour) was structured observation through a oneway mirror.
- **Participants:** 72 children (36 girls and 36 boys) aged 3–6.
- **Procedure:** The children were split up randomly in a number of groups (see below). First, they were allocated to one of the following three groups.
 - Aggressive role model (24 children)—in this group the adult model behaved aggressively towards the Bobo doll by following a script.
 - Non-aggressive role model (24 children)—in this group the adult model followed a similar script, but aggressive actions were replaced by non-aggressive actions.
 - Control group—this group had no model.
- After observing the adult model, the participants were brought into a room filled with toys and were told not to play with them in order to frustrate them, then were brought into another room with toys and a bobo doll - here, researchers observed their behavior against a checklist through a one-way mirror for 20 minutes
- **Results:** Exposure of children to the aggressive model increased the frequency of aggressive behaviour among the children.
 - Imitation in same-sex role model conditions was more likely than in the conditions where the sex of the child and the sex of the model were different.
 - Boys were more likely to be aggressive than girls across all groups.
 - Boys were more likely to imitate physical aggression while girls were more likely to imitate verbal aggression.
- **Conclusion:** Findings support observational learning: learning can indeed be indirect and new behaviors can be learned by simply observing others
- **Connect to Q:**
- **Real-world relevance:** Studying social cognitive theory helps us understand how people learn from observing others and the environment, with applications in education, behavior change programs, therapy, and promoting positive social behaviors.

FORMATION OF STEREOTYPES

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Stereotypes are widely-held evaluative generalizations about a group of people; this allows assumptions to be made about a group or person based on limited information
 - One idea of where they originate from is the **grain of truth hypothesis**. It suggests stereotypes form from a kernel of real-world observation, but this small truth is then exaggerated and generalized to an entire group.
 - Another factor is the formation of **illusory correlations**. leads a person to overestimate the co-occurrence of two statistically infrequent events when in reality they are not related
 - A product of **social categorization**: once people are categorized as belonging to one group, they tend to emphasize similarities to individuals in that group and exaggerate differences between groups
- **Link to study:**
- **Study:** Hamilton and Gifford
 - **Aim:** To investigate illusory correlations based on the co-occurrence of infrequent events
 - **Method:** Field experiment
 - **Participants:** 104 university undergraduates
 - **Procedure:** Participants read a series of sentences describing desirable and undesirable behaviors performed by members of 2 abstract groups, A and B
 - There were 2x as many sentences describing A as compared to B, but the ratio of sentences describing desirable behaviors to those describing undesirable behaviors was the same

- After reading all the sentences, participants were asked to estimate how many members of each group performed desirable and undesirable behaviors
 - **Results:** Participants overestimated the frequency with which members of the minority group performed negative behaviors
 - **Conclusion:** There was a perceived correlation between undesirable behavior and minority group membership. Illusory correlation in the study was caused by event distinctiveness: encountering a member of the minority group and an instance of undesirable behavior are both distinct events; co-occurrence of these is overestimated
- **Connect to Q:**
- **Real-world relevance:** Studying how stereotypes are formed helps us understand the roots of prejudice and discrimination, allowing for the development of interventions that promote tolerance, reduce bias, and improve social cohesion, since this may lead to bullying.

EFFECTS OF STEREOTYPES ON BEHAVIOUR

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Stereotypes are widely-held evaluative generalizations about a group of people; this allows assumptions to be made about a group or person based on limited information
 - Self-fulfilling prophecy
 - Stereotype threat is a theory that suggests when a person is made aware of the stereotype about their group, it can have a negative effect on their performance. This occurs when an individual has a fear of conforming to a stereotype which often leads one to confirming it. According to Steele and Aronson, this is because stereotype threat increases '**spotlight anxiety**', which is where individuals overestimate how much others will notice them. An example of a stereotype is that African Americans have lower perceptions of academic competence than White Americans.
- **Link to study:**

- **Study:** Steele & Aronson
 - **Aim:** To investigate test performance as a function of stereotype threat in white and black participants
 - **Method:** Natural Experiment
 - **Participants:** 114 male and female, black and white Stanford undergraduates
 - **Procedure:** Participants were given a 30-minute verbal test that was difficult enough for most participants to find it challenging in 1 of 2 conditions:
 - Diagnostic (experimental, stereotype-threat) condition: participants were told that the test diagnosed intellectual ability
 - Non-diagnostic (control) condition: participants were told that the purpose of the research had nothing to do with intellectual ability
 - **Results:** White participants performed equally in both conditions
 - Black participants performed as well as white participants in the non-diagnostic condition, but worse than white participants in the diagnostic condition
 - **Conclusion:** Findings support the theory of stereotype threat – when told the test diagnosed intellectual ability, black participants may have felt apprehension over possibly conforming to the negative stereotype that black people are unintelligent; faced with this possibility, they became anxious, which may have affected their test performance
- **Connect to Q:**
- **Real-world relevance:** Understanding stereotype threat is important because it shows how awareness of negative stereotypes can harm performance, confidence, and motivation, leading to inequalities in education, workplace success, and overall mental well-being.

CULTURE AND ITS INFLUENCE ON BEHAVIOUR AND COGNITION

- **Restate Q + study**

- **Explain theory/concept (+how we know):** Cultures are made up of a set of attitudes, behaviours, and symbols shared by a large group of people, and usually communicated from one generation to the next. There are cultural differences in the way people process information (cognitive style).
- **Study:** chiu
 - **Aim:** To carry out a cross-cultural comparison of cognitive styles in Chinese and US students.
 - **Method:** 221 Chinese students and 316 US students, of comparable socio-economic status
 - **Participants:** 221 Chinese students and 316 US students, of comparable socio-economic status
 - **Procedure:** A 28-item cognitive-style test was used. Each item consisted of three pictures (for example, “cow”, “chicken” and “grass”). The task was to select any two out of the three objects that were alike and went together, leaving the third one out.
 - **Results:** US students scored significantly higher than Chinese students in analytic style: they grouped objects more often on the basis of separate components,
 - US students also scored significantly higher in the categorical style, for example a cow and a chicken were grouped together “because they are both animals” (leaving grass unpaired).
 - On the contrary, Chinese students demonstrated a much higher prevalence of the contextual style, for example, classifying pictures together on the basis of contextual commonality. When given “cow”, “chicken” and “grass” as the three objects, they would group cow and grass together because the cow eats grass, and the chicken would be left out.
 - **Conclusion:** Chinese students process stimuli holistically rather than analytically. They prefer to categorize objects on the basis of interdependence

or relationships, while US students prefer to focus on components of the stimulus and categorize on the basis of membership in abstract groups.

- Chiu suggested that cognitive styles are end products of socialization processes. He carried out a review of published evidence and reported the following cultural differences in socialization relevant in the context of this research. • Chinese parents emphasize mutual dependence in the family (as opposed to US parents who emphasize independence). • Chinese students are more tradition-oriented (“living under their ancestors’ shadows”). • Chinese students are more situation-oriented and sensitive to the environment.
- **Connect to Q:**
- **Real-world relevance:** helps explain how cultural backgrounds shape ways of thinking, problem-solving, and interpreting the world, which is vital for improving cross-cultural communication, education, and global collaboration.

a) Cultural Groups

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Cultural groups refer to a group of people who share the same cultural identity. This can be defined by a common language, religion, nationality, or shared experiences and values. Culture groups often stem from cultural dimensions, proposed by Hofstede, which are the differences in values or beliefs between cultures. These are reflective of what societies view as the most important and identifies trends in behaviour, attitude and beliefs across cultures. Additionally, it creates a standardized comparison using a scale of 1-100. The cultural dimensions include collectivism vs individuality, power distance, masc vs fem, uncertainty avoidance, LT vs ST, indulgence vs restraint
 - The first one refers to a culture's tendency towards individualism vs collectivism, giving rise to two different cultural groups. As the name suggests,

collectivistic cultures are focused more on group success and interdependence within a community. There is less need for privacy and less importance is placed on individual freedom. This contrasts to individualistic cultures which focus on personal success, freedom, independence, and privacy. The theory of cultural dimensions is that these cultural values impact behaviour. Cultural groups may impact behaviours such as conformity. For example, individualistic societies are less likely to conform due to the emphasis placed on individuality, whereas collectivistic societies would be more likely to conform as they've evolved to value community and the opinions of others.

- **Link to study:**
- **Study:** Berry & Katz
 - **Aim:** to measure the level of conformity in individualistic and collectivistic societies by applying a version of the Asch Paradigm experiment
 - **Method:**
 - **Participants:** The Inuits of North Canada live as a hunting and **shing** society. This way of life promotes individualism. People are responsible for their survival on a daily basis, and there is little accumulation of food in the society.
 - The Temne of Sierra Leone are a food-accumulating society whose way of life promotes collectivism. They are rice farmers who harvest one crop a year. In order to survive until the next harvest they rely on sharing food among group members.
 - **Procedure:** The participants were individually brought into a room and given a set of nine lines. For the first two tests, they were asked to match the line below that most closely matched the line on the top – these were the two practice tests to make sure that the directions were understood. There were four more trials. On the third trial, they were given a hint which told them what the rest of their community chose. For the third trial, the correct answer was given. For trials 4 – 6, the wrong response was given. Their rate of conformity was then measured.

- **Results:** The Temne had a significant tendency to accept the suggestion of the group and select the incorrect response.
 - Participants from the Inuit group were mostly unaffected by this suggestion of the “majority”.
- **Conclusion:** The researchers concluded that the individualist Inuit participants conform less often than the collectivist Temne because conformity to group norms is ingrained as a cultural value in the Temne society, which depend on tight social relations.
 - This shows that the participants in individualistic societies were less influenced by their community because of the precedent set on individuality and independence. The Inuits faced harsh Arctic conditions, therefore relying on hunting and fishing that demanded self-reliance and quick decision-making for survival. This led to an individualistic culture emphasising independence and adaptability. In contrast, the farmers required coordinated group effort to manage their planting and harvesting, therefore creating an environment where conformity and following the group became the standard.
- **Connect to Q:**
- **Real-world relevance:** helps us understand how shared values, beliefs, and behaviors influence identity, communication, and social interaction, which is essential for promoting inclusivity, reducing prejudice, and improving cross-cultural cooperation.

CULTURAL DIMENSIONS

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Cultural dimensions, proposed by Hofstede, are the differences in values or beliefs between cultures. These are reflective of what societies view as the most important and identifies trends in behaviour, attitude and beliefs across cultures. One such cultural dimension is a culture's tendency towards individualism vs collectivism. As the name suggests, collectivistic cultures are focused

more on group success and interdependence within a community. There is less need for privacy and less importance is placed on individual freedom. This contrasts to individualistic cultures which focus on personal success, freedom, independence, and privacy. Individualistic countries includes the U.S and Germany, while collectivistic countries include China and Ecuador. The theory of cultural dimensions is that these cultural values impact behaviour. Cultural dimensions may impact behaviours such as conformity. For example, individualistic societies are less likely to conform due to the emphasis placed on individuality, whereas collectivistic societies would be more likely to conform as they've evolved to value community and the opinions of others.

- **Link to study:**
- **Study:** Berry & Katz
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:**
- **Connect to Q:**
- **Real-world relevance:** Studying cultural dimensions helps explain why people from different societies think, communicate, and behave differently, allowing for better cross-cultural understanding, conflict resolution, and more effective collaboration in globalized settings.

ENCULTURATION

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Culture is essential for human survival, as it allows knowledge, skills, and beliefs to be passed down through generations. This process, known as **cultural transmission**, helps individuals adapt and thrive within

their society. Enculturation is the process of learning about your culture. This occurs through understanding the values and expectations experienced from gatekeepers – such as parents, teachers or the media. Enculturation can occur through 3 forms.

Direct tuition is when you are told what to do and how to act. **Social cognitive theory** argues we learn through **vicarious reinforcement**, which is an encouragement to imitate or avoid certain behaviours, as we learn what is rewarded and what is punished through observing others. Finally, **participatory learning** engages people in activities in which they can then transfer that learning to later situations.

- DIAGRAMS (triadic reciprocal determinism + behaviorist vs cognitive models)

- **Link to study:**

- **Study:** Demorest et al

- **Aim:** To understand the influence of enculturation on musical memory
- **Method:**
- **Participants:** 150 trained and untrained (in music) participants from the USA and Turkey.
- **Procedure:** Participants listened to several novel musical excerpts from both familiar and unfamiliar cultures (western, Turkish and Chinese) and then completed a recognition memory task.
- **Results:** Participants were significantly better at remembering novel music from their native culture.
 - Musical expertise did not correlate with this result.
- **Conclusion:** Enculturation influences musical memory on a deep level (cognitive schemas for musical information). This study demonstrates enculturation by showing that individuals more accurately remember music from their own culture, suggesting that cultural exposure shapes cognitive schemas and memory for culturally familiar patterns.

- **Connect to Q:**

- **Real-world relevance:** Studying enculturation helps us understand how cultural exposure shapes behavior, values, and cognition, which is essential for improving

cross-cultural communication, education, and social integration in an increasingly globalized world.

ACCULTURATION

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Acculturation is a process of psychological and cultural change as a result of contact and interaction between cultures, which can result in change to all cultures not only the non-dominant culture. It is a process that takes place between dominant and non-dominant cultures, and accelerating globalization is driving this process. Berry (2008) identified four strategies of acculturation: **assimilation, integration, separation, and marginalisation**. Assimilation occurs when an individual adopts the cultural and social norms of the dominant society, often losing aspects of their original culture. Often the failure to assimilate may lead to marginalisation – where one has no culture. Therefore integration, where individuals keep their own cultures while adapting to new ones, rather than assimilation is important. It would give immigrants the ability to become bicultural, and able to function in both the new and their original cultures. Assimilation can also be seen to cause acculturative stress, which refers to the stress caused from learning a new language and beliefs and trying to fit in.
- **Link to study:**
- **Study:** Shah et al
 - **Aim:** To study the association between acculturation and obesity.
 - **Method:**
 - **Participants:** A random sample of 1,375 South Asian male migrant workers in the UAE. Over half of them had lived in the UAE for six or more years. There was also a comparison group of men of the same age in their culture of origin.
 - **Procedure:** Correlated data of BMI of migrant workers in UAE with the amount of time spent in the country.

- **Results:** Migrant workers in the UAE had significantly higher body mass index (BMI) than the comparison group.
 - The longer they stayed in the UAE, the higher their BMI became.
 - Prevalence of obesity was higher in migrants than in the comparison group; for example, it was more than double among Pakistani participants. At the same time, prevalence of obesity and being overweight in the migrant sample was also higher than in Emirati men.
- **Conclusion:** Acculturation may contribute to unhealthy eating behaviours, resulting in obesity and being overweight. This may be explained by the fact that migrants are moving into a culture that promotes more unhealthy eating behaviour, compared to their culture of origin.
- **Connect to Q:**
- **Real-world relevance:** Studying acculturation helps us understand how individuals adapt to new cultures, which is crucial for supporting immigrants, improving multicultural policies, and promoting social harmony in diverse societies.

a) Assimilation / assimilate

- **Restate Q + study**
- **Explain theory/concept (+how we know):** As a result of globalisation, cultures become connected. Many people migrate and therefore are required to learn another country's cultures, norms and beliefs. The acquisition of these norms and beliefs occurs through a process called acculturation. Sometimes, this can lead to conflicts with our cultures. Assimilation is the process of adopting the cultural and social norms of a dominant culture, often losing aspects of one's own culture in the process. Often the failure to assimilate may lead to marginalisation - where one has no culture. Assimilation is argued as bad for the mental health of immigrants as they are no longer in touch with their original culture. Therefore integration, where individuals keep their own cultures while adapting to new ones, rather than assimilation is important. It would give

immigrants the ability to become bicultural, and able to function in both the new and their original cultures. Assimilation can also be seen to cause acculturative stress, which refers to the stress caused from learning a new language and beliefs and trying to fit in.

- **Link to study:**
- **Study:** Lueck and Wilson
 - **Aim:**
 - **Method:** semi-structured interviews
 - **Participants:**
 - **Procedure:** They carried out a set of semi-structured interviews to study the factors that increased acculturative stress in a large sample of Asian immigrants and Asian Americans. The interviews were conducted either online or face-to-face. The interviews measured the level of acculturative stress, language proficiency, strength of family ties, and socioeconomic status.
 - **Results:** 70% of the sample said that they experienced acculturative stress. The researchers found that being bilingual resulted in lower acculturative stress. Higher levels of stress were found in Asians who did not know their native language well enough to discuss important issues with family members or members of the community. Although bilingualism is a predictor of low acculturative stress, the preference for speaking English only is a predictor of high acculturative stress.
 - **Conclusion:** This study supports the argument that assimilation is a less healthy approach to acculturation than integration. The ability to use both languages indicates an individual's integration, as they maintain their native culture while adapting to the new one. Bilingual individuals can build support networks within both their cultural community and the wider society, which serves as a protective factor against acculturative stress. In contrast, those who fully assimilate and abandon their native language may struggle to maintain family connections and cultural identity, increasing their stress levels. Thus, Lueck and

Wilson's study highlights the psychological benefits of integration over assimilation in the acculturation process.

- **Connect to Q:**
- **Real-world relevance:** Studying acculturation helps us understand how individuals adapt to new cultures, which is crucial for supporting immigrants, improving multicultural policies, and promoting social harmony in diverse societies.

ERQ

ROLE OF ANIMAL RESEARCH IN STUDYING HUMAN BEHAVIOUR

- **Restate Q + study**
- **Explain theory/concept (+how we know):** Animal research has a lot of value in psychology, most commonly used animals including rats, mice, pigeons, cats, hamsters, dogs, etc. Such research differs in terms of purposes for which animals are used. An animal model is a concept that refers to using animal research to test a certain cause-effect hypothesis about a certain human behaviour, and must include the animal species being used, the behaviour being modelled, & the causal factor or hypothesis being tested. There are 4 main types of experimental manipulation used in animal models:
 - Genetic manipulation
 - Invasive manipulations with the nervous system
 - Invasive manipulations with other body parts
 - Behavioural and environmental manipulations
- **Link to study:**
- **Study:**
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:**
- **Connect to Q:**
- **Real-world relevance:**

EVOLUTION → MHC GENES + DISGUST (diff parts of evolution)

LOCALIZATION

- **Evaluation of first study:**
- **Study:** Karl Lashely (weak localization) OR FICHER AARON AND BROWN
 - **Aim:** to see if psychological functions are distributed rather than localized
 - **Method:**
 - **Participants:** Lab rats
 - **Procedure:** In this study, he trained a rat to go through a maze without mistakes in search of food, then removed a part of its cortex and observed what effect this would have on its memory of the maze. He removed 10-15% of the cortex on different trials.

- **Results:** - The results of these experiments did not support Lashley's original hypothesis and led him to formulate the following ideas.
 - The principle of mass action: the memory of the maze depended on the percentage of cortex destroyed, but not on the location of the lesion.
 - Equipotentiality: The idea that one part of the cortex can take over the functions of another part of the cortex when necessary.
- **Conclusion:** Based on these observations Lashley concluded that memory is not localized; it is widely distributed across the cortex as a whole. Even if one part of the cortex is lost, other parts may take over the functions of the missing part
- **Evaluation:**
 - Rats in the study were harmed because invasive surgery was performed on their brain. Such studies must ensure that this degree of suffering is absolutely necessary for the purposes of research, that potential benefits of research results justify the experimental procedure, that the minimum number of animals is used, and that approval is obtained from the Ethics Committee.
 - Strengths: - Studying animals helps uncover the way the human brain (memory especially) works, has the potential to help humans, Lashley was one of the first to try and demonstrate localization of function
 - Weakness- Researchers did not control all variables (i.e. rodents still had their sense of smell - could be regarded as a confounding variable
 - Extreme holist position
 - Rats in the study were harmed because invasive surgery was performed on their brain.
- **Evaluation of theory/concept:**
 - Opposing theories: Holism, arguing that all parts of the brain are involved in processing thought and action. Research shows that while some functions are localised, the holistic interaction of the brain regions is essential for complex cognitive activities.
 - Karl Lashley conclusions: The principle of mass action, and equipotentiality ● Critics of Localisation
 - Suggest that isolating functions to specific regions oversimplifies brain processes and ignores the interconnectedness of brain regions.
 - Conclusion: Relative localization. Some functions are localized in very specific part of our brain (case study) and damage to this part will lead to loss of the function ○ However, some functions are localized weakly; some widely distributed; some components of a function may be localized while other

components of the same function are distributed in the brain; localization is not static – neuroplasticity.

NEUROPLASTICITY

- **Evaluation of first study:**

- Alternative explanations: the participants may have decided to pursue careers as taxi drivers because of their predisposed hippocampal structure
(bidirectional ambiguity)
- Gender: since only male taxi drivers were evaluated, this displays gender bias because the same conclusions and results may not apply to female counterparts
(different brain structures)
- Ethical considerations: the study was partially ethical because it can be assumed that the participants consented (except for the control group), were not deceived, were debriefed, could withdraw, and were protected from mental and physical harm while their identities remained confidential
- Cultural considerations: given that the study was conducted in London, England (a Western Educated Industrial Rich Democratic country), the experiment is culturally biased because taxi drivers in different cities or other parts of the world may be susceptible to different changes in brain structure, although unlikely
- Application: the results and knowledge of the study can be used to further study the brain in regards to spatial memory, stimulating the understanding of the hippocampus
- Strengths:
 - Maguire conducted another study using PET scans and found that the areas responsible for spatial awareness were more active and developed when the taxi drivers were asked to describe navigation routes.
 - A scientific method (MRI scan) was used to collect the data.
 - Participants were not asked to partake in any activity that could be damaging to them physically or psychologically.
 - MRI scanning technology does not pose any health risks to the participants
 - None of the participants should have been negatively affected by their experience.

- **Study: Dragenski**

- **Aim:**
- **Method:**

- **Participants:**
- **Procedure:**
- **Results:**
- **Conclusion:**
- **Evaluation:**
- **Evaluation of theory/concept:**
- **Evaluation of theory/concept #2:**

NEUROTRANSMITTERS –

LIMITATIONS OF NEUROTRANSMITTER RESEARCH

Essential understanding

★ *Research that attempts to isolate the effect of one neurotransmitter is inevitably oversimplified. However, it leads to important insights.*

Neurotransmission is a complex process. There are more than 100 known neurotransmitters, and each of them has multiple effects on behaviour. Neurotransmitters in the synaptic gap affect each other and, on top of that, are affected by agonists and antagonists.

When it comes to research, however, we typically increase the level of one isolated neurotransmitter (X) and observe

the changes in behaviour (Z). Can we say that X influences Z? Yes, but with the following limitations.

- The effect may be indirect. For example, X acts as an agonist for neurotransmitter Y, and it is Y that influences Z.
- The effect may be postponed. For example, X triggers a long-lasting process of change in interconnected variables, ultimately resulting in Z.
- X may not be the only factor affecting Z.
- X is never the only factor that changes: when we increase the level of X, this results in various side effects.

TECHNIQUES USED TO STUDY THE BRAIN – Maguire + Fischer et al

HORMONES –

PHEROMONES

GENES AND BEHAVIOUR

GENETIC SIMILARITIES/TWIN & KINSHIP STUDIES

EVOLUTIONARY EXPLANATIONS OF BEHAVIOUR

RESEARCH METHODS

ETHICAL CONSIDERATIONS

ANIMAL RESEARCH

THINKING MODELS

SCHEMA THEORY

Paper 2

Abnormal

ABNORMAL PSYCHOLOGY

PREVALENCE RATES

- **Define all variables involved (problem):**
 - Prevalence rates serve as a crucial measure to indicate the proportion of individuals affected by a condition, such as Major Depressive Disorder, within a defined population and timeframe.
 - Depression, also called major depressive disorder or clinical depression, is a common mental health condition, an affective disorder characterized by symptoms such as depressed mood, loss of interest, and fatigue. The WHO states that it is one of the leading causes of disability in the world, thus making it extremely crucial to understand this disorder.
- **Explanation of theory/concept:**
 - Important:
 - Informs Mental Health Policies
 - Highlights Risk Factors / identifying at-risk groups
 - Promotes Awareness and Reduces Stigma
 - Point prevalence rate: (proportion of the population currently diagnosed with the disorder)
 - Period Prevalence rate: (proportion of the population diagnosed with the disorder during a given time period, 12-month, lifetime(period prevalence of a population who had depression at least once in their life))
 - Onset age: average age when an individual in a given population first develop the disorder
 - Other examples of variation in prevalence rates include:
 - MDD is usually high in high income countries – several factors such as severity threshold for reporting depression
 - Average 12-month period prevalence is 6.7, women 8.5, men 4.7 (roughly twice for women in most studies)
 - Women higher due to factors such as: hormones, work-related stressors, home responsibilities, caring for children, abuse and relationship status
 - May be attributed to genuine differences in prevalence or differences in the way the disorder is presented.
 - Cross cultural differences in age of onset ranges from adolescence to early forties (median age is mid-20s) found to be greater than for other mental disorders.

- Depression has the tendency to be a **recurrent disorder** (typically lasts about 3-4 months). For some it can turn into a chronic disorder.
- Factors influencing prevalence rate estimates (4):
 - Classification system used – (ex. Bereavement exclusion for MDD removed in DSM-5), International Classification of **Diseases** (ICD) WHO and Chinese Classification of Mental Disorders (CCMD)
 - Diagnostic Criteria: Explain how changes in DSM-5 affect prevalence rates. – The removal of the bereavement exclusion led to more inclusive diagnostic criteria, potentially increasing prevalence rates. This shows how changes in diagnostic criteria can affect prevalence rates.
 - Reporting Bias : Reporting bias, cultural differences in symptom expression, and changes in diagnostic criteria can all affect prevalence rates.
 - Cultural variations in the expression of symptoms
 - For example African-American and Caucasian clients would often express symptoms differently, but clinicians tend to be insensitive to these cultural differences, which results in bias and misdiagnosis.
 - Related problem: **Somatization** – expressing psychological disturbance in the form of physical symptoms
 - (may be “shameful” in some traditionalist countries (prevalence rate is based on the no. of people who seek help and are diagnosed with MDD)) 9
 - Clinical biases in diagnosis – when a clinician's personal prejudice, stereotypes, or opinions (conscious or unconscious) influence their diagnostic process, leading to inaccurate or unfair diagnoses
- **Link to study:**
- **Study #1:** Furnham and Malik
 - **Aim:** To investigate cross-cultural beliefs about depression, and thus shed light on how cultural perceptions influence the reporting, diagnosis, and measured prevalence rates of the disorder.
 - **Method:** Quasi-experiment
 - **Participants:** 152 female participants of 2 age groups (young and middle-aged)
 - Half of them were Native British and half were of Asian origins
 - **Procedure:** Participants filled out questionnaires about their symptoms and beliefs about depression and the results were compared across groups
 - **Results:** Perceptions of depression differed among British and Asian participants

- Asian participants thought that depression is temporary and can be fixed by a job outside home
 - Differences less pronounced in the younger group
 - Asian middle-age group reported being depressed significantly less than the younger group
- **Conclusion:** This shows how cultural differences exist in the way depression is perceived and this may affect the prevalence rate because it affects whether or not people report their illness to professionals.
 - It seems that older people from traditional collectivist societies tend to report depression more to relatives and less to professionals.
 - This cultural variation in understanding and reporting depression suggests that prevalence rates may underrepresent certain communities, particularly in traditional collectivist societies where mental health issues are more likely to be discussed with family than medical professionals.
- **Evaluation of study:**
 - Methodological limitations:
 - The reliance of self-report questionnaires further introduces potential limitations, such as response bias and variability in participants' understanding of the questions.
 - Language barriers and translation issues may have further impacted the accuracy of responses, particularly for non-native English speakers.
 - The cross-sectional design, and method of quasi-experiment, prevents conclusions about causal relationships between cultural factors and depression prevalence.
 - GRAVE
 - The sample consisted entirely of females, so findings cannot be generalized to males or to broader populations. Most participants were middle-class and educated, not representative of the general population, particularly first-generation migrants.
 - The translated questionnaires might have altered meaning across languages, threatening **test-retest and inter-rater reliability**.
 - Additionally, by focusing on specific cultural groups, the results provide valuable insights but limits its applicability and generalizability to other populations.
 - Western measures (Langner-22, Rippere's Depression Beliefs Scale) were used with non-Western participants without full cultural validation. Some items may not have captured culturally specific expressions of

depression (e.g., somatic symptoms) – **assumes** it can be considered an objective measure for MDD.

- **Connect to Q:**

- It is interesting to note that global estimates range from 5-15% in the general population. This variation reflects important demographic patterns, particularly regarding gender, where women consistently show approximately twice the prevalence rate of men (10-15% versus 5-8%). This gender disparity may be attributed to multiple factors, including hormonal differences, societal pressures, and varying help-seeking behaviors between men and women.

- **Study #2:** Brown and Harris

- **Aim:** To investigate how depression could be linked to social factors and stressful life events in a sample of women from London, which would help explain why certain populations—such as women in urban settings—show higher prevalence rates of the disorder
- **Method:** Survey/Interview
- **Participants:** 458 women
- **Procedure:** They studied women who had received hospital treatment for depression and women who had visited their doctor seeking help for depression.
 - The participants were surveyed on their life and depressive episodes.
 - The researchers used interviews where they addressed particular life events and how the women had coped.
- **Results:**
 - On average, 82% of those who became depressed had recently experienced at least one severe life event or major difficulty, compared to only 33% of those in non-depressed comparison groups.
 - Working-class women with children were four times more likely to develop depression than middle-class women with children. The researchers found that vulnerability factors such as
 - lack of social support – like an intimate relationship
 - more than three children under 14 years at home
 - Unemployment
 - early maternal loss before the age of 11
 - in combination with acute or ongoing serious social stressors, were likely to provoke depressive episodes.
- **Conclusion:** Social factors are involved in the development of depression, and explains why prevalence rates of depression are higher among women, particularly those in lower socioeconomic or high-stress environments,

potentially because they are more frequently exposed to severe life events and social stressors that trigger depressive episodes

- **Evaluation of the study:**

- Methodological evaluation:
 - The semi-structured interview was useful to gather in-depth information of how the women perceived their own situation.
- GRAVE:
 - Results cannot be generalized to men, or even women of other cultures do to biased sampling of women only from South London, limiting generalizability
 - The sample size of the original study was relatively large, making the results potentially more reliable.
 - Focused only on severe life events, so it may overlook other contributing factors, like genetics or personality, lowering validity?
 - Psychological distress: discussing severe life events could trigger distress or trauma?

- **Evaluations of the theory/model as a whole:**

- **Prevalence rates:**
 - Useful for Policy and Intervention
 - Provides valuable data to guide health care policies, funding allocation, and targeted prevention strategies.
 - Identifies Vulnerable Groups
 - Helps pinpoint demographics at higher risk, allowing for focused support and intervention
- However, various factors influence prevalence rates, and thus it cannot be compared accurately across countries/cultures due to reduced reliability of cultural and reporting bias + different diagnostic criteria used, or historically, due to changes in diagnostic criteria.
 - Underreporting and Misdiagnosis: Mental health stigma and lack of access to healthcare may result in unreported cases, limiting accuracy.
- Areas of uncertainties:
 - All the issues discussed above such as:
 - Variation in diagnostic criteria over time or across regions.
 - Prevalence does not indicate causation or severity.
 - Underreporting of cases due to stigma or lack of access to healthcare.

- Cannot explain why prevalence is high—only that it is, or what factors exactly influence the disorder – limited explanatory power
 - Triangulation:
 - Triangulating point-prevalence, period and lifetime prevalence could help strengthen accuracy of prevalence rates, along with combining this data with incidence rates, clinical interviews, or hospital admission records to strengthen reliability.
- **Connect to Q:**
- **Real world relevance:**
- **Conclusion:** In conclusion, evaluating the prevalence of depression is a complex process shaped by a variety of cultural, social, and diagnostic factors. A key strength of prevalence rates is the empirical evidence showing that different factors, such as culture and social norms, affect prevalence rates. This understanding allows for diagnosis and treatment to be adapted to specific cultural contexts, which is especially important as globalisation changes attitudes toward mental health. For instance, increasing social acceptance of mental disorders may encourage more individuals to seek help, potentially raising the recorded prevalence rate. However, there are significant challenges in obtaining accurate prevalence data. Cultural differences in how depression manifests make it difficult to define and measure consistently. This raises the question of whether validity—adapting diagnoses to cultural differences—or reliability—maintaining a universal diagnostic framework—should take precedence. Additionally, biases in diagnosis can lead to over-diagnosis or under-diagnosis in certain groups, further complicating the data. The **influence of media** also plays a role, as it can lead to self-diagnosis, inflating prevalence rates without clinical confirmation. These factors highlight the complexity of measuring depression prevalence while ensuring accurate and equitable approaches to mental health.

BIOLOGICAL ETIOLOGY OF A DISORDER

- **Define all variables involved (problem):**
 - Depression, also called major depressive disorder or clinical depression, is a common mental health condition, an affective disorder characterized by symptoms such as depressed mood, loss of interest, and fatigue. The WHO states that it is one of the leading causes of disability in the world, thus making it extremely crucial to understand this disorder.
 - The biological explanations take the nature side of the nurture vs nature debate which assumes that human behaviour is innate, inherited traits.

- Genetic predisposition and the Serotonin hypothesis, are two biological explanations for MDD.
- The falconer's model is a model that assumes that phenotype (observed characteristics/present symptoms) comprises three types of influences: genetics, shared environment, individual environment, hence can be used to measure the extent of heritability through genes
 - $1 = A + C + E$
- **Link to study:** Kendler et al used the falconers model to understand the genetic explanation of MDD, by investigating rates of heritability within families, or the extent to which genes may be responsible for developing MDD.
 - Twin studies can help determine the likelihood of one person developing depression if their twin also has one.
- **Study #1:** Kendler et al
 - **Aim:** To investigate the heritability of depression
 - **Method:** Correlation (interviews; twin study)
 - **Participants:** 15,493 twin pairs from the Swedish Twin Registry. Only twins whose zygosity could be verified were used in the study.
 - **Procedure:** Data was collected through telephone interviews conducted by **trained interviewers**, where twins were assessed using **modified DSM-IV criteria for lifetime depression**. The researchers gathered information about the twins' shared environment (childhood experiences living together, C) and individual-specific environments (personal adult life events, E) to assess how much genetics influenced the development of MDD.
 - **Results:** The researchers estimated from the concordance rates in mono- and dizygotic twins that the heritability of depression, A, is roughly 38% - The rate was higher in females.
 - **Conclusion:** This suggests that depression arises from an interaction between genetic vulnerability and environmental stressors, in line with the diathesis-stress model.
- **Evaluation of study:**
 - Methodological limitations:
 - The study is correlational, so no cause and effect relationship can be determined.
 - GRAVE
 - The study appears to confirm previous research, strengthening the reliability of the findings
 - Information about life-events and depressive symptoms was self-reported, which may affect validity of studies, due to self-report bias

or retrospective bias. Moreover, the clinical diagnoses are not highly reliable and making such a diagnosis by telephone may be considered of questionable validity.

- But the very large sample size taken from a single population helps to mediate some of the concerns above.

- **Evaluations of the theory/model as a whole:**

- Alternative explanations/assumptions:

- The falconer model does not account for:

- ignore complex gene–environment interactions. Influence on depression may not be as straightforward as such studies suggest. For example,
 - Different gene–environment correlations:
 - Like **passive** rGE: rearing environment
 - **Evocative** rGE: genotype influencing responses received from others
 - **Active** rGE (or niche–picking): individual may actively select certain environments
 - Since it **assumes the A, C, and E values are independent and cannot affect each other, and thus limits the validity of the study and theory.**

- Areas of uncertainties + triangulation:

- The existence of gene–environment correlations is a challenge to current research because it is not easy to study them in all their complexity. Study of them requires longitudinal research with large samples and sophisticated statistical modelling, and using such different methods, even quasi–experiments by identifying the specific genes involved in genetic heritability would help determine causation and achieve triangulation.

- **Connect to Q:** Additionally, researchers have found that patients with major depressive disorder have an imbalance or mutation of several neurotransmitters, including serotonin (5-HTT gene).

- Another prominent biological explanation for depression is the Serotonin hypothesis. This argues that a reduction in serotonin, perhaps due to insufficient production or ineffective receptors, may lead to depression.

- Serotonin hypothesis: states that low levels of serotonin in the brain play a causal role in developing MDD. Based on 2 types of findings:
 - Certain drugs known to deplete levels of serotonin in the brain also found to have depression–inducing side effects

- Certain drugs found to be effective against symptoms of depression such as MAO inhibitors and SSRIs, increased serotonin effects and synaptic concentration of serotonin, respectively.
- Low levels of serotonin appear to result in symptoms including obsessive thoughts, impulsivity and suicidal thoughts.
 - However, these two factors are not necessarily independent and in fact appear to work together: the serotonin allele (5-HTT) is passed down from one's parents, therefore having low serotonin and thus a predisposition to depression is genetic.
- **Study #2: Caspi et al**
 - **Aim:** investigate the relationship between stressful life events and depression in individuals with different functional polymorphisms of 5-HTT genes
 - **Method:** Longitudinal, correlational
 - **Participants:** an opportunity sample of 847 New Zealander, 26 year-olds.
 - **Procedure:** participants were genotyped and divided into three groups based on their 5-HTT alleles: group 1 had two short alleles, group 2 had one short and one long allele, group 3 had two long alleles. The mutation of the 5-HTT gene has the shorter alleles. The participants were asked to fill in a stressful life events questionnaire which asked them about the frequency of 14 different events (financial, employment, health, and relationship stressors) between ages of 21 and 26. They were also assessed for depression.
 - **Results:** The results showed that the participants who had inherited one or more short version of the allele demonstrated **more symptoms of depression and suicidal thoughts** in response to stressful life events. The effect was **strongest for those with three or more stressful life events**. Simply **inheriting the gene was not enough to lead to depression**, but the genes' interaction with stressful life events increased one's likelihood of developing it.
 - **Conclusion:** the findings partially explain why certain individuals develop depression whereas others do not. an increase in stressful life events leads to a higher probability of suicide attempts and major depression for participants with short alleles.
- **Evaluation of the study (COMBINE WITH BEFORE IF POSSIBLE/only mention additional stuff):**
 - Methodological:
 - The theory acknowledges the interaction between both biological and environmental factors in depression. This is a more **holistic** approach, not reductionist.

- The study is correlational, so no cause and effect relationship can be determined.
- GRAVE:
 - Not generalizable to non-western populations, since they may behave differently to environmental influences, due to sampling bias of only New Zealanders. Also cannot generalize to older populations.
 - Later studies have been able to show similar results. It appears that the study has **high reliability**.
 - The study makes an assumption that serotonin causes depression.
 - AOU: There were some participants who did not carry the gene mutation who became depressed; therefore, we cannot say that gene expression alone can cause expression.
 - Large sample sizes which enhance their external validity and generalisability
- **Evaluations of the theory/model as a whole:**
 - Alternative explanations:
 - Another theory: stress hormones can damage neurons in the hippocampus leading to behavioural changes, and SSRs gradually increase growth of neurons, thus decreasing depressive symptoms.
 - Hormonal Dysregulation (HPA Axis Dysfunction) - The HPA axis (Hypothalamic-Pituitary-Adrenal Axis) controls stress response and cortisol release. Individuals with depression often show higher cortisol levels.
 - Areas of uncertainties:
 - Do not account for sociocultural, and especially cognitive influences.
 - However, findings based on “**treatment etiology fallacy**”, cannot be certain it is this straightforward because:
 - Not all patients benefit from drugs » link between neurotransmitters and depression is not direct
 - Following recovery, serotonin levels found to still be low in some patients
 - Drugs increase levels of neurotransmitters within minutes, but effect on mood not that fast » suggest influence might be indirect
 - Triangulation: Many studies support both the conclusion arrived by both studies, and thus have triangulation.
- **Connect to Q:**
- **Real world relevance:**

- **Conclusion:** The genetic argument for depression highlights a hereditary link. However, as a correlational approach, it cannot establish a direct cause and effect, limiting its strength as a standalone explanation. Furthermore, genetic predisposition alone does not account for depression's complexity; environmental factors, such as life stressors, play a significant role in triggering depressive symptoms, often through interaction with genetic vulnerability. The **polygenic nature of depression** further complicates the genetic perspective, making it challenging to identify specific causing genes. Thus, while genetics are a crucial factor, a more integrated model that includes environmental and psychological influences is essential for fully understanding depression.
- Similarly, the serotonin hypothesis, although exploring valuable insights into the biological basis of depression, has considerable limitations as an isolated explanation. Its correlational basis fails to establish causation, and the focus on serotonin alone neglects the roles of other neurotransmitters and genetics. Isolating biological factors is challenging as our biology interacts dynamically within itself and with environmental influences. While serotonin imbalances may contribute to depressive symptoms, the hypothesis has been criticized for oversimplifying depression by attributing it to a single biological factor.

COGNITIVE ETIOLOGY OF A DISORDER:

- **Define all variables involved (problem):**
 - Depression, also called major depressive disorder or clinical depression, is a common mental health condition, an affective disorder characterized by symptoms such as depressed mood, loss of interest, and fatigue. The WHO states that it is one of the leading causes of disability in the world, thus making it extremely crucial to understand this disorder.
 - The cognitive approach to explaining MDD focuses on processes such as thinking, memory, information-processing, and perception. It assumes that

depression is a result of **faulty or irrational thought processes** which may lead to **over use of cognitive biases**, resulting in poor mood.

- Aaron Beck's cognitive theory of depression:
 - suggests that cognitive factors are the major cause of depression.
 - highlights the importance of automatic thoughts—the semi-conscious sub-vocal narrative that naturally occurs in people's minds to accompany their daily activities.
 - The central claim of the theory is that a change in automatic thoughts can lead to a change in behaviour, opposing many researchers who thought automatic thoughts were a by-product of other phenomena, such as behaviour and attitudes.
 - There are three elements of the theory:
 - Cognitive triad – deeply grounded beliefs about three aspects of reality. Interferes with automatic thoughts, making them unrealistically pessimistic
 - The self (“I’m worthless”)
 - The world (“No one notices me”)
 - The future (“things can only get worse”)
 - Negative self-schemata – irrationally critical or negative views of oneself – result of traumatic childhood experiences, such as criticism, abuse or bullying.
 - Faulty thinking patterns – negative beliefs outlined above lead to a no. of cognitive biases people with depression often resort to when interpreting daily events:
 - Arbitrary inference – far fetched conclusions from insufficient evidence
 - Selective abstraction – noticing one aspect ignoring other aspects of experience.
 - Overgeneralization – making conclusion on the basis of a single event
 - Personalization – blaming oneself for everything
 - Dichotomous thinking
- **Link to study:** Many studies lend empirical support to Beck's theory, investigating aspects of it
- **Study #1:** Alloy, Abramson and Francis
 - **Aim:** investigate the role of one's cognitive style in the development of depression
 - **Method:** longitudinal study, Quasi-experiment

- **Participants:** college students who were not currently depressed and showed no signs of depression
- **Procedure:** Firstly, the participants were given a test to measure their cognitive style and put into two groups, 'High risk' and 'Low risk' for depression based on their thinking patterns. Regular follow-up assessments were carried out. The study was based on a combination of questionnaires and structured interviews to identify stressful life events, cognitive style, and symptoms of depression.
- **Results:** During the first 2.5 years of follow-up, high risk freshmen were more likely to develop major depressive disorder than low-risk freshmen (17% vs 1%)
 - High risk freshmen were also more likely than low risk freshmen to develop suicidal thoughts and behaviour (28% vs 13%)
- **Conclusion:** These results indicate that negative cognitive style played a role in both onset and relapse of depression.
- **Evaluation of study:**
 - As a natural experiment, this study benefited from increased ecological validity, allowing participants' cognitive patterns to evolve naturally, but it also lacked control over potential confounding variables, leading to the risk of spurious correlations.
 - However, do the sample of uniquely college students, the generalisability and thus the external validity of the findings are limited.
 - Additionally, life events such as trauma or major stressors could have independently contributed to depression, complicating the interpretation of the results.
 - A notable strength of the study was its use of triangulation, employing both cognitive assessments and clinical interviews to validate the findings, enhancing the credibility of the results.
 - The use of pre test/post test design reduces bidirectional ambiguity as it emphasises causation,
- **Connect to Q:** Another aspect of the theory is that of negative attention bias.
- **Study #2:** Caseras et al
 - **Aim:** To investigate whether attention to positive or negative stimuli is different in depressed and non-depressed people.
 - **Method:** Quasi-experiment
 - **Participants:** 43 participants
 - **Procedure:** Participants were assessed using the **dysfunctional attitudes scale** to determine if they were at risk of being depressed. Participants were shown picture pairs with negative, positive and neutral scenes. Eye-tracking

technology was used to record which picture participants looked at first and how long they looked at them.

- **Results:** Participants with depressive symptoms demonstrated a bias in maintenance of attention to negative pictures. No differences were found in initial orienting though.
- **Conclusion:** negative attention bias can be a cognitive mechanism of depression, providing evidence for the idea that **negative schemas** trigger depression.
- **Evaluation of the study:**
 - The study does not confirm that participants were actually depressed, as a diagnosis requires symptoms lasting at least two weeks. Relying on a single questionnaire reduces the study's credibility.
 - The study shows correlation, not causation; longer viewing times may not indicate attention bias, as participants might not actually be depressed.
 - Nevertheless, the results align with real-life depressed behavior, as depressed individuals often focus on negative aspects, reinforcing their pessimistic views.
- **Evaluations of the theory/model as a whole:**
 - Alternative explanations:
 - Does not account for biological or sociocultural explanations, but Beck proposed the **diathesis-stress component** of his theory: **some people are naturally predisposed to developing MDD, making them vulnerable to environmental stressors, to account for this.**
 - Assumptions: **Cognitive distortions precede depressive symptoms rather than result from them.**
 - Areas of uncertainties:
 - Sociocultural factors is completely ignored by this theory
 - Triangulation:
 - Compare findings with biological measures (e.g., neuroimaging, genetics) or longitudinal studies tracking thought patterns and depression onset.
 - Issues:
 - GRAVE;
 - Supported mainly in Western populations, may not fully apply to non-Western cultures with different cognitive styles.
 - High construct validity: negative schemas and cognitive distortions are observable and measurable
 - Cognitive theory of depression forms the basis of cognitive behavioural therapy (CBT). The core idea of this approach to treatment is that confronting the client's faulty thinking patterns with the objective reality

of the situation will replace the irrational elements with more logical thinking, which will in turn affect behaviour. CBT is an influential and effective approach to treatment, and thus lends support to this theory.

- **Connect to Q:**
- **Real world relevance:**
- **Conclusion:**
 - The cognitive approach has offered an explanation of depression that has given us an alternative to simply a biological model. A more optimistic thinking strategy appears to lower stress and thus may be the reason why depression is less likely in people who think as such. However, not all pessimists develop depression. This shows that the cognitive approach is limited in its ability to completely explain the disorder and must work together with biological and sociocultural explanations in order to get a more complete understanding. Beck's negative triad effectively describes how depressed people think about themselves, their future and the world and this is common in depressed individuals. However, it could be argued that this is a symptomology rather than etiology. The practical application of the theories has led to successful treatments that have improved some people's lives such as CBT. Additionally, correlational research means that causation cannot be established and bidirectional ambiguity cannot be resolved. It is unclear whether the thinking patterns are the cause or the result of depression.

SOCIOCULTURAL ETIOLOGY OF A DISORDER:

- **Define all variables involved (problem):**
 - Depression, also called major depressive disorder or clinical depression, is a common mental health condition, an affective disorder characterized by symptoms such as depressed mood, loss of interest, and fatigue. The WHO states that it is one of the leading causes of disability in the world, thus making it extremely crucial to understand this disorder.
 - The sociocultural approach to etiology looks at the role that environmental factors play in our mental health.

- Brown and Harris proposed a model of depression which outlines how “vulnerability factors” may interact with triggering stressors to increase the risk of depression:
 - 3 or more children under the age of 14
 - Lack of an intimate relationship with a husband/boyfriend
 - Lack of employment
 - Loss of mother before age of 11 years.
-
- **Link to study:**
- **Study #1:**
 - **Aim:** To investigate how depression could be linked to social factors and stressful life events in a sample of women from London.
 - **Method:** Survey/Interview
 - **Participants:** 458 women
 - **Procedure:** They studied women who had received hospital treatment for depression and women who had visited their doctor seeking help for depression.
 - The participants were surveyed on their life and depressive episodes.
 - The researchers used interviews where they addressed particular life events and how the women had coped.
 - **Results:**
 - On average, 82% of those who became depressed had recently experienced at least one severe life event or major difficulty, compared to only 33% of those in non-depressed comparison groups.
 - Working-class women with children were four times more likely to develop depression than middle-class women with children. The researchers found that vulnerability factors such as
 - lack of social support
 - more than three children under 14 years at home
 - Unemployment
 - early maternal loss before the age of 11
 - in combination with acute or ongoing serious social stressors, were likely to provoke depressive episodes.
 - **Conclusion:** Social factors are involved in the development of depression.
- **Evaluation of study:**
 - Strengths:
 - Showed that social factors (and not only personality factors) were involved in development of depression.

- Significant as it established a new approach in understanding depression.
 - Etiology of depression now often includes consideration of social factors.
 - The semi-structured interview was useful to gather in-depth information of how the women perceived their own situation.
- Limitations:
 - The sample in the study was gender biased (only female respondents) so it is not possible to generalize to men, or collectivistic cultures (since: *see next point*)
 - Cultural factors were not taken into consideration, neither were biological and sociocultural factors
- GRAVE:
 - No clinical verification: Depression status may not have been formally diagnosed in all participants, reducing the credibility of results.
 - Emotional distress in participants
- **Connect to Q:**
 - Another theory of sociocultural etiology is Rosenquist et al (2011)'s idea that depressive symptoms could pass from person to person. They theorised that this could happen in three different ways: Depression in one person could cause depression in another person, depressed individuals seek each other out and become friends, or people who suffer from depression share similar social and economic environments.
- **Study #2: Rosenquist, Fowler & Christakis**
 - **Aim:** investigate how depressive symptoms can spread through social networks
 - **Method:** Statistical analysis of social networks Longitudinal study. Depressive symptoms were measured using CES-D scores
 - **Participants:** –
 - **Procedure:** The study used data from the Framingham Heart Study, a large-scale longitudinal project that contained information of 12,067 individuals and their risk factors for heart disease as well as their social relationships with friends, neighbors and relatives. The researchers compiled the information into a computerized system and developed a **map of the social network structure** of the community. Additionally, depression was measured using a self-reported mental health survey, and the researchers assessed the likelihood of individuals developing depression based on their proximity to others who were already experiencing depressive symptoms
 - **Results:**

- There was a significant correlation in depressive symptoms between people up to three degrees of separation away:
- Participants were:
 - 93% more likely to be depressed if a person they were directly connected to (such as a friend) was depressed
 - 43% more likely to be depressed if a person within two degrees of separation (like a friend's friend) was depressed
 - 37% more likely to be depressed if a person within three degrees of separation (like a friend's friend's friend) was depressed
- Changes in social ties(e.g acquiring new friends) predicted changes in depressive symptoms, but not vice versa.
- BUT
- Depressed individuals being friends not enough evidence because there are three ways that can be interpreted:
 - 1. Depression in one person causes depression in their friends.
 - 2. Depressed individuals notice each other and become friends.
 - 3. Friends experience similar social and economic environments which explains similar symptoms
- 2. Refutation: changes in social ties predicted changes in depressive symptoms, but changes in depressive symptoms did not predict changes in social ties
- 3. Refutation: directionality of friendship also appeared to be important
- **Conclusion:** This suggests a **contagion effect**, where depressive symptoms can spread through social interactions. Rosenquist, Fowler, and Christakis argued that this spread could be due to shared emotional experiences, social norms, or behaviors within these networks.
- **Evaluation of the study:**
 - One strength of the study is its longitudinal design, which allowed researchers to observe changes in depressive symptoms over time, strengthening causal claims about social influences on depression. Additionally, the large sample size improves external validity, allowing broader generalization of the findings. However, the use of self-reported data for depression introduces the potential for reporting bias, which may affect the accuracy of the results. The study's high internal validity benefits from its controlled methodology, but it is **difficult to fully disentangle social effects from other factors like genetics or environmental stressors, limiting causal precision**. Despite these limitations, the study offers important insights into how depression is socially transmitted, reinforcing the idea that mental health is deeply embedded in social networks.

- **Evaluations of the theory/model as a whole:**

- Alternative explanations:

- The theory of Behaviourism focuses on behaviour being learned via conditioning—classical (learning by association) or operant (learning via consequences). It assumes all behaviours are responses to environmental stimuli. Operant conditioning relies on reinforcement: positive reinforcement encourages repetition of pleasurable experiences, negative reinforcement encourages avoidance of unpleasant experiences, and punishment discourages undesired actions. Losing sources of positive reinforcement from everyday activities (e.g., work, school, socialising) can lead to depression. A lack of positive feedback may reduce motivation and performance, creating a self-fulfilling cycle of depression.

- Assumptions:

- Assumes biological and cognitive etiologies don't play a role in developing MDD

- Applications:

- Can help target mental health interventions
 - Introduce policies addressing social stressors to reduce depression risk

- **Connect to Q:**

- **Real world relevance:**

- **Conclusion:**

- It is evident the sociocultural factors influencing depression are significant. These theories are crucial for understanding the role of our environments in the development of depression. Operant conditioning is supported by Social Cognitive Theory, emphasising its solidity as an explanation for depression. Additionally, the theory explains why we choose to avoid certain behaviours. The transferability of depression is a strong contribution to the sociocultural influence as it explains perhaps why individuals who come from the same place develop depressive symptoms together. However, we can argue that operant conditioning is not wholly sociocultural, as it has been supported that environmental stressors such as punishment can interact with our biological vulnerability to make us display depressive symptoms. Behaviourism is based on the idea that only observable behaviours can be measured which lends itself well to experimental research such as lab experiments which use high levels of control and are high in reliability. However, this also means the role of cognitions in behaviour is largely ignored and unaccounted for which limits the

explanatory power of the theory. A behavioural explanation of MDD cannot account for behaviours which though unpleasant are nonetheless repeated.

RESEARCH METHODS

ETHICAL CONSIDERATION

Human Relationships

HUMAN RELATIONSHIPS

BIOLOGICAL APPROACH TO FORMATION OF PERSONAL RELATIONSHIPS

- **Define all variables involved (problem):**
 - Personal relationship (or relationship) is defined as the enduring association between two individuals, which involves strong and frequent independence across many aspects of life.
 - This response will focus on romantic personal relationships.
 - Biologically, behaviour can be explained through evolutionary psychological explanations and biological processes.
 - Evolutionary explanations: Some arguments derived from evolutionary theories argue that many human behaviors have a basis in the past.
 - **Assumption** is that behaviours that are beneficial in passing on our genes will be carried on through generations. **Mate selection** and **relationship formation** are important components in this theory.
 - These arguments for mate selection (choosing partners based on certain universal traits that are considered physically attractive, and are signals of health, youth and reproductive capacity) should be universally applicable to all homo sapiens and transcend culture, to be valid.
 - Gender plays a role in the determination of desirable characteristics in a mate
- **Link to study:**
- **Study #1:** Buss et al
 - **Aim:** to investigate whether there are any universal differences between male and female partner preferences based on the theory of paternal investment, reproductive value, and fertility, as well as paternity probability
 - **Method:** Self-reports via questionnaires
 - **Participants:** 10,000 participants across 37 cultures
 - **Procedure:** Participants filled out a questionnaire with three main sections: biographical information related to age, religion, gender, etc; 2nd: desired age of marriage, desired age differentials between spouses; 3rd: rate 18 characteristics on how important they are in choosing a mate.
 - **Results:** Significant gender differences in responses. Females valued financial capacity and “ambition and industriousness” higher than males in most samples. Also preferred older males, 2.66 years difference, in all samples. » show preference for males that will be successful partners in raising children. Age and success may be cues to good genes.

- Males valued physical attractiveness and youth more than females. → preference for females showing cues to high reproductive capacity.
 - Western, individualistic samples thought that chastity was irrelevant, unlike in certain more collectivist cultures like China, India and Iran
 - Both males and females appear to value partners who will give them a **selective** advantage in terms of reproduction
- **Conclusion:** *explained above w results*
- **Evaluation of study:**
 - Methodological limitations: relies on self-reported data, which may not reflect actual, real-life outcomes, but instead the perceptions of participants – to counteract this, Buss checked age preferences against actual marriage statistics of countries in questions. Close correspondence between them was observed.
 - The use of a large sample representing so many countries and cultures guarantees good **external validity** which means that the results can be easily **generalised**
 - The questionnaires for each country were translated using three translators (to translate from English; to translate to English; to resolve discrepancies and ensure all terms were gender neutral) which increases **reliability** as it ensures consistency across the measure
 - GRAVE
 - High cultural and gender generalizability, however, the limited age range of the sample does not represent the views and attitudes of older people so it is only partially insightful regarding age.
 - Some of the responses may have been due to social desirability bias, particularly in cultures where men must appear to be ‘macho’ i.e. the responses may not actually match the true feelings of all of the participants, which decreases the validity of the findings
 - Seem to reflect real-world, observable preferences, and thus has reliability
- **Connect to Q:** Another theory is neurochemical theory. Dr Helen Fisher makes the argument that intensely passionate romantic love is a neurobiological process similar to drug addiction. She posited that the same brain mechanism in substance abuse (**mesolimbic dopamine reward pathway**), is also active when individuals think about a romantic partner.
 - The mesolimbic dopamine reward pathway – brain mechanism active in substance abuse also active when thinking about a romantic partner.
 - This intense passionate love, it is a short-term infatuation which is thought to be the starting point for a couple to cement their commitment to each other.

Once the short-term infatuation is over (around 6 months) then the relationship settles down into a more balanced, stable form (which sounds dull but is essential for the long-term success of the relationship).

- The neurochemical theory of attraction is that the brain becomes 'addicted' to the feelings associated with romantic love i.e. even thinking about the person with whom one is 'in love' is enough to trigger dopamine activation.
- Dopamine has been strongly associated with reward, motivation, intense pleasure and, by association, addiction
- **Study #2: Fisher et al**
 - **Aim:** to investigate a possible link between dopaminergic brain regions and the early stages of romantic love
 - **Method:**
 - **Participants:** Self-selected sample of 10 females and 7 males students, mean age 20 years, and reported being 'in love'.
 - **Procedure:** Participants were placed in an fMRI scanner
 - Each participant was shown a photograph of their romantic partner followed by a distraction task
 - There were then shown a 'neutral' photograph of an acquaintance with whom they had no emotional connection
 - **Results:** The fMRI showed that the areas of the brain most active when the photograph of the romantic partner was viewed were the **right ventral tegmental areas** and the **right caudate nucleus** both in the **midbrain**
 - These regions of the brain have been associated with dopamine production which in turn has been associated with motivation and reward
 - **Conclusion:** People who are in the early stages of romantic love may access brain regions associated with dopamine release when in the presence (physical or virtual) of their romantic partner
 - Therefore, it could be said that people become 'addicted to love'
- **Evaluation of the study:**
 - Strengths
 - The findings support previous research into the role of dopamine in substance addiction so it is interesting to see how romantic love may fall under the same framework of craving and withdrawal
 - A clear link was shown between dopaminergic areas of the brain only when the photograph of the romantic partner was shown:
 - this finding increases the internal validity of the study

- this finding adds weight to the idea that Fisher really was measuring the effect of romantic love on the brain
 - Limitations
 - It could be argued that a sample with a mean age of 20 years are likely to be socially active and involved in pleasure-focused activities:
 - the '**pleasure centre**' of their brains would therefore be more receptive to dopamine
 - the same may not have been found if an older sample had been used
 - thus the above argument limits the generalisability of the findings
 - There could be other explanations for the activation of the dopamine-rich areas of the brain being active during the fMRI, for example:
 - excitement at taking part in a study
 - curiosity as to the outcome of the study
 - so the above points mean that Fisher cannot claim cause-and-effect from her findings
- **Evaluations of the theory/model as a whole:**
 - Alternative explanations:
 - Cognitive and sociocultural explanations
 - One last possible biological contributor to human relationships related to body odour, genes and the immune system or Major histocompatibility gene (MHC gene): MHC may influence mate selection – idea is that parents with differences in their MHC genes will pass on a stronger (more broadly defensive) immune system to children. Evolutionary psychologists argue that we may have evolved ways to detect the level of MHC similarity between individuals. For example, we prefer the scent of those with more different MHC genes.
 - Assumptions:
 - Brain activation patterns reflect universal mechanisms of attraction and bonding
 - Neural activity correlates directly with emotional and behavioral experiences of love.
 - Areas of uncertainties:
 - Difficult to determine causation — does increased dopamine cause love, or does love increase dopamine?
 - Lab settings may not fully capture natural romantic emotion

- Triangulation:
 - Employ methodological and data triangulation to strengthen validity and credibility of findings. Data triangulation from different cultures
- GRAVE;
 - fMRI and neurochemical data are replicable under controlled conditions, but emotional states can vary between participants.
 - Application: Fischer argues that this should be that basis for research into social support and bonding in the treatment of substance abuse and addictive behaviours.
 - Reductionist: Explains love purely in biological terms, ignoring emotional, social, and cultural complexity.
 - Ecological validity: fMRI scans occur in artificial settings, unlike real romantic contexts.
- **Connect to Q:**
- **Real world relevance:** Understanding the neurochemical basis of relationship formation can inform couples therapy, relationship counseling, and interventions for attachment or bonding difficulties, and helps explain human social behavior in contexts like dating, marriage, or parenting.
- **Conclusion:**

COGNITIVE EXPLANATION OF FORMATION OF PERSONAL RELATIONSHIPS

- **Define all variables involved (problem):**
 - Personal relationship (or relationship) is defined as the enduring association between two individuals, which involves strong and frequent interdependence across many aspects of life.
 - This response will focus on romantic personal relationships.
 - The **similarity-attraction hypothesis** is based on the idea that people are attracted to those who share their own:
 - likes/dislikes
 - Interests
 - Opinions
 - attitudes
 - In essence, someone is likely to be attracted to or to form close friendships with people who are very similar to themselves
 - This similarity to the other person may be real or perceived:
 - People may choose to believe that their close friends or romantic partners are more similar to themselves than they actually are
 - Believing that those closest to you are similar to you is a way of preserving self-esteem and the feeling that you are part of a larger group who share commonalities
 - **Cognitive consistency** may explain the similarity-attraction hypothesis:
 - If you like something but someone else does not share your feelings then this creates a cognitively imbalanced state, which makes you uncomfortable
 - One way of dealing this imbalance is to decide that you do not like the person who does not share your feelings which restores cognitive consistency
- **Link to study:**
- **Study #1:** Byrne et al
 - **Aim:** Investigate the relationship between interpersonal attraction and attitude similarity
 - **Method:** Questionnaire, experiment
 - **Participants:**
 - **Procedure:**
 - - participants had to rank several issues on their importance (from most important to least). Examples include religion, marriage, etc.

- - two weeks later, they were shown an anonymous questionnaire from another student and they had to indicate their feelings towards the stranger and rate this person on perceived intelligence and morality. In fact, the questionnaire was faked so that response was one of the following:
 - - identical to that of the participants on all issues
 - - opposite to that of the participants on all issues
 - - similar on important issues
 - - similar on unimportant issues
 - **Results:**
 - - participants provided more positive ratings towards the stranger when their attitudes were similar
 - - similarity on important issues was more closely associated with positive ratings than similarity on unimportant issues
 - **Conclusion:** Personal relationships can be seen as close connections between individuals that are formed by emotional bonds and interactions and strengthened by mutual experiences
 - As the similarity-attraction hypothesis suggests that individuals are more attracted to those who resemble themselves, and that the participants distributed more positive ratings towards those, this indicates that perceived similarity of attitudes increases interpersonal attraction
 - Reasons why they prefer people with similar attitudes:
 - Provide confirmation that they are not alone in their belief
 - Help predict others' future behaviors
 - More likely to assume that others with similar attitudes to themselves have a greater chance of being attracted to them
- **Evaluation of study:**
 - Strengths
 - High standardisation: The 2 weeks gap greatly reduced the likelihood a participant would remember their results and become suspicious of the artificial "student match" (especially a risk in the identical questionnaire condition)
 - High application: Results have nuance which suggests attraction is most heavily based on what individual views as important characteristics, less so less important ones.
 - Heuristic and Parsimonious model
 - Weaknesses

- Low ecological validity: Many variables that play a role in attraction are eliminated, too reductionist a view of attraction. In real searching for mates, physical attraction, communication method and immune system all play roles.
 - Limiting sample demographics: Young sample, question of whether similar trends appear in older demographics, where mate-availability is lower.
 - Lacks ecological validity, as we wouldn't form relationships based on questionnaires
 - A reductionist approach as biological and sociocultural factors also play a large role.
 - Cause and effect relationship between level of similarity and positive ratings
 - Only looks at the similarity between values and attitudes not between appearance, background, personality etc.- Do we have to be completely similar to be attracted or is it only certain areas
- Methodological limitations:
- Ethical considerations
- GRAVE
- Assumptions
- Evaluation of theory:
 - Strengths
 - The theory is easy to understand and can be applied to personal experience (the theory can be demonstrated by just considering one's own friendship groups)
 - There is some cross-cultural evidence that supports the idea that similarity is a consistent predictor of relationships:
 - Brewer (1961) found that perceived similarity was a strong factor in determining liking between tribespeople in East Africa
 - Limitations
 - The theory does not explain why people are attracted to or form friendships with those who are very different from themselves, thus it lacks generalisability
 - Abbasi et al. (2024) conducted a systematic review of the similarity-attraction hypothesis and concluded that:
 - due to the lack of longitudinal research in this field there is no real way of predicting the longevity of relationships based on similarity

- other factors may override the effect of similarity on the formation of relationships i.e. the theory is not **robust**
- **Connect to Q:**
 - **The matching hypothesis** (Walster, 1966) is based on the assumption that people tend to pair up with partners who are of roughly the same level of attractiveness as they themselves are
 - The matching hypothesis is a cognitive mechanism that uses self-rating and rating of others based solely on physical appearance
 - The matching hypothesis revolves around ideas as to self-worth and self-esteem:
 - if your partner is deemed to be 'nothing much to look at' then this will affect your social status
 - if your partner is a 'looker' then your social status will rise
 - either of the above outcomes will have an effect on how you view yourself (as worthy/unworthy)
 - There is a fine balancing act involved in the matching hypothesis:
 - someone must weigh up their chances of aiming for someone who is 'out of their league'
 - aiming high means that they risk rejection
 - someone may, instead, simply 'settle' for a partner who is less attractive than them
 - Not many people are willing to risk rejection by pursuing someone who ranks higher than they themselves do in terms of physical attractiveness
 - Someone's self-esteem is likely to suffer if their requests are continually turned down by those with whom they seek a romantic relationship
 - In the long run, it is wiser to aim for romantic targets that are attainable
- **Study #2: Walster et al**
 - **Aim:** To investigate how important attractiveness was on a first date and whether individuals with higher physical attractiveness had harsher judgements of others.
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - - A 'computer dance' was advertised for students studying computing, at an American university. It used the first - 376 male and 376 female volunteers. When the students arrived to sign up for the dance,
 - - 4 independent judges secretly assessed each student's physical attractiveness.

- - Participants filled in a questionnaire for use in the computer pairing -they were told that the data from the questionnaire would be used to allocate their ideal partner for the evening. In fact, the pairing was done randomly (except that no man was assigned to a taller woman). Finally the students were asked to complete a questionnaire about their date. - Questions were asked such as: how much they liked the date/ how much they wanted to go out with them again.
- **Results:** - people with higher physical attractiveness ratings were found to have more harsh judgement to their dates
- - physical attractiveness was the more significant factor in how much each date likes the other
- - physical attractiveness was the best indicator on if they would have a second date
- - partners were more likely to have a second date if they were similar in physical attractiveness
- **Conclusion:** These findings support the matching hypothesis and indicate how important physical attractiveness is in forming a relationships.
 - These findings support the matching hypothesis and indicate how important physical attractiveness is in forming a relationships.
- **Evaluation of the study:**
 - -The students did not know that they were part of some research – DECEPTION
 - -Other research has very similar findings about the significance of attractiveness in starting a relationship
 - -Used students
 - -Used an artificial situation
 - -How 'attractiveness' operationalised? It is possible that the 'older' researchers had quite different ideas from those of the 'young' students?
- **Evaluations of the theory/model as a whole:**
 - Strengths
 - The plethora of equality-attractive couples (just see examples of Hollywood stars or 'Love Island' celebrities) does lend some anecdotal evidence-based validity to the theory
 - The theory highlights the ways in which cognitions may determine partner preference:
 - this aligns with humans' ability to engage in higher-level thinking
 - the biological approach suggests that attraction operates at an evolutionary or a neurochemical level, rather than as a product of conscious decision-making

- Limitations
 - Notions of ‘what is attractive?’ are highly subjective and prone to individual differences which means that the theory lacks scientific validity
 - The theory is highly simplistic and reductionist as it attempts to quantify the complex nature of human attraction to a basic balancing act e.g. ‘I am a 5 so I seek a 5’
 - - how is attractiveness measured as it subjective
 - - Taylor doesn't support the matching hypothesis
- Alternative explanations:
 - Biological and sociocultural explanations
 - Social exchange theory suggests people choose partners based on perceived rewards and costs, not just physical similarity
- Assumptions: Assumes people make rational, self-aware assessments of their own attractiveness and others’.
- Areas of uncertainties:
- Triangulation:
 - Data triangulation across cultures, age groups, and online vs in-person contexts would enhance reliability and generalizability.
- Issues:
 - Reductionist: reduces complex interpersonal attraction to physical features and ignores emotional depth.
 - Reinforce shallow appearance-based social norms
- GRAVE;
 - Useful in understanding dating behavior and online matching algorithms
 - High internal validity in controlled studies, but low ecological validity – real relationships involve more variables.
- **Connect to Q:**
- **Conclusion:**

SOCIOCULTURAL EXPLANATION OF FORMATION OF PERSONAL RELATIONSHIPS

- **Define all variables involved (problem):**
 - Personal relationship (or relationship) is defined as the enduring association between two individuals, which involves strong and frequent interdependence across many aspects of life.

- This response will focus on romantic personal relationships.
- **Proximity** is based on the idea of distance as a key factor in the formation of relationships (romantic or platonic)
- Proximity theory assumes that people find their become or romantic partners from those they live or work close to, for example:
 - Someone who lives in your neighbourhood, town, street
 - Someone who your office
 - Someone who attends the same gym classes as you
- One explanation of proximity is that it is simply less effortful and more convenient to form a relationship with someone who lives or works nearby than to go to the trouble of finding friends and partners who are some distance away
- Proximity may well be linked to another sociocultural theory – **familiarity**:
 - What is well known to an individual may appear to be more attractive than what is unknown
 - Seeing someone around your neighbourhood or at work means that they become familiar
- **Link to study:**
- **Study #1:** Festinger et al
 - **Aim:** To investigate friendship patterns between residents of dormitories at the Massachusetts Institute of Technology, and the influence of proximity on those friendships.
 - **Method:** Natural experiment
 - **Participants:**
 - **Procedure:** They conducted a natural experiment, which is when the researcher takes advantage of a naturally occurring IV and the experiment occurs in that natural environment. The participants were 260 married veterans (520 adults) who were chosen via convenience sampling as they were all residents of MIT. The researchers made observations and interviewed the residents regularly. The researchers asked the participants to name their three closest friends in all of the dormitories.
 - **Results:** Festinger found that about 2/3 of the closest friends that the participants nominated lived in the same dormitory on the same floor.
 - **Conclusion:** They found that physical proximity was the most important determination of friendship choice and formation. The researchers suggest that physical proximity increases opportunities for interaction, which in turn increases familiarity.
- **Evaluation of study:**
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- This study investigated the effect of proximity on **friendships** not intimate relationships and makes the assumption that the findings about friendships can be applied for intimate adult relationships as well. This reduces the confidence in the findings in relation to intimate adult relationships, as it is possible that intimate relationship formation may not be influenced by proximity in the same way the friendship formation is. **This limits the generalisability of the findings to those in, or forming, intimate relationships.** However, it is important to consider the ethical and procedural difficulties that would surround doing a study like this about intimate relationships. There would be limits like; what defines 'love', ethically it is difficult to induce love on someone, and it would be a very time consuming study as it takes a long time for someone to fall in love.
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- All of the participants were sourced from the same place via convenience sampling. This may have led to a lowered reliability as the participants are likely to have other things in common which would contribute to their attraction to each other, other than just their proximity, such as, having the same interests – all being veterans. These **extraneous variables** which contribute to the development of friendships therefore lower the **reliability** of the results in relation to proximity, as the friendships could have been formed due to other factors and not only proximity.
- Eval of theory:
 - Difficult to determine causality — does proximity cause liking, or does liking increase proximity
- **Connect to Q:**
 - The concept of **familiarity** as a sociocultural factor in relationship formation is based on the idea that the more familiar a person become, the more attractive they appear to be
 - Familiarity uses the premise of the **mere exposure effect**, a psychological phenomenon by which people develop a preference for what is well-known and encountered often, for example:
 - Zajonc (1968) stated that it is sufficient for an individual simply to see a person several times in a short period of time in order to begin to feel attracted to them
 - The overlap with proximity theory is clear – we are bound to see more of those to whom we live closest
- **Study #2: Zajonc et al**
 - **Aim:**
 - **Method:**

- **Participants:**
- **Procedure:**
- **Results:**
- **Conclusion:**
- **Evaluation of the study:**
- **Evaluations of the theory/model as a whole:**
 - Alternative explanations:
 - **Social proof:** social proof (being more attracted to people who we perceive to be more well-accepted in society)
 - Biological and cognitive explanations
 - Strengths
 - These theories offer a more holistic view of relationship formation as they each consider a range of factors which affect and influence attraction
 - Real-world evidence shows the validity of sociocultural theories, for example:
 - Many people do end up marrying someone they went to college with or who they work with
 - People may feel a sense of loyalty to those they are familiar with, perhaps because they view them as part of their ingroup
 - Limitations
 - The theories cannot be tested using objective, scientific methods which means that they lack reliability
 - The theories are overly deterministic and do not consider alternative outcomes, for example:
 - Living or working close to someone does not mean that liking/loving will follow
 - Long-distance relationships do work for some people
 - Familiarity does not always result in attraction, in fact it may result in dislike for the other person
 - Assumptions:
 - Areas of uncertainties:
 - **Rapid changes in digital communication (online dating, social media) challenge traditional notions of proximity and familiarity. – is it applicable in an increasingly online connected world?**
 - Triangulation:
 - GRAVE:

- Cultural bias: based largely on Western, individualistic contexts — may not apply to collectivist societies where relationships are more family- or community-oriented.
- **Temporal validity:** modern relationships increasingly form online, reducing the relevance of physical proximity.
- Useful in understanding workplace dynamics, friendship networks, online dating, and social media influence.
- **Connect to Q:**
- **Real world relevance:**
- **Conclusion:**

ROLE OF COMMUNICATION IN HUMAN RELATIONSHIPS

- **Define all variables involved (problem):**
 - Personal relationship (or relationship) is defined as the enduring association between two individuals, which involves strong and frequent interdependence across many aspects of life.
 - This response will focus on romantic personal relationships.
 - important patterns on why relationships change or end emerge due to communication, which can shed light on the reasons why connections that bond people are not always enduring.
 - **Self-disclosure** is the act of revealing personal information about the self to another person
 - The nature of self-disclosure and how much is revealed will depend on a number of factors:
 - The person to whom the details are disclosed e.g. a romantic partner
 - The stage of the relationship, for example:
 - in the first few weeks
 - after several months
 - after several years (even though self-disclosure is a factor in attraction it still continues as the relationship progresses)
 - The person who is disclosing the information
 - The nature of the details being disclosed, for example banal details versus controversial announcements
 - The reasons behind the self-disclosure, for example:
 - to cement a bond of trust between the partners perhaps
 - to encourage self-disclosure from the other person (known as **reciprocity**)

- Self-disclosure is not a set and stable type of communication: it is likely to vary per individual depending on their age, their relationship status, their profession, their mood etc.
- **Social Penetration Theory** (SPT) suggested by **Altman & Taylor** (1973) argues that as relationships develop over time, exchanges, self-disclosure, between individuals move from a shallow level to a more intimate level – characterized by greater discussion of emotions and feelings as well as self-doubt and concerns regarding identity and self-worth.
 - Superficial
 - Intimate
 - Personal
 - Core self-disclosure
 - As each layer is peeled, relationships strengthen, demonstrating the vital role of meaningful and deep communication in interpersonal relationships.
- **Link to study:**
- **Study #1:** Sheldon et al
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:**
 - Connect to Self-disclosure
 - **Uncertainty reduction theory**
- **Evaluation of study:**
 - Methodological limitations:
 - Ethical considerations
 - GRAVE
 - Assumptions
- **Evaluation of theory:**
- **Connect to Q:**
 - John Gottman's Four Horsemen of the Apocalypse
 - Gottman (1983) had been studying the ways in which couples deal with conflict in the relationship
 - Gottman was able to distinguish two types of couples from his research:
 - Relationship masters
 - Relationship disasters

- The 'disaster' couples shared four common behaviours (i.e. the 'Four Horsemen') which, essentially, doomed their relationship to failure:
 - The First Horseman: Criticism, for example:
 - Using a 'harsh start-up' to begin a conversation e.g. 'You always do X and I hate it!'
 - The focus is on the other person being wrong/at fault/to blame and the person initiating the criticism being right/faultless/blameless
 - Gottman's 'antidote' to criticism is to advise the 'blamer' to identify what it is that they need before confronting their partner
 - The Second Horseman: Defensiveness, for example:
 - Using defensiveness as a response to the feeling of being attacked e.g. 'Well, what about you, you're just as bad!';
 - The focus is on scoring points so as to avoid any accusation of fault
 - Gottman's 'antidote' to defensiveness is to take responsibility; to listen to what the other person is saying and to find out what they are feeling
 - The Third Horseman: Contempt, for example:
 - Talking down to the other person e.g. 'Why do you always go on like this, you're pathetic!'
 - The focus is on showing superiority and an 'I know better' attitude
 - Gottman claimed that contempt is the biggest predictor of divorce
 - Gottman's 'antidote' to contempt is to show love for the other person; building a 'culture of appreciation'
 - The Fourth Horseman: Stonewalling, for example:
 - Refusing to continue the argument e.g. 'I'm not going to discuss this topic.'
 - The focus is on the growing resentment of the 'stonewalled' partner as they feel unheard and rejected
 - Gottman's 'antidote' to stonewalling is to find a sense of calm from which it is possible to discuss difficult topics without feeling overwhelmed by emotion
- **Study #2: Gottman Lovelab experiment**
 - **Aim:**
 - **Method:**
 - **Participants:**

- **Procedure:**
- **Results:**
- **Conclusion:**
- <https://quizlet.com/au/818429583/gottman-love-lab-flash-cards/>
- **Evaluation of the study:**
 - -Communication may look different in different **cultures**. As the sample size was made of western cultures, findings cannot be generalized.
 - -Participants were aware that they were being observed so they may have been exhibiting **demand characteristics** or not communicating in their natural way
 - -It is uncertain whether it is the **communication style that causes a unhappy relationship or vice versa**.
 - - **longitudinal** study allows researcher to observe changes in behaviour and the impact of communication on the relationship over time
 - -lacks **ecological validity** as fights and arguments were induced
 - -**points of conflict are a natural** part of being in a relationship and does not necessarily lead to the breaking of a relationship
 - -There was **researcher triangulation** as more than one coder rated and analysed the behaviours of the couples
 - -the approach is rather **reductionist** arguing that one's communication style leads to the failure of a relationship. It is likely that there are extraneous variables that play a key role.
- **Evaluations of the theory/model as a whole:**
 - Alternative explanations:
 - **Attribution Style:** theory states that we understand the behaviours of ourselves and others by attributing behavior to causes, either situational or dispositional. – important because it is tightly related to forgiveness and empathy among spouses.
 - Healthy relationships are characterized by an attributional style that has a positive bias toward one's partner.
 - Assumptions: Conflict behaviors are universal across cultures
 - Areas of uncertainties: Cultural norms affect expressions of criticism or contempt; findings may not generalize globally. (connect to previous point)
 - Triangulation:
 - Such studies primarily use observational methods, and thus have limited **methodological triangulation** and can benefit from different methods.
 - **Data triangulation** is also limited, since samples are typically from the same demographic – and thus limits the generalizability of the theory
 - GRAVE;

- Most studies are Western, heterosexual couples; limited applicability to other cultures or non-traditional relationships.
- Useful in relationship counseling, marital therapy, and preventive interventions
- Gottman's Four Horsemen focus on clearly defined, observable behaviors, which are consistently coded and replicate well as predictors of relationship breakdown, giving **high construct validity**.
- **Connect to Q:**
- **Real world relevance:**
- **Conclusion:**

WHY RELATIONSHIPS CHANGE OR END?

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- **Link to study:**
- **Study #1:** Gottman’s Lovelab experiment
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:**
- **Evaluation of study:**
 - Methodological limitations:
 - Ethical considerations
 - GRAVE
 - Assumptions
- **Evaluation of theory:**
- **Connect to Q:**
 - Duck’s Phase Model (2007) describes the stages involved in a relationship breaking down from the earliest phase of one person having misgivings about the relationship to to the final ending of the relationship
 - Although the model charts the typical course of relationship breakdown it does not state The Intra-Psychic Phase:

- This begins when one of the people in the relationship begins to feel that the relationship is not working which may be due to feelings of dissatisfaction, a lack of equity, poor communication etc.
 - The person may not give voice to these feelings and they may even try to persuade themselves that they are being silly or unreasonable
 - Thoughts and feelings may be shared with a trusted friend or written down in a journal to make sense of them (this may involve a list of pros and cons of the partner/relationship being drawn up)
 - The person may dwell on the (real or perceived) faults and flaws of their partner and they may use confirmation bias to reinforce their dissatisfaction, for example:
- that each stage will inevitably lead on to the next stage:
 - the journey to complete relationship breakdown can be averted at any of the first three phases of the model
- Relationship breakdown, according to Duck develops over the course of weeks, months or even years and each phase is characterised by a specific threshold, the point at which this next part of the process is inevitable and almost unavoidable
- The Dyadic Phase:
 - At this point the person who has originally felt dissatisfied about the relationship airs their feelings with their partner (or it could be that both partners have come to feel dissatisfied independently of each other)
 - It is likely that this phase will involve each partner listing the negative qualities of their other half, identifying flaws in their relationship and in their partner:
 - there will probably be a number of arguments/confrontations and complaints about each others' shortcomings, lack of care/sensitivity/communication, unappreciative attitude etc.
 - It will be at this point that inequity is discussed; where costs are emphasised and rewards are dismissed as being not enough
 - There will probably only be two outcomes to this phase: either the couple decide to work on their relationship or they decide to split
- The Social Phase:
 - This is the point at which each partner turns to their friends and family for solace and consolation (and as a way of affirming their decision)
 - Friends and family may be supportive in reinforcing the person's decision or they may try to persuade them to try to work things out with their partner

- Some friends and family may use Hindsight bias to re-frame the relationship e.g. 'I always knew you were too good for him/her'
 - The couple may find that friends take sides, adding another dimension of conflict and negativity to the situation
 - It is difficult for couples to decide to reconcile at this phase because they have, essentially 'gone public' with their grievances so to reunite means that the couple will 'lose face' and potentially embarrass their friends and family
- The Grave-dressing phase:
 - This phase involves each partner trying to tell the best 'story' to explain the break-up in a bid to come out of the whole mess looking like the 'good guy'
 - It is important for each partner's self-esteem that they spin a good tale, painting their ex as unreasonable, difficult, demanding
 - This is the time for the relationship history to be re-written (by both partners, probably resulting in wildly different versions) and, initially at least, there is bound to be some creative re-imagining of reality.
- The most mature and rational response to the break-up is that both partners agree that they were incompatible and that they should move on
- **Study #2: LeFebvre, Blackburn and Brody**
 - **Aim:**
 - **Method:**
 - **Participants:**
 - **Procedure:**
 - **Results:**
 - **Conclusion:**
- **Evaluation of the study:**
- **Evaluations of the theory/model as a whole:**
 - Strengths
 - The model does have some face validity as it reflects the experience of many people who have gone through a break-up
 - The model could be applied to couples counselling:
 - It could be used to identify key triggers for conflict
 - It could be used by the counsellor to suggest strategies to salvage the relationship
 - It could be used to end the relationship in a way which does not harm each partner unduly
 - Limitations

- The model is linear in that it charts the progression of break-up from phase 1 to phase 4:
 - This is not necessarily hold true for every couple
 - Some couples or individuals may immediately leap into the social phase, bypassing the first two phases altogether for example
 - The model is light on explanation as it outlines the ‘what’ of relationship breakdown but not the ‘why’ – lacks explanatory power
- Research in the area of relationship dissolution has been criticized in terms of methodological quality and ethical considerations.
 - Research in this area typically relies on retrospective self-report measures that are open to a variety of biases such as social desirability or effects of reconstructive memory.
 - Such studies require participants to recreate hurtful episodes in their memory that can cause some level of psychological harm.
- Alternative explanations:
- Assumptions:
- Areas of uncertainties:
- Triangulation:
- Issues:
- GRAVE;
- **Connect to Q:**
- **Real world relevance:**
- **Conclusion:**

Tab 2

EVAL: don't just list → delve into them!!

CRITICAL THINKING:

- Methodological limitations
 - Alternative explanations
 - GRAVE (generalizability/reliability/applicability/validity/ethics)
 - gender / age considerations
 - Assumptions
 - Areas of uncertainties
 - Triangulation
 - Issues:
 - Reductionism vs holism
 - Nature vs nurture
 - contradictions
 - Hormones vs environmental factors
 - Pheromones vs organve lack
 - MRI vs fMRI
 - Localization vs neuroplsticiy
 - Twins vs environment
 - Evolution – very abstract
 - Raise a Q in critical thinking
 - 6-7 knowledge points
 - applications
-
- **Study:** Curtis, Friedman and McCoy
 - **Aim:** To investigate a synthesized human pheromone's effect on sociosexual behaviour of men
 - **Method:** field experiment; independent-measures design
 - **Participants:** 38 heterosexual men aged 26-42; required to have regular appearance and daily shaving
 - **Procedure:** Split into two groups – placebo and pheromones (double blind)
 - Used their regular aftershave throughout the experiment
 - They were given a behavioural calendar that they had to fill everyday with the following options – Petting/affection/kissing, sleeping next to a romantic partner, sexual intercourse, informal dates, formal dates and masturbation

- Baseline period was for 2 weeks after which a technician blindly added ethanol to the aftershave to eliminate smell with or without the pheromone
- **Results:** A large number of participants from the pheromone group showed an increase from their baselines on the first 4 behaviours except formal dates and masturbation. Placebo group showed no significant change
- **Conclusion:** The synthetic pheromone increased sexual attractiveness of men to women showed through increases of socio sexual behaviour that included women

Paper 3

Ethical considerations:

- Why needed?
- How to implement in this study?
-