AQA A Level Psychology

Knowledge Organiser: Models of Memory

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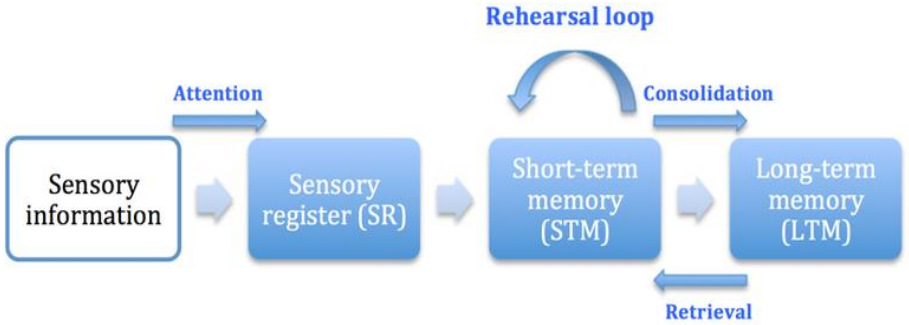
The Multistore Model of Memory (Atkinson & Shiffrin 1968)

Memories are developed in a linear fashion **between unitary (separate) memory stores** and **rehearsal** is required to form long term memories.



Sensory Register: information from the senses is stored for approx. ½ second. It has a vast capacity.
STM: encoding is acoustic or visual/duration is up to 30 seconds/capacity is 7+/-2. Rehearsal must occur here to move to LTM.
LTM: encoding is semantic/duration is infinite/capacity is unlimited.

Evaluating the Multistore Model of Memory

- Some research has low ecological validity, as the stimuli participants were asked to remember bear little resemblance to items learned in real life, e.g. Peterson and Peterson (1959)
- The model is over-simplified, as evidence suggests that there are multiple short and long-term memory stores, e.g. 'LTM' can be split into Episodic, Procedural and Semantic memory.
- Research support: Peterson and Peterson (1959) support the limited duration of STM and the importance of rehearsal.

The Working Memory Model (Baddeley & Hitch 1974)

This model focuses on the workings of short-term memory and proposes that STM is composed of three, limited capacity stores.

Central Executive: manages attention/controls information from two 'slave stores'.
Articulatory-Phonological Loop: temporarily retains language-based information, consisting of an articulatory rehearsal process and a phonological store ('inner ear') that holds auditory speech information.
Visuo-Spatial Sketchpad: temporarily retains visual and spatial information.
Episodic buffer (added later): facilitates communication between the central executive and long-term memory.

Dual-task studies show that if one store is used for multiple tasks, then task performance is poorer than when they are completed separately, due to the store's limited capacity.

Evaluating of the Working Memory Model

•Research support: The case of KF the claim that separate short-term stores manage short-term phonological and visual memories. After an injury, KF could recall verbal but not visual information immediately after its presentation.
•The WMM has been criticised for being too simplistic and vague, e.g. it is unclear what the central executive is, or its exact role in attention.
•Research into WMM often has low ecological validity as tasks such as repeating 'the the the' are not representative of our everyday activities.

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Knowledge Organiser: Long Term Memories

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Long-term memory (LTM) is a 'permanent' store that holds unlimited amounts of information for long periods. There are different types of LTM: episodic, semantic, and procedural.

Episodic Memories

- Memories of personal experiences, such as your first day at school or wedding.
- They include details of the event, context, and emotion
- Requires **conscious recall** and is **time-stamped.**
- Associated with the hippocampus area of the brain

Procedural Memories

- Memory of how to perform certain tasks, actions, or skills.
- Examples include swimming, writing, and anything else that becomes 'automatic' through practice or repetition.
- Associated with the cerebellum area and motor cortex areas of the brain.
- They **do not require conscious recall**.

Semantic Memories

- Memories of knowledge, facts, and concepts.
- Examples include remembering capital cities, or laws.
- They are **not time-stamped** and require **conscious recall.**
- Associated with the temporal lobe area of the brain.

Example Scenario

Rachel, Millie, and Craig are going to a roller-rink. Rachel says, 'I haven't skated for years but as soon as I put the skates on, I knew what to do!'. Millie describes how skates are built in a factory, something she saw on TV once. Craig says, 'This reminds me of when I went skating with my friends for my 10th birthday'.

- Rachel is demonstrating procedural memory (how to skate)
- Millie is demonstrating semantic memory (information about skates)
- Craig is demonstrating episodic memory (his birthday party)

Evaluation

- The case of HM supports distinct LTM types. After surgery to treat his epilepsy, he could learn procedural tasks, but not episodic or semantic. He learned how to do a mirror-tracing task but failed to recall that he had done it before.

- Real-world applications: Belleville et al (2006) episodic memory skills were improved with memory training in a group of older people who suffered from cognitive impairment.

- The scientific principles are adopted with the investigation of different types of LTMs using laboratory studies, but case studies lack control due to their nature.

AQA A Level Psychology Knowledge Organiser: Forgetting | Interference and Retrieval Failure

Interference

- **Proactive interference** occurs when old information affects the learning of new information
- **Retroactive interference** occurs when new information affects the recall of old information.
- Both are more likely to occur when information is **similar.**

Evaluation of Interference

- **Research support:** Baddeley and Hitch (1977) found that when rugby players were asked to recall the teams they had played against, those who played less (due to injury) recalled more, due to retroactive interference.
- **Research support:** Keppel and Underwood (1962) found that when presented with trigrams to recall and a task to prevent rehearsal, the first trigrams were recalled better, due to proactive interference.
- Although the research supports that interference is likely to occur when information is similar, this does not explain why forgetting occurs in situations where information is dissimilar.
- Most of the research examining interference is carried out in a laborat ory using particularly meaningless stimuli, such as three-letter conson ant trigrams or simple word lists. These findings lack ecological validity and do not represent everyday examples of interference.

Retrieval Failure Tulving and Thomson (1973)

The **encoding specificity principle** claims memory is most effective when information present at the time of learning is available during recall.

- **Context-dependent** forgetting occurs when there are **environmental changes** between learning/coding and recall.
- **State-dependent** forgetting occurs when an individual's **emotional/physical state** is different when trying to recall information

Evaluation of Retrieval Failure

- **Research support:** Godden and Baddeley (1975) found that when divers had to learn lists of words on land, recall was better on land compared to recall in water, supporting context cue failure.
- **Research support**: Goodwin et al (1969) found that when participants were asked to learn a list of words when they were drunk or sober (the 'state'), the recall was worse if the recall state was not the same.
- Godden & Baddeley didn't control other variables. For example, time of day and diving locations. This means the context cues were not well controlled. Additionally, the study used a **repeated measures design**, which means that order effects could have contributed to the recall/forgetting of the divers.
- **Darley et al., (1973)** found that individuals who were under the influence of marijuana when they put money in a 'safe place' were less able to recall where this location was when they were sober, supporting the findings of Goodwin et al.

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Knowledge Organiser: Misleading Information and EWT

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Post Event Discussion: Misleading information can impact memory when witnesses talk to other people about what they have seen.

Gabbert et al (2003)

60 students and 60 older people watched a video of a girl stealing money from a wallet. Recall was tested individually or in pairs (**co-witness group**). Those in the co-witness group were unaware they had watched different videos but were allowed to discuss what they witnessed.

71% of the witnesses in the co-witness group recalled information they had not seen and 60% said that the girl was guilty, even though they had not seen her commit a crime.

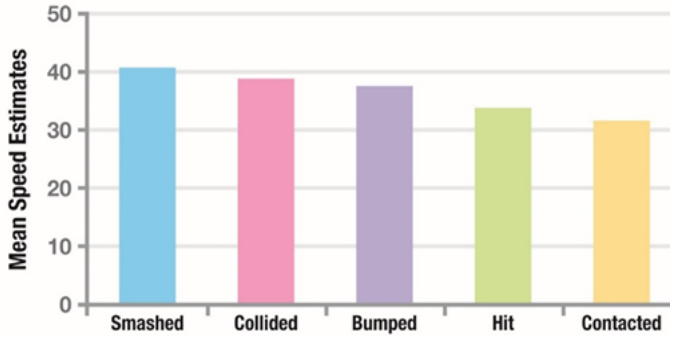
Evaluation

- Participants knew they were taking part in a study and the 'incident' was on a video, meaning the study lacks ecological validity.
- It is not clear why post-event discussion misleads memory. It could be contamination of EWT, or it could be conformity to co-witnesses.
- Positive implication: research informs the police about how to interview witnesses. For example, interview them alone without the influence of others.

Leading Questions: Questions can suggest information to witnesses, causing a change in what they recall. E.g. did you see *the* weapon?

Loftus and Palmer (1974)

They asked 45 American students to watch a video of a car incident and to estimate the speed of cars. Each group was asked a critical question: 'How fast were the cars going with they _____?' with the verb being changed each time.



Results show the leading questions do mislead witnesses.

Evaluation

- The artificial video and lack of real emotions and consequences mean the study by Loftus lacks ecological validity.
- The study lacks population validity since it only uses students from America and cannot be applied beyond this sample.
- In a second study, participants were asked if they 'saw any broken glass'. Those who were asked about speed with the verb 'smashed' were more likely to say yes, despite there being no glass.

Response	Smashed	Hit	Control
Yes	16	7	6
No	34	43	44

Knowledge Organiser: Anxiety and EWT, and Impriving

Deffenbacher put forward the **Yerkes-Dodson effect** which suggests that when anxiety is moderate, then EWT is enhanced; however, when anxiety is very high then accuracy is reduced.

Johnson and Scott (1976)

- Participants came to a lab and were told to wait in the reception area. A receptionist excused herself to run an errand, leaving the participant alone.

- '**No-weapon**' condition: participants overheard a conversation in the lab about equipment failure and saw an individual walk passed holding a pen, with his hands covered in grease.
- '**Weapon**' condition: participants overheard a heated exchange, the sound of breaking glass and crashing chairs. They saw an individual running into reception holding a bloodied letter opener.

- When asked to look at photographs and identify the person who left the lab, those in the 'weapon' condition did so correctly 33% of the time, compared to 49% for the 'no weapon' condition.
- Therefore, high anxiety was detrimental to EWT.

This study used a repeated measures design.

Contradictory Research

- **Yuille and Cutshall** investigated the effect of anxiety in a real-life shooting, in which one person was killed and another person seriously wounded. 21 witnesses were interviewed by police at the time.
- 13 witnesses agreed to take part in the follow-up research interview, 4-5 months later.
- The 13 witnesses were accurate in their eyewitness accounts 5 months later and little change was found in their testimonies.
- These results refute the weapon focus effect and results of Loftus (1979) and show that in real-life cases of extreme anxiety, the accuracy of eyewitness testimony is not affected.

Other Evaluation

- The study by Johnson and Scott lacks ecological validity since it was an orchestrated situation. Participants may have guessed something was going on, which would lead to demand characteristics.
- The study can also be criticised for being unethical due to the deception and withholding of information about the true aims of the study, and the distress participants may have experienced.
- Most research into anxiety and EWT takes a nomothetic approach, which helps to generate laws of behaviour, but is problematic since the sample of participants is small and not representative of the wider population.

Knowledge Organiser: Improving the accuracy of EWT

Geiselman et al (1985) developed the cognitive interview, to improve upon traditional, standard police interview. Four key principles were identified for use.

The Four Components of the Cognitive Interview Technique

Context Reinstatement: witnesses are asked to recall the context of what they experienced, such as the weather, time of day, and how they felt. This will help to trigger memories of what they saw.

Report Everything: witnesses are asked to report everything they can remember or that comes time mind, no matter how trivial it may seem.

Recall from a different perspective: witnesses are asked to consider the situation from someone else's point of view. For example, what the attacker may have seen.

Recall in reverse order: witnesses are asked to recall the events in different chronological order.

This interview does not include leading questions and is often conducted in a friendly and relaxed atmosphere, unlike standard police interviews.

Research

- **Geiselman (1985)** asked participants to watch a video of a simulated crime, then interviewed them the following day with a cognitive interview, or a standard interview. The cognitive interview led to more accurate information being recalled. **However, it also led to more inaccurate information being recalled than the standard interview.**
- **Centofanti & Reece (2006)** showed participants a video of a bank robbery and gave them a misleading or neutral event summary. Although everyone was susceptible to misleading information, participants who were questioned with a cognitive interview recalled 35% more than those who were not.

Other Evaluation

- Specialist and extensive training is required for the cognitive interview technique to be used properly and for it to be effective in improving the accuracy of EWT. However, most police forces do not receive adequate training.
- Establishing the effectiveness of the cognitive interview is hard since not all police forces use it in the same way. For example, some forces will use all four components, some will only use two.
- The research shows that despite there being evidence to suggest the cognitive interview is effective at improving accuracy in EWTs, it will also produce inaccurate information, and vast amounts of information, which is not always helpful to investigations.