Basic Memory Notes

Learn this or fail Module 1
NB: You must also learn APFCC for at least one study per section.

Description AO1	Commentary/Evidence AO1/AO2	Criticism/Evaluation AO2
STM and LTM		
Memory is divided into two structures.		
STM is a short term store for information currently in use LTM is a long term store for all the information you might want to use		
STM and LTM differ in terms of: 1. Capacity – how much they hold 2. Duration – how long they hold it for 3. Encoding – how they store it		
STM has a small capacity, LTM has a large capacity	**Miller (1956)** showed that STM can hold 7 or so digits, more if information is chunked together LTM does not seem to have a limit on how much it can hold	Capacity of STM varies according to what is stored e.g. can be more for letters/words, less for musical tones etc. **Simon (1975)** found that pps recalled fewer chunks when the chunks were larger. This suggests an overall limit on STM capacity
STM has a short duration, LTM has a long duration	**Peterson & Peterson (1959)** showed that most information in STM is forgotten within 30s. LTM can store memories for up to a lifetime.	STM duration is increased with rehearsal Info is often forgotten from LTM, so not everything is stored for a long time
STM stores things acoustically, LTM stores things semantically	**Baddeley (1966)** showed that people make sound based errors in STM recall, but meaning based errors in LTM recall	Both STM and LTM make use of a variety of codes including visual, acoustic, somatosensory and semantic
		All this research is based on lab studies with artificial tasks and stimuli – may be difficult to generalise to real-world memory

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Models of Memory		
The Multistore Model (MSM) Memory is divided into STM and LTM (see above). Info first enters STM. If it is not rehearsed it is lost. If it is rehearsed it is retained in STM. If rehearsal continues then it is transferred to LTM.		
STM and LTM are separate	**Glanzer & Cunitz (1966)** found that people have better recall for items at beginning (primacy – STM) and end (recency – LTM) of a list When an interference task is given, recency effect disappears, but not primacy. **Shallice & Warrington (1970)** found that a person could damage STM but leave LTM intact. These findings suggest that STM and LTM are separate	This aspect of the MSM is well supported.
Rehearsal is necessary to transfer info from STM to LTM	Lots of info gets stored in LTM without being rehearsed. **Elias and Perfetti (1973)** found that PPs can learn a list of words without making a conscious effort, but thinking of other words with the same meaning.	This aspect of the MSM is poorly supported.
STM and LTM are single unitary stores	**Warrington & Shallice (1972)** found a patient who had at least two different STM stores, one for words and one for other sounds **Tulving (1975)** found that LTM could be divided into 1. Episodic (memory for events) 2. Semantic (memory for knowledge) 3. Procedural (memory for skills) These findings suggest that we have more than one STM and LTM	This aspect of the model is poorly supported
		MSM was an influential model of memory with some good points, but it oversimplifies some things and is wrong about others.

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The Levels of Processing Model (LOP) There is no separate STM and LTM. How long a memory trace lasts depends not on where it is stored, but how it was processed. Shallow processing results in short duration, deep processing results in long duration		
Deeper processing results in better recall	**Elias & Perfetti (1973)** found that pps had better recall of words when they thought about their meaning than their sound. **Craik & Tulving (1975)** found that pps had highest recall for words when they answered questions on their meaning (semantic), followed by their sound (phonological) followed by their appearance (structural – lowest recall) These finding suggest that deep semantic processing leads to better recall	This aspect of LOP is well supported
There is no separate STM	Miller's findings contradict this	There is a separate STM with two functions: 1. storing small bits of information 2. processing information for storage
Semantic processing always results in better recall	**Morris et al (1977)** found that recall of phonologically processed words was better when the recall task was also phonological	This aspect of the model has mixed support.
		LOP addresses some of the main problems with MSM but does itself have problems and oversimplified the relationship between processing and recall

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Forgetting in STM		
There are two forgetting processes: 1. Trace decay – info that is not rehearsed fades away from the STM 2. Displacement – if STM is full, incoming information pushes out info that is already stored	**Peterson & Peterson (1959)** found that giving an interference task between learning and recall resulted in poor recall. This suggests that info decays from STM if it is not rehearsed.	Peterson & Peterson's results could also support the idea of displacement as the interference task required the use of STM. There is no adequate way of distinguishing between the two processes Likely that: 1. Displacement occurs only when STM is overloaded with information 2. Most STM forgetting is due to decay as attention is switched between different sources of info
Forgetting in LTM		
There are two types of theories: 1. Availability (e.g. trace decay) – says that info forgotten from LTM is completely lost 2. Accessibility (e.g. cue dependent forgetting) – says that forgotten information is still in LTM, but cannot be obtained		
Trace Decay Information is stored in LTM as neural traces. These decay with time if they are not refreshed through use. If they decay enough they break up and recall becomes impossible	**Ebbinghaus (1875)** found that forgetting increases gradually with time. This supports trace decay. **Jenkins & Dallenbach (1924)** found that the rate of forgetting is not uniform, but depends on what the person is doing. This contradicts trace decay.	Both these studies have serious weaknesses: Ebbinghaus – only one pp used J & D – poorly controlled study. However, there is little evidence to suggest that trace decay accounts for much of LTM forgetting.
Cue Dependent Forgetting When info is stored in LTM, info about context and mental state (cues) is also stored to help you find it again. If the cues are not available at the time of recall, forgetting may result.	**Abernathy (1940)** found students did better on a test when they were tested in the room they were taught in. **Godden & Baddeley (1975)** found that divers recalled more words underwater than on land if that's where they'd learned them. Both these studies support cue dependent forgetting.	Support for cue dependent forgetting is stronger than for trace decay. The theory is not prefect – it doesn't explain exactly what a cue is and how it is supposed to work.

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Emotional Influences on Memory		
Two emotional processes: 1. Repression – emotionally painful memories are pushed out of consciousness 2. Flashbulb memory – surprising/shocking events lead to the formation of very clear memories that are resistant to forgetting		
Repression The function of repression is to protect you from emotionally disturbing memories by pushing them into the unconscious mind. They are not fully forgotten, and continue to affect you without your being aware of it.	**Freud (1905)** found that his patients with psychological problems recalled unpleasant memories during therapy. **Levinger & Clarke (1961)** found that PPs had poorer recall of words connected to unpleasant emotions (e.g. murder) than words that were neutral. Some other therapists have found that people with psychological problems have been abused in childhood, but did not remember this until forced to recover the memories These studies support the idea of repression.	Freud's work has been questioned. He only used a small sample of people and some have claimed he doctored his evidence. Levinger & Clarke's finding has not been repeated by other researchers – it is unreliable It is often impossible to check the accuracy of 'recovered memories'. Clients might be developing false memories because of the ideas supplied by the therapist. Even when accuracy can be checked, it is difficult to tell whether the clients were unable to remember or simply unwilling to talk about it.
Flashbulb Memories Shocking and surprising events (e.g. the death of Princess Diana) tend to be well remembered. People can often recall how they found out, what they were doing/wearing at the time, how they reacted etc.		I
Brown & Kulik (1967) suggest that FBMs are formed by a special memory process that is different to normal memories. FBMs are the result of an evolutionary mechanism that helps us have clear recall of things that threaten us.	**Brown & Kulik (1967)** found that black PPs had better recall of the assassination of Medgar Evers (black civil rights worker) than white pps. **Lewi et al (1997)** found that Israeli pps had better recall of the assassination of Rabin (Israeli PM) than British pps.	This supports the idea that we remember things better when they are relevant to us but does not prove that FBMs are different to normal memories.
	Neisser (1992) found that PPs who thought they remembered space shuttle Challenger exploding actually made many errors in recall	Compared to normal memories, people are more confident in FBMs, but no more accurate. They are not a special sort of memory.

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Eyewitness Testimony		
Eyewitness testimony is assumed to be accurate by jurors, so it is very persuasive. However, it may be distorted by a number of processes.		
Reconstructive Memory **Bartlett (1932)** suggested that memory is influenced by schemas. These are packets of generic knowledge that act like filters to learning and recall. When we take in info we only store a few details and rely on our schemas to fill in the blanks. Therefore, memory can be distorted by the schemas we have.	**Bartlett (1932)** gave people abstract shapes to study. When asked to draw them later, the pps' recall was affected by the labels they gave to the shapes originally. **Bartlett (1932)** gave people Native American stories to learn. When pps recalled them, they became shorter, details were lost and they became more westernised. These findings show that schematic assumptions influence recall.	This process only applies when the schemas a person has are incompatible with what they're trying to learn. Not all information is distorted to the same extent.
Leading Questions Loftus (1974) suggested that leading questions that contain misleading in formation can alter a witness' schemas, resulting in inaccurate recall of an event.	**Loftus & Palmer (1974)** found that pps who were asked 'did you see **the** broken headlight?' were more likely to report seeing one than those asked about **a** broken headlight. **Loftus & Zanni (1975)** found that pps asked what speed cars were going when they **smashed** gave higher estimates than those asked the same question, but with the word **hit**. These findings show that different wordings of a question produce different answers.	Loftus' research was done in a lab, with slideshows and films. Real witnesses' recall might not be affected. Loftus' pps might have been giving the answers they thought the experimenter wanted, rather than what they really thought. **Yuille & Cutshall (1986)** found that witnesses to a real shooting were much more accurate and far less open to being led than Loftus' pps.
Weapon Focus During a violent crime where a weapon is used, witnesses tend to focus their attention on the weapon rather than anything else. This means they often have poor recall	**Loftus (1987)** found that pps gave more accurate descriptions of a man holding a chequebook than the same man holding a gun. **Maas & Konigen (1989)** found that pps gave better descriptions of a woman holding a pen than a woman holding a syringe. These findings support the view that weapons decrease the accuracy of testimony	It is not known whether weapons decrease accuracy because they attract the witness' attention or because they produce anxiety, which inhibits memory. It only occurs when the weapon is unexpected e.g. a nun holding a gun is poorly recalled, but a soldier holding a gun is well recalled.