Forgetting in Short-Term Memory

Decay in STM

Trace decay theory in STM relates to theories of **Duration** in STM.
The theory suggests STM can only hold information for between 15 and 30 seconds unless it is rehearsed Brown & Peterson (1959). After this time the information **Decays** (fades away). Waugh & Norman (1965) used the **Serial Probe Technique** to test the theory.
Participants were given a series of numbers to learn. They were then given one of the numbers and asked which number followed it. The numbers were presented at different speeds therefore the faster the numbers presented the better the recall if Trace Decay theory is correct as the more likely the information is to remain in the STM.
The results did not support the theory. This research employed the **laboratory experiment** and its **validity** can therefore be questioned.

Displacement in STM

The idea of displacement in STM causing forgetting relates to the Capacity of STM as proposed by Miller (1956). It simply suggests that if the capacity of STM i s limited to 7 plus or minus 2 items or chunks of information then STM is full then some of that information must be kicked out or displaced in order for new information to enter.

Retrieval Failure in LTM

This theory suggests that all information received is stored in LTM but that some information is difficult or impossible to access.
This idea is characterised by the **Tip-of-the-Tongue Effect (TOT)** where we know something but just cannot recall it. **Retrieval of such information is thought to be dependent on three factors:**
1. Firstly **Context-Dependent Retrieval**, which suggests that recall of information, depends on replicating the situation or context in which that information was originally encoded.
Godden & Baddeley (1975) provided evidence for this by asking participants to learn a list of words either on land or 15 ft underwater. They were better able to recall words if asked to do so in the setting in which they originally learnt them.
2. Secondly, **State-Dependent Retrieval** suggests that recall is improved if the individual is in the same physical and/or psychological state as when they first learnt the information.
Godwin (1969) investigated the effect of alcohol on recall and found individuals were better able to recall information learnt when drunk if they were drunk. Other drugs seem to affect memory similarly. Bower (1981) however found that the same principle applied to mood did not have such a convincing effect but only a tendency to produce **State-Dependent Retrieval.**
3. Thirdly, recall may be by the presence of cues or probes, clues or associations. This is referred to as **Cue-Dependent Retrieval**, Tulving & Pearlstone (1966).

Interference in LTM

This idea suggests that information in LTM may become confused or combined with other information during encoding thus distorting or disrupting memories.

Interference in LTM is thought to be either **proactive** where old memories disrupt new memories or **retroactive** where new memories disrupt old memories. Both **Proactive and Retroactive Interference** is thought to be more likely to occur where the memories are similar

Flashbulb Memories

Flashbulb memories involve the vivid recall of what individuals were doing when a major event occurred. This event may be a public or a private occurrence.

Brown & Kulik (1977) asked people a series of questions about 10 major events. Participants remembered where they were, what they were doing and the emotional impact it had. These memories may be seen as 'special' and are thought to involve special brain mechanisms.

Rubin & Kozin (1984) showed that flashbulb memories are particularly powerful for personal events, such as love at first sight.

McCloskey (1988) suggested that **flashbulb memories** are as prone to forgetting as ordinary memories.

Bohannon (1988) suggested that **flashbulb memories** are not prone to forgetting when the event produced strong emotional reactions.

Repression (Freud)

Repression, according to **Freud** (1800s) is the **unconscious forgetting** of traumatic events, feelings, and thoughts because they are too painful to remember.

These memories are said to be repressed or 'pushed out' of consciousness into the unconscious and are very difficult to recall. These repressed memories may be the cause of mental abnormality as they express themselves in some other way.

There is increasing evidence of repressed memory in cases of childhood sexual abuse.

Williams (1994) examined records of young women who had been treated for sexual abuse as children and seventeen years later 38% of them had no conscious recall of the abuse.

Zimbardo (1995) reported the case of Eileen. In 1989 Eileen suddenly remembered the reason for her childhood friend, Susan's, disappearance twenty years earlier. Eileen's father had raped and murdered her. Eileen had repressed this memory due to threats from her father and the understandable trauma it caused. Her father was sentenced to life imprisonment.

Often however repressed memories are difficult to substantiate which has led to the notion of **False Memory Syndrome** (Pynoos & Nader 1989) where recall of so-called repressed memories may be false although real to the person remembering them.

Repression as a theory of forgetting is based on **Case Study** evidence and therefore is impossible to **generalise** from or **replicate.** Case studies are highly **subjective** and tend to personal and **subjective interpretations**.

Reconstructive Memory - Bartlett (1932)

Bartlett's theory of **Reconstructive Memory** is crucial to an understanding of the reliability of eyewitness testimony (EWT) as he suggested that recall is subject to **personal interpretation** dependent on our learnt or **cultural norms and values** - the way we make sense of our world. **In other words, we tend to see and interpret and recall what we see according to what we expect and assume is 'normal' in a given situation.** Bartlett referred to these complete mental pictures of how things are expected to be as **Schemas.** These **schemas** may, in part, be determined by **social values** and therefore **prejudice**. Schemas are therefore capable of distorting unfamiliar or unconsciously s 'unacceptable' information in order to 'fit in' with our existing knowledge or schemas. This can, therefore, result in unreliable eyewitness testimony. Bartlett tested this theory using a variety of stories to illustrate that memory is an active process and subject to individual interpretation or construction. **The War of the Ghosts.** According to Bartlett the recall showed westernised interpretation of the American Indian folk tale thus illustrating your subjective memory construction rather than accurate objective recall of events.

Reconstructive Memory - Loftus (1974)

Loftus drew on the ideas of Bartlett and conducted research-illustrating factors, which lead to inaccurate recall of eyewitness testimony. Loftus & Palmer (1974) conducted two laboratory experiments to illustrate this **reconstructive memory** and how questioning techniques used by the police influences this.

Experiment One.
45 participants involved using an **independent measures design.**
Participants were shown films of traffic accidents.
They were then given a general account of what they had just seen and asked a series of questions about it.
The critical question asked was **'About how fast were the cars going when they HIT each other?'**
OR the word 'HIT' was replaced by either 'SMASHED', 'COLLIDED', 'BUMPED' or 'CONTACTED'.
 The results suggested that participants recall was influenced by the word used - the independent variable. The word **'smashed'** led to the fastest speed estimate and the word '**contacted**' the slowest.
Experiment two
The experiment above could be explained by **response bias** - pressure from interrogator or a change in participant's recall of the event because of word used in question.
Loftus & Palmer conducted this experiment in order to test which explanation was accurate.
150 students were tested using **independent measures design.**
Participants were shown a short film of a traffic accident.
They were then given a general account of what they had seen. They were then divided into groups of 50.

The first group was asked **'How fast were the cars going when they hit each other?'**

The second group were asked **'How fast were the cars going when they smashed into each other?'**

The third group were not asked the question at all and acted as a **control group.**

One week later they were asked a series of questions about the road traffic accident, one of which was the **critical question, 'Did you see any broken glass? Yes or No?'**

There was no broken glass in the film itself. The results suggested that the word **'SMASHED'** not only led to estimates of faster speeds but also increased the likelihood of the participants recalling seeing broken glass when none was in the film. This research suggests that memory is easily distorted by questioning technique and information acquired after the event can merge with original memory causing inaccurate recall or **reconstructive memory.** The addition of false details to a memory of an event is referred to as **confabulation.**

The Loftus & Palmer experiment can be criticised for lacking **ecological validity**. It employed **independent measures design** and therefore may be explained by **individual differences/subject variables.** The **controlled conditions** make for sound **reliability** the **ethics** of this design may be questioned, as the participants were **deceived** but this was necessary in order to **validate findings** and minimise **demand characteristics**. The participants may have been distressed/traumatised by the film and this emotional reaction may have influenced their interpretation of the event. This kind of research has led to recommendations concerning police interview techniques and can be used by lawyers in court to question the accuracy of EWT.

Face Recognition

The work of Loftus & Palmer can be applied to face recognition. This area of EWT has however been studied directly to order to avoid false accusations.

Cohen (1966) showed how faces are not seen in isolation but that they are perceived or influenced both by the event itself and by people's schema, social norms and values and therefore stereotyped images.

Cohen referred to this as **Cross-Race Identification Bias**. Cohen suggested that people find it easier to identify people from their own race than people from a different race. This is reflected in the statement, **'They all look the same!'**

Therefore when an eyewitness and a possible suspect are from different races the identification of the suspect must be treated with caution. Cohen illustrated this by asking 86 shop workers in Texas to identify three customers, one White, one African-American and one Mexican-American who had purchased something from the shop that day. One third of the customers were White, one third African-American and one-third Mexican-American.

The accuracy of their recall was different for customers of different races and was related to the race of the shop worker. This research may have involved demand characteristics and individual differences.

Young showed how we are more likely to wrongly identify someone the less we know them. Young asked 22 participants to record how many times they made errors in recognising people over an eight-week period. There were 314 cases of mistaking a stranger for someone they knew because of similarity or dress or build. This research has implications for face recognition in identity parades.

Dood & Kirschenbaum (1973) illustrate the problem of facial recognition by their **Case Study of Ron Shatford**.

The witness had described the suspect as 'attractive'. Shatford was placed in an identity parade in which in which he was the only 'attractive' member. He was wrongly selected.

Case studies are unrepresentative, making generalisations impossible.

Well (1993) showed how the witness assumes the suspect to be present in an identity parade which again may lead to false recognition.

Bull & Rumsey proposed that we judge people to be criminal on their appearance.