A Summary of Memory.

Ebbinghaus began the systematic study of memory using nonsense syllables. He showed that memory declined very rapidly at first, then levelled off. James (1890) observed that whilst memory appears to store some information for a lifetime other information is lost really quickly. He distinguished between two types of memory primary structure and secondary structure. Today these are known as short-term memory (STM) and long term memory (LTM).

The limited capacity of STM can be increased through chunking as Miller (1956) discovered. However, chunking depends on matching incoming information and it's representation in LTM as Miller and Selfridges discovered (1950). The closer a sentence is to English the better it was recalled in the study. Bower and Springston (1970) presented a group of American students with familiar letters (e.g., fbi, phd0 and they grouped them in a different combination (egf, bip, hd) and asked other students. More letters were recalled correctly when they were grouped into acronyms. The first group could chunk the information together and get it out of their mental dictionaries. Coding in STM is mainly acoustic as indicated by acoustic errors when Conrad (1964) did a study. 62 people thought they heard a B but it was a V. Semantic and visual coding are also used. The Brown-Peterson technique shows that STM's duration is very short in the absence of rehearsal and especially when something else distracts the participant they forget again. If you keep rehearsing information then it can be stored in the STM.

There is no evidence how big LTM is. Lots of psychologists believe that it has an unlimited capacity. It has much longer duration than STM with memories stored in a more permanent way. Coding in LTM is mainly semantic but information still goes in visually and acoustically. Smells and tastes are also stored in LTM making it a flexible system.

Atkinson and Shiffrin's (1968, 1971) multi-store model of memory sees sensory memory, STM and LTM as permanent structural components of the memory system. Rehearsal is a key control process as it acts as a buffer between sensory memory and LTM and helps the transfer of information to LTM. The recency effect reflects recall from STM and LTM. Both together makes up the serial position effect. Studies have been carried out on amnesiacs. Alcoholics suffering from Korsakoff's syndrome have an intact STM as they can have a conversation with you but there LTM is bad and they can't remember when the conversation was. This suggests that STM and LTM are separate storage systems.

Baddeley and Hitch's working memory model believed that STM was more complicated than just a 'stopping off station' for information. STM is seen as the central executive who controls activities such as decision making and problem solving. Capacity is limited but flexible and can process information in any sense modality. The articulatory loop is like a verbal rehearsal loop. Information is represented, as it would be spoken the loop has two components: an artculatory control process based on inner speech and a phonological store holding on to a speech based information. Children who have difficulty learning to read may show some deflect in their phonological loops. The visuo-spatial scratch pad is the visual information. IT deals with the visual features e.g. size, colour shape. It is known as the inner eye.

Craik and Watkins distinguished between maintenance rehearsal and elaborate rehearsal. Maintenance rehearsal is the rehearsal that appears in the multi-storey model which is that the material is rehearsed as it was when it came into the memory whereas elaborate rehearsal is when the material is related to previous knowledge that is stored in LTM. Craik and Lockhart's level of processing model (LOP) states that memory is a by-product of perceptual analysis. When information is taken into the memory it analyses it on various levels in the central processor. 1. Shallow level e.g. whether the word is small or capital. 2. Phonemic level- word is analysed as sound. 3. Semantic level – word's meaning. The more deeply the information is put in the more likely it is to be retained. The detail of the material that is being stored in memory is also influenced on whether or not the information gets stored. Distinctiveness is more important than elaboration as it stands out more and you are able to remember it. Level of processing, elaboration and distinctiveness all contribute to remembering.

Forgetting is something we all do and is a major factor in eyewitness testimony but how does it work? The decay theory explains why we forget more as time increases. Decay happens when information happens when information isn't used for a long time. The displacement theory suggests that are STM has limited capacity and when it is full it pushes out old material and replaces it with new material. Waugh and Norman (1965) probe task support this. According to the retrieval – failure theory memories cannot be recalled because the correct retrieval cues are missing. This can be demonstrated by the tip of the tongue phenomenon, when you know something but you can't retrieve it at the time you what it. According to the interference theory forgetting is influenced more by what we do before and after learning compared to forgetting over time. Retroactive interference works backward in time it works when later learning affects recall of earlier learning. Proactive interference is the opposite it works forward in time it works when earlier learning affects recall of later learning.

Memory for past events is affected by their emotional significance. Some events in your life you don't want to remember this is supported by the motivated – forgetting theory. Freud (1901) Repression occurs which is an unconscious process, which makes some memories inaccessible. These memories are more likely to include guilt, shame and embarrassing memories. It does this as a form of defence mechanism. Whereas Flashbulb memories (Brown and Kulik 1977) which is a special kind of episodic memory occurs when we can recall a detailed recollection of a major event such as Princess Diana's death most people can recall this and even know where they were and what they were doing. Flashbulb memories only occur when they are personal relevance to you.

Research into eyewitness Testimony (EWT) has occurred. The Bartlett approach used serial reproduction in which one person reproduces some material and it gets passed along the chain like Chinese whispers. Rumours and gossip distorts the material. The most famous piece Bartlett used was The War of the Ghosts, a folk tale. When shown to English participants the folk got changed as they weren't familiar with the tale. Bartlett also used another method called repeated reproduction. They used the same but it was recalled at different occasions. He found similar results to the first method. Wynn and Logie used a real life situation where they asked students about there first week at university. They asked them to recall their details in November, January, March and May. The accuracy maintained over time. This suggests that memories that are distinct can be resistant over time.

Bartlett thought we reconstruct the past by trying to fit it into our existing understanding of the world he called this a schema. Schemas provide us with ready-made expectations, help to make the world more predictable, allow us to fill gaps with our memories and can produce distortions in the memory process. Allport and Postman (1947) showed participants a picture of a white man holding a razor and a black man. Participants were asked to give details about the picture. The main change of information was that the black man was holding the razor. In this study participants have used a schema, they can be very powerful and change a lot of correct information too incorrect.

Loftu's research is mainly to do with EWT but is based on Bartlett reconstructive memory approach. Loftus argues that in court cases witnesses are asked misleading questions, which distort the correct information. Identification parades are used so the witness can visually pick out the suspect. The Devlin committee started these in 1973. In 347 cases in which prosecution occurred when EWT was the only source 74% were convicted. EWT is regarded as very important in legal cases. But the reconstructive memory has questioned people on how useful it really is? The Devlin committee recommended that one single EWT isn't enough evidence to convict a person except if the person is a close friend or relative. An Australian psychologist got prosecuted for raping a woman. The woman had picked him out of an identity parade. The woman recognised his face but he was on the T.V the same night she got raped so she recognised him for the wrong reason.

Episodic and semantic memory play a big role in EWT. Episodic memory (EM) is a record on personal encounters such as people and objects etc e.g. knowing how to ride a bike. Others can verify most of them. Semantic memory is a store of general knowledge it stores like how we speak, it acts as a dictionary and it tells us information about ourselves e.g. your name and the number of brothers and sisters you have. According to Fiske and Taylor (1991) it is easy to see how witnesses can recall the incorrect information to misleading questions. When there asked if something is present at the crime (stored in EM) but it wasn't, usually it is (based on schemas). Witnesses might pick people out of

identifications parades just because they look familiar. A mistaken eyewitness is better than 'no' witness as proved by Loftus (1974).

There are factors that influence EWT these include:
Race – When the suspect and witness are racially different errors are more likely to occur. We can recognise people more when they are members of your own racial groups. (Brigham and Malpass 1985)
Clothing – Witnesses pay more attention to a suspect's clothing rather than their characteristics e.g. height. Criminals are aware this as they change what they wear in a line up. (Brigham and Malpass 1985)
Social influence – one factor is when witnesses exchange what they saw e.g. Memon and Wright describe a study when pairs were asked if they had seen a car at the scene of the crime. If the 1st person said yes the 2nd person was more likely to say yes as well.
Misleading questions and suggestibility – when misleading information is given reconstructive errors in recall occur.
Age – can play a part in the accuracy of recall. In some studies children are known to give fewer details than adults do. Older people may also recall less than younger people (List 1986) may
Stress – the levels of stress experienced when witnessing a crime can also affect accuracy of recall. Yerkes Dobson law shows this.

Event factors such as exposure time – the length of time a witness is exposed to an event. It was shown by Ebbinghaus (1885) the longer were exposed to something the better perception of it is and Detail salience – for example in an armed robbery the witness focused on the gun not the man's characteristics. The gun is seen as a salient feature as it distracts the witness's attention to the more important things.

Loftus and Palmer (1974) carried out an experiment where they showed a collision of two cars colliding. Participants were then asked how fast the car was going when they hit? Other participants were asked the same question but instead of the word hit, smashed, collided, bumped and contacted were replaced. The average speed for the word hit was 34mph but the highest was the word smashed at 40.8mph and the lowest was the word contacted at 31.8mph. The word had influenced the witnesses. Loftus and Palmer (1974) followed up this experiment by asking the same participants if broke glass were present at the scene. The participants who were asked the question with smash in it 32% said yes compared with only 14% with the word hit. These results support the memory-as-reconstruction explanation.

The effect 'after-the-event' information is supported by Loftus (1975). Participants were grouped A and B. Group A were asked how fast the white sports car was going when it passed the stop sign? Whereas groups B were asked how fast the car was going when it passed the barn? Both groups watched the same video. The stopped sign had appeared on the video but the barn hadn't. One week later they were asked if there was a barn in the video. Out of group A only 2.7% said yes whilst 17.3% in-group B said yes. Misleading again. The most popular explanation for suggestibility effects is source misattribution. Memories of details from various sources can be combined with memories of that event (memory blending).

Video-witness testimony is a special case of EWT. In most shops and banks now have CCTV this can be very useful and could prove vital to a crime as the criminal is captured on video. But Bruce (1998) has investigated face recognition and memory for 25 years. Evidence suggests that rather subtle pictorial differences are difficult for human vision to deal with. The quality of the CCTV camera may prove vital: -
Camera and lighting angles many only provide poor lit messy image of the top or back of someone's head. Judging different images of the same individual may be prone to error. CCTV images are extremely useful when the person shown is known to the witness but when an unfamiliar face occurs it is extremely difficult to find the right person. According to Harrower (1998) we remember faces that are nothing like the suspect but ones we have in our heads as criminals. This is another example of a schema.

According to Loftus and Bartlett EWT is not reliable but some people argue this. EWT can be very useful, as it has caught a lot of suspects but at the same time it has caught a few innocent suspects! The legal system should improve the use of EWT. They should definitely get rid of misleading questions and lawyers should not be allowed to ask false questions and this is playing tricks with the human memory. EWT is not reliable by itself it needs evidence to back it up. In my opinion identity parades are dangerous for example

a little old woman might be asked to pick out of 5 black men wearing exactly the same she really hasn't got a clue so she might just pick at random or use a schema. I certainly wouldn't take part in one just in case I was picked. CCTV is a good idea in my opinion there should be more of them as they catch a lot of suspect's e.g. a lot of shop lifters. The government should be aware of all these things I have mentioned about memory. Memory can be very useful and is a major part of every human being. Memory can remember things at the scene of the crime. But do we know if these things we remember are correct as schemas and the concept of the world around us can interfere. Over time the information could decay and vital evidence to a crime might fade away if not caught in time.

The government should only use EWT when necessary but for major court cases there should be a lot more evidence to back it up.