What can be deduced about the processes of memory on the basis of everyday memory...

It would be difficult to think of a cognitive process which could be carried out without a memory system.

However, people often complain that they often do forget the things which they would like to remember. Therefore an understanding of the way memory works is especially important when looking at why people misremember and forget. Because of this, much research has been carried out over the years on memory. Research in the 1970's tended to be based on the structural view of memory based on the modal model.

This was later replaced with the idea that we have different types of knowledge with memory systems and memory processes. The most influential approach to what governs the complex pattern of remembering and forgetting has come from schema theory. This essay will look at how schema theory explains why people misremember and forget. Schema theory was first proposed by Bartlett in 1932 and was largely ignored until the 1980's.

Schema theory suggests that the information we have stored in memory is organized in such a way as to incorporate all the knowledge of a given type of object or event that we have acquired from past experience. Schemas are packages of information stored in memory representing general knowledge about all kinds of events, actions, objects or situations in the world around us. The knowledge about simple things such as the shapes of letters to more complex knowledge about events of everyday life are all stored in memory as schemas. New information relevant to the schema is absorbed and

remembered to provide a framework which can be added to whenever necessary.

Information, which is not relevant to the schema in operation, may be disregarded and forgotten. The information in memory tends to be changed from the specific to the general. In this way, if we forgot something about an event which we had a schema for, we would tend to fill in the gaps in our knowledge about that event with what usually happens in a given situation. This is because schema theory emphasizes the fact that what we remember is influenced by what we already know.

This is demonstrated by Loftus (1975) in an experiment which showed that new information is absorbed with memory representations which are already present. In this experiment Loftus gave misleading information to eye-witness subjects after they had been shown a film of a car accident. The misleading information was then absorbed by the witnesses and integrated into their memory of the event. The misleading information had a significant influence on memory of the event as the fictitious information had been integrated with the real memory. In a later experiment Loftus, Miller and Burns (1978) the correct information was altered and replaced with false information. Loftus showed in her experiments on eye witness testimony that the memory representation of an event can be modified by subsequent information.

However in a further experiment, Loftus (1979), showed that in certain conditions the memory is more resistant to outside interference. For instance when it was obvious that the information was misleading, witnesses were

less likely to take the fictitious information on board, and were more likely to be on their guard against any further attempts to mislead. The most important point to come out of this research is that once the original memory has been tampered with, the original memory is not very likely to be recovered at any stage. This has implications for all theories about memory and not just eye-witness testimony. Another area of research which is relevant was produced by Harris and Monaco (1976). They showed that pragmatic implications affect the way that information is stored in memory.

For instance when information is given it is comprehended in such a way as to include what was directly asserted as well as what was already stored as a schema for that situation. Harris (1978) investigated how pragmatic implications might affect members of a jury by misleading them to believe that something which was implied had been asserted as definitely true. He concluded that it is very easy to mislead juries in this way. This shows that when remembering verbal information, particulars which were only implied may be confused with facts that were actually related. Research on eye-witness testimony has tended to concentrate on the way that memory can be altered and so only gives one side of the argument. The witnesses were not only integrating prior knowledge from schemas which they held, but were also combining information from two different external sources, namely the observed event and the verbal information about that event.

This shows that we can deduce that memory is not all schema based, but can sometimes be a combination of different sources of information. Another area which schema theory has been used to demonstrate how the processes of memory work is in the area of everyday slips and errors. Absentminded

slips of action occur when the schema for the wrong action sequence is activated instead of the schema for the correct action sequence. Slips and errors were investigated by Reason (1979). He suggested that slips and errors tend to occur when carrying out everyday tasks which are highly practiced and have become automatic.

Automatic actions differ from actions which have to be well attended to. This is because we have to pay attention to things which we do not know how to do very well, whereas those things which we do everyday become automatic with practice. This means that attention can be on executing another activity while performing the one which has become automatic, and in this way errors and slips can occur. Norman (1981) suggested that schema theory can account for slips of action.

Norman's model is one where schemas work together in organized groups which he called hierarchical organization. The same principle of schemas applies but instead of events or places, the schema represents knowledge about motor actions. The causes of errors in both Reason's and Norman's examples are not very distinct. Reason suggests that absentminded slips of action occur when the schema for the wrong action sequence is selected instead of the correct one. Whereas Norman's model indicates that an error could occur when there is faulty specification of the overall intention, faulty triggering, or faulty activation of the schemas.

This is demonstrated by Brewer and Treyens (1981) in which they showed that people's memory for a scene is affected by the schema which is appropriate for that scene. Their experiment consisted of leaving people in

an office and later asking them to recall the things that were present in the office. They showed that while people successfully recalled items which they would have expected to have been in the office, some subjects made errors by recalling items which they would have expected to be in an office, but in reality were not there. This shows that the subjects were using there schema based knowledge to try to recall what was in the office.

What is more surprising is that a significant number of subjects recalled accurately that there was a skull in the office, this shows that recall is not entirely schema based. Brewer and Treyens show that schema theory is not very useful for explaining how people actually remember things in everyday activities. In conclusion it could be said that schema theory definitely has its strong points and can be used to demonstrate how people do forget and misremember. Schema theory and can be used to explain many things such as how relatively easy it is to confuse eye-witnesses, and why we make slips and errors in everyday tasks. On the other hand, what it is not so good at, as Brewer and Treyens pointed out, is in explaining how we do remember odd events, such as the skull in the office. It should be remembered, however, that schema theory can account for the everyday slips and errors which occur when people ' fill in the gaps' with their own knowledge by using the schemas they have for that particular event or action.