Eyewitness Testimony

One important application of research into memory is eyewitness testimony (EWT). EWT is used as evidence in criminal trials in countries all over the world. Juries tend to pay extra attention to eyewitness testimony and generally see it as very trustworthy and convincing. However, a great deal of research in cognitive psychology tells us that, in general, people's memories are fairly fallible. This section examines some of the psychological factors that can affect the accuracy of EWT. It is split into two main sections:

- Reconstructive Errors & Leading Questions
- Weapon Focus and Violence Distraction

Reconstructive Errors

Many people believe that memory works something like a videotape. Storing information is like recording and remembering is like playing back what was recorded, with information being retrieved in much the same form as it was encoded. However, memory does not work in this way. It is a feature of human memory that we do not store information exactly as it is presented to us. Rather, people extract from information the gist, or underlying meaning. In other words, people store information in the way that makes the most sense to them. We make sense of information by trying to fit it into **schemas**, which are a way of organising information. Schemas are general purpose 'packets' of knowledge that correspond to frequently encountered people, objects or situations. They allow us to make sense of what we encounter in order that we can predict what is going to happen and what we should do in any given situation.

Schemas are a very effective way of processing information. Besides making the world more predictable, they remove the need to store similar information more than once. For example, if you think about a kitchen, you will probably find that your idea of kitchens includes features like a cooker, a fridge, cupboards, work surfaces and so on. Your schema for 'kitchen' includes these features, because you have discovered through your experiences that most kitchens have them in some form. Now, suppose you visit someone's house for the first time, and they ask you to get something from the kitchen. You may not know where the kitchen is, but you would be able to recognise it when you found it because it would contain all or most of the things that feature in your 'kitchen schema'. Additionally, when you got there, it would not be necessary for you to store information about its contents, because you would already know most of what was in there due to your having a schema for that particular type of room.



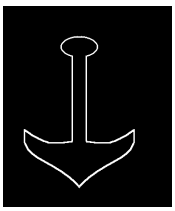
Three different kitchens, with similar features that might be a part of a 'kitchen schema'

So whilst you might encode a few details about it, for example, the layout, or the colour of the walls and so on, you would not need to store any more than this. For this reason, schema driven processing increases the efficiency or cognitive economy with which memory operates.

However, schema driven processing has an important consequences for the way we store information. By forcing new situations to fit into our schemas, we may distort them in some way. So the information encoded in memory will not correspond exactly to what we actually encounter. When we later recall the information, these distortions will have been incorporated into our recall that hence may not be entirely accurate.

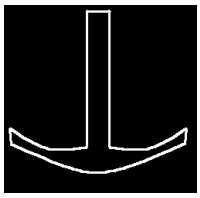
The Work of Frederick Bartlett

These general ideas were first formulated by **Frederick Bartlett** in the 1930s. Bartlett carried out a large number of studies in which he showed that the ways in which participants make sense of something (i.e. the schema they apply to it) affects the way they recall it later. In one study, participants were shown unfamiliar line drawings like the one below and instructed to memorise them.

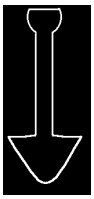


The stimulus Bartlett instructed his participants to remember

Bartlett asked his participants to talk aloud whilst trying to memorise the figures. He found that different participants would make sense of the figures in different ways. For the figure above, for example, one participant called the drawing a pickaxe, whilst another called it a turf cutter. When the participants were later asked to draw the figures as they remembered them, Bartlett found that the labels (or schemas) they had applied during initial encoding influenced their recall:



'Pickaxe' schema



'Turf cutter' schema

These differences in recall show that the schema applied by the participants affected their recall of the stimulus.

Another study by Bartlett illustrated further the role that schemas can play in the distortion of information in memory. Participants were asked to memorise a short story called 'the war of the ghosts'. The important thing about this story is that it comes from a native American tradition, whilst the participants were British. Native American storytelling uses different conventions to European storytelling, and different assumptions are made about the knowledge that the listener is likely to have. So the schemas needed to understand 'the war of the ghosts' would not necessarily be possessed by a European participant. Bartlett hypothesised that his participants would find the story difficult to understand and memorise and, hence, that when they recalled it they would distort it in a number of ways. As he predicted, the participants' retellings of the story differed from the original in several characteristic ways:

- The story became significantly shorter.
- Much of the detail was lost.
- Some details were changed e.g. 'seal hunting' became 'fishing'.
- The structure altered to become more 'Westernised'.

The participants attempted to fit the story into their western schemas and, as a result, distorted it during recall. This showed that they were not recalling the information exactly as it had been presented to them, but were making a 'best guess' at the story, based on their own understanding. Bartlett called this the tendency to make 'efforts after meaning'. He concluded that we always try to recall things in a way that is consistent with out schemas and, hence, that memory is 'the imaginative reconstruction of experience'.

The Work of Elizabeth Loftus

You may be wondering what kitchens, pickaxes and folk tales have to do with eyewitness testimony. The link between reconstructive memory and witness testimony was made by **Elizabeth Loftus** in the 1970s. Following on from Bartlett's work, she reasoned that witnesses to crimes, rather than recalling events exactly as they happened, are creating reconstructions of the crime based on their own schematic understanding of the world. However, Loftus

took this idea one step further. She suggested that any new information about the crime that the witness took in had the potential to distort their recall of events.

Where might this new information come from? There are a number of possible sources. For example, witnesses might confer with each other about what they saw, thereby contaminating each others' accounts. But the most problematic source of new information is the **leading questions** that may be asked by police and lawyers. A leading question is a question that contains information previously unknown to the witness. For example, a police officer that asks 'how many times did Joe Bloggs hit the victim?' is not only requesting information about an assault but incidentally conveying the idea that it was Joe Bloggs that hit the victim and not Joe Blow. This information has the potential to affect the witness' understanding of the event so that, when they are later asked who carried out the assault, the understanding that it was Joe Bloggs has been implanted in their recollection of what happened.

This is a fairly trite example, and it is unlikely that a police officer or lawyer would ask such a blatantly leading question. However, the information suggested by real leading questions can be subtle and go unnoticed by the witness. Loftus carried out a number of studies in which participants were shown films of car crashes. Different groups of participants were asked slightly different questions about what they had seen. Loftus and her colleagues found that the different questions caused the participants to recall the events differently. For example, **Loftus & Zanni (1975**) found that asking the participants if they had seen 'the' broken headlight rather than 'a' broken headlight increased the likelihood that they would report seeing one, even though there was no broken headlight in the film. Similarly, **Loftus & Palmer (1974)** found that participants who were asked how fast the cars were going when they 'smashed into' each other gave higher estimates of speed than participants who were asked how fast the cars were going when they 'hit' each other. In a further study, **Loftus, Miller & Burns (1978)** found that they were able to get some participants to recall having seen a sign by the road, even though there had been no sign shown. This study also showed that most participants were unaware that they had been misled, which helps to reduce the possibility that results like these are simply the result of demand characteristics.

Loftus' basic position on eyewitness testimony is that, frequently, witness' accounts of what they have seen are little better than guesses. This finding was highly influential in the writing of The Devlin Report, which concluded that, unless the circumstances were highly unusual, eyewitness testimony should not result in a conviction in an English court in the absence of other corroborating evidence.

However, not all researchers agree with Loftus' point of view. Some research has shown that, if the circumstances are right, witness recall can be extremely accurate. For example, **Yuille & Cutshall (1986)** examined the recall of witnesses to a shooting in a town in Canada. A man had attempted to rob a gun shop. During the course of the robbery the shop owner was shot. He returned fire, killing the would-be robber. The incident occured in braod daylight, in front of a large number of witnesses. Some months afer the event, Yuille and Cutshall tracked down the witnesses and asked to interview them. Fifteen of them agreed to take part in the study. Examining their accounts, Yuille and Cutshall made several important findings:

- The witnesses were able to recall the incident in a great deal of detail.
- There was a very high level of agreement between the accounts given by the different witnesses.
- The witnesses accounts did not alter in response to leading questions.

These findings are contrary to those that Loftus might lead us to expect. The reconstructive memory approach would suggest first, that the witnesses memory of the event would fade with time, second that the witnesses' accounts would differ according to their different interpretations of the incident and, third, that the witnesses would be susceptible to leading questions. Such findings, which are obtained from real-world witnesses and hence are high in ecological validity cast doubt on the validity of Loftus' conclusions.

However, it would be unwise to dismiss Loftus' research purely on the basis of Yuille and Cutshall's findings. The incident witnessed by their participants was shocking, highly unusual and was observed in ideal viewing conditions. The same is not true of most witness incidents. In general, the available research supports Loftus' view that witness testimony can be affected by leading questions, but only under certain circumstances:

- The witness believes the questioner knows what really happened.
- The witness is unaware they may be misled.
- The misleading information concerns peripheral details of the incident, rather than central ones.
- The misleading information is not blatantly incorrect.

Weapon Focus

One of the main assumptions of the cognitive approach is that people have a limited capacity for processing information. This can be a problem because there is a huge amount of information in the environment. It would be impossible for a person to take in and process all this information. Therefore, people are selective about what they take in. The cognitive system is equipped with a sort of filtering system (called attention) that is used to select some information and reject other information.

Under normal circumstances, people are quite good at choosing which information will be processed. However, there appear to be some sorts of information that draw attention to themselves. Weapons and other threats are one example.

When a person witnesses a crime in which a weapon was used, their attention tends to focus on the weapon. This is hardly surprising, as it is the weapon that represents the most obvious threat. However, whilst the person's attention is focused on the weapon, it it not focused elsewhere, so the person is not taking in much information about the person holding it, for example. In other words, **weapon focus** is the tendency for witnesses to violent crimes to focus their attention on the weapon used. Weapon focus usually results in poor quality testimony, as the witness is unable to describe much that is useful about other aspects of the incident. This is why bank tellers (whom you might expect to be able to describe an armed robber quite well, if they have faced one) can typically describe the weapon used in great detail, but not the person who was pointing it at them.

Studies of Weapon Focus

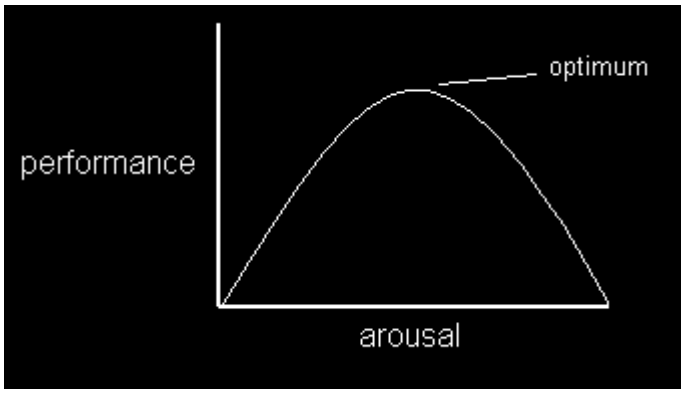
Loftus et al (1987) showed participants one of two films. In one, a customer in a restaurant was holding a cheque, in the other he was holding a gun. It was found that participants had a higher recall for the 'cheque' condition. **Maass and Kohnen (1989)** carried out a field experiment in which participants were approach by a woman holding either a pen or a syringe. Participants in the 'pen' condition were able to supply more accurate descriptions of the woman. Studies like these give support to the suggestion that witnesses' attention tends to be drawn towards a weapon, thereby preventing them from taking in other details about the situation. However, this theory rests on the assumption that the weapon represents a threat. What about situations in which weapons do not pose a threat? It might be suggested that in these situations weapon focus does not occur. The research appears to support this hypothesis. Weapon focus appears most likely to occur when the weapon is incongruous (for example, a nun holding a gun will be more poorly recalled than a soldier holding a gun) and when a weapon in not appropriate to the situation (e.g. a person holding a gun is poorly recalled if they are depicted in a restaurant but reasonable well recalled if they are depicted on a firing range).

Arousal, Anxiety and Violence Distraction

Some researchers have questioned whether witnesses' poor recall of violent incidents is solely due to attentional focus. For example, **Clifford and Scott (1978)** found that witnesses to violent incidents generally recall less than witnesses to non-violent incidents, regardless of whether a weapon was used or not. They showed participants one of two films involving the same people. In one film there was a physical assault. Participants who viewed this film were less likely to identify the people involved than those who had viewed the non-violent film. **Clifford and Hollin (1981)** examined the relationship between the level of violence and recall. They found that the higher the level of violence depicted, the poorer participants' recall of an assault. There are two possible reasons why this might be:

- Violent incidents, like weapons, draw the focus of the witnesses' attention, leading to little or no processing of other information
- Violent incidents increase anxiety and autonomic arousal, which has a detrimental effect on memory generally.

According to the **Yerkes-Dodson Law**, an increase in arousal improves performance but only up to a point. Once arousal has passed a critical point called the optimum, performance tends to decline. A possible interpretation of the research on violence distraction is that witnessing violence raises witnesses' arousal level past optimum, leading to poorer memory performance.



A graph illustrating the Yerkes-Dodson law. As arousal increases, performance improves, but only unitil the optimum point is reached. Thereafter, as arousal continues to increase, performance goes into decline.