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Loftus and Palmer (eyewitness testimony)

Loftus, E.F. & Palmer, J.C. (1974) Reconstruction of auto-mobile destruction: An example of the interaction between language and memory.

Background

In this study Loftus and Palmer are attempting to demonstrate that memory is not a factual recording of an event and that memories can become distorted by other information which occurs after the event.

Many of the early studies of memory (e.g. Bartlett 1932) demonstrated how memories are not accurate records of our experiences. It seems that we try to fit past events into our existing representations of the world, making the memory more coherent or make more sense for us.

Much research has documented how difficult it is for people to estimate numerical details such as time, speed and distance. Judgement of speed is especially difficult, with witnesses of traffic accidents varying in their estimations as to how fast a vehicle was actually travelling.

Elizabeth Loftus is a leading figure in the field of eyewitness testimony research. She has demonstrated through the use of leading questions how it is possible to distort a person’s memory of an event.

Aim

The aim of this study was to investigate how information supplied after an event, influences a witness's memory for that event.

Method

The study actually consists of two laboratory experiments. They are both examples of an independent measures design. The independent variable in both of the experiments is the verb used. The dependent variable in the first experiment is the participant’s speed estimate and the dependent variable in the second experiment is whether the participant believed they saw glass.

First Experiment

Procedure

The participants were 45 students of the University of Washington. They were each shown seven film-clips of traffic accidents. The clips were short excerpts from safety films made for driver education. The clips ranged from 5 to 30 seconds long.

Following each clip, the students were asked to write an account of the accident they had just seen. They were also asked to answer some specific questions but the critical question was to do with the speed of the vehicles involved in the collision.

There were five conditions in the experiment (each with nine participants) and the independent variable was manipulated by means of the wording of the questions.

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Memory can be defined as capacity to encode, store and retrieve information.

A **leading question** is a question that suggests what answer is desired or leads to the desired answer. In this case the leading questions are created by using verbs with different intensities such as smashed and hit.

Eyewitness testimony refers to an account given by people of an event they have witnessed. For example, they may be required to give a description of a robbery or a road accident someone has seen. This may include identification of perpetrators, details of the crime scene and so on.

An **independent measures design** consists of having different participants in each of the conditions. Therefore each participant only experiences one condition.

An advantage of this type of design is that there are no **order effects**. That is, participants are not going to perform differently because of the order in which the conditions are performed because they are only participating in one condition.

A disadvantage of this design is

lack of control of **participant variables**. That is, any difference found between the performances of the participants in different conditions could be due to individual differences.

For example:

Condition 1: 'About how fast were the cars going when they smashed into each other?'

Condition 2: 'About how fast were the cars going when they collided into each other?'

Condition 3: 'About how fast were the cars going when they bumped into each other?'

Condition 4: 'About how fast were the cars going when they hit each other?

Condition 5: 'About how fast were the cars going when they contacted each other?'

The basic question was therefore 'About how fast were the cars going when they ***** each other?'. In each condition, a different word or phrase was used to fill in the blank. These words were; smashed, collided, bumped, hit, contacted.

The entire experiment lasted about an hour and a half and a different ordering of the films was presented to each group of participants.

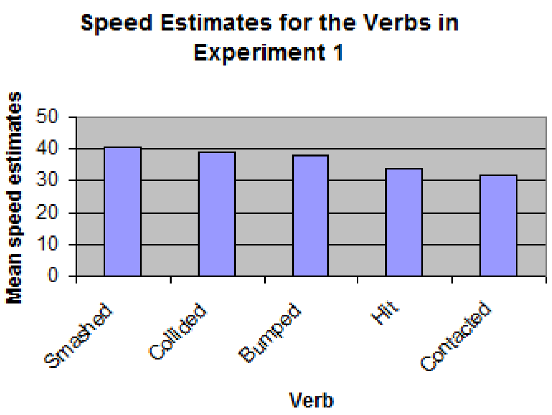
The dependent variable was the speed estimates given by the participants.

Results of the first experiment

Table 1. Speed estimates for the verbs used in the estimation of speed question

Verb	Mean estimate of speed (mph)
Smashed	40.8
Collided	39.3
Bumped	38.1
Hit	34.0
Contacted	31.8

The results in table 1. show that the phrasing of the question brought about a change in speed estimate. With smashed eliciting a higher speed estimate than contacted.



Explanation of findings

Loftus and Palmer give two interpretations/explanations of the findings of their 1st experiment.

1. Firstly, they argue that the results could be due to a distortion in the memory of the participant. The memory of how fast the cars were travelling could have been distorted by the verbal label which had been used to characterise the intensity of the crash.

2. Secondly, they argue that the results could be due to response-bias factors, in which case the participant is not sure of the exact speed and therefore adjusts his or her estimate to fit in with the expectations of the questioner. (This is also an example of a demand characteristic)

Response bias is an example of a demand characteristic. A demand characteristic is the process whereby participants act or respond in a way which they feel they are expected to.

The researchers did accept that their first experiment may not be demonstrating a change in memory as the participants could simply be giving a speed estimate which fits in with the expectations of the questioner. In order to find out if it is possible to actually

Second Experiment

Procedure

The second experiment was to provide additional insights into the origin of the different speed estimates. In particular they wanted to find out if the

participants memories really had been distorted by the verbal label.

A similar procedure was used whereby 150 student participants viewed a short (one minute) film which contained a 4 second scene of a multiple car accident, and were then questioned about it.

There were three conditions and the independent variable was manipulated by the wording of the question.

50 of the participants were asked 'How fast were the cars going when they hit each other?'

50 of the participants were asked 'How fast were the cars going when they smashed into each other?'

50 of the participants were not interrogated about the speed of the vehicles.

One week later, the participants returned and, without viewing the film again, they answered a series of questions about the accident. The critical question was 'Did you see any broken glass?' The critical question was part of a longer series of questions and was placed in a random position on each participants question paper. There was in fact no broken glass in the film.

distort the participants' memories of an event a second experiment was carried out.

The independent variable in this second experiment was the wording of the question. That is, whether the participants were asked a question using the verb 'hit' or 'smashed'. The dependent variable was whether or not the participants saw broken glass.

Note that the researchers were not interested in the response to this question. Rather, the researchers were attempting to find out if the wording of the question would distort the participants' memory of the car crash.

Results of the second experiment

Table 2. Response to the question 'Did you see any broken glass?'

Response	Smashed	Hit	Control
Yes	16	7	6
No	34	43	44

These results show that the verb (smashed) in the question did have a significant effect on the mis-perception of glass in the film.

Those participants that heard the word 'smashed' were more than twice as likely to recall seeing broken glass.

The 50 participants who were not asked about the speed of the vehicles were the control group. A control group is used by researchers as a comparison. The control group experiences all the same conditions of the study in the same way as the experimental group or groups with the exception of the independent variable. Therefore by comparing the results of the experimental groups and control group the effects of the independent variable can be observed.

Explanation of results

To account for the results of the second experiment, Loftus and Palmer developed the following explanation called the reconstructive hypothesis:

They argue that two kinds of information go into a person's memory of an event.

The first is the information obtained from perceiving an event (e.g. witnessing a video of a car accident), and the second is the other information supplied to us after the event (e.g. the question containing hit or smashed). Over time, the information from these two sources may be integrated in such a way that we are unable to tell from which source some specific detail is recalled. All we have is one 'memory'.

For example in Loftus and Palmer's second experiment, the participants first form some memory of the video they have witnessed. The experimenter then, while asking, "About how fast were the cars going when they smashed into each other?" supplies a piece of external information, namely, that the cars did indeed smash into each other. When these two pieces of information are integrated, the participant has a memory of an accident that was more severe than in fact it was. Since broken glass corresponds to a severe accident, the participant is more likely to think that broken glass was present.

The researchers believed that the verb 'smashed' had caused an actual distortion in the participants' memories of the accident. The verb 'smashed' distorts the memory of the accident as being more sever than it was and when asked whether they saw any broken glass the participants were more likely to say 'yes' because this fits in with the distorted memory they have of the event.

Evaluation of Procedure

Strengths of the method

Experiments allow for precise control of variables. The purpose of control is to enable the experimenter to isolate the one key variable which has been selected (the IV), in order to observe its effect on some other variable (the DV). Control is intended to allow us to conclude that it is the IV, and nothing else, which is influencing the DV. For example the researchers were able to control the age of the participants, the use of video and the location of the experiment. All participants were asked the same questions (apart from changes in the critical words), and the position of the key question in the second was randomised.

Note that the data collected are quantitative as they are in numerical form. Although these types of data are useful for making comparisons using statistical analysis they do not provide us with any information about why the participants gave the answers they did.

Limitations of the method

The experiment was not typical of real life situations. The experiments carried out by Loftus are artificial in the sense that they are different from how people would normally witness events. For example, when the participants were giving their estimates of speed, they did not have any personal involvement in the judgement and had not taken part in the event. When we witness events in everyday life, we often have some involvement in the people or the action.

Therefore it should be difficult to generalise findings from laboratory experiments because they are not ecologically valid (true to real life).

A further problem with the study was the use of students as participants. Students are not representative of the general population in a number of ways. Importantly they may be less experienced drivers and therefore less confident in their ability to estimate speeds. This may have influenced them to be more swayed by the verb in the question.

Students may be very different from other people. For example, students are used to remembering useless information, and are usually good at memory tasks compared with other people.

Evaluation of Explanation

Loftus and Palmer argue that two kinds of information go into a person's memory of a complex event. The first is the information obtained from perceiving the event, and the second is the other information supplied to us after the event. Over time, information from these two sources may be integrated in such a way that we are unable to tell from which source some specific detail is recalled. All we have is one 'memory'. This argument is called the reconstructive hypothesis.

One way in which we could criticise this argument is to recognise that it is not only the type of question asked but also many other factors which could influence your memory of an event. Other factors which include food, alcohol, emotions, environment, who you were with, what the event meant to you, and so forth.

Whilst there is other evidence which supports this study that eyewitness testimony is unreliable, not all research supports the findings of this study. For example, in a study by Yuille and Cutshall (1986) that looked at a real life crime it was found that the reports of the crime were extremely reliable with most witnesses giving accurate information. When the researchers asked leading questions these had little effect.

Some psychologists have made a further criticism of the argument. They do not agree with Loftus that post event information changes the witness's original memory, never to be retrieved again. They suggest that witnesses merely follow the questioner’s suggestions, leaving the original memory intact for retrieval under appropriate conditions.

The main strength of Loftus' argument is its wider implications. Based on evidence like that of Loftus's, the Devlin Report (1976) recommended that the trial judge be required to instruct the jury that it is not safe to convict on a single eyewitness testimony alone, except in exceptional circumstances or when there is substantial corroborative evidence.

The Devlin Committee was set up to investigate the use of eye witness testimony in court. It found that many people have been convicted of serious crimes by eyewitness testimony alone. For example 82% of suspects chosen from an identification parade were convicted and 74% of cases where eye witness testimony was the only evidence were judged guilty.

The Devlin Report recommended that the trial judge be required to instruct the jury that it is not safe to convict on a single eyewitness testimony alone, except in exceptional circumstances or when there is substantial corroborative evidence.

Loftus's reconstructive hypothesis has also meant that the police and lawyers are urged to use as few leading questions as possible (i.e. questions suggesting to the witness the desired answer), although in reality this practice is still widely carried out.

References

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