

The Truth The Whole Truth & Nothing But ...

Human memory is not all it's cracked up to be.
It can confuse imagination with sensation.
It can fabricate and elaborate.

BY ROBERT J. TROTTER

Screech. Thump. Scream. Thud! A pedestrian has just been hit by a car and you are an eye witness. You saw exactly what happened and will probably be called upon to testify in court. But did you really see everything that took place? And even if you did, will you remember the events accurately?

Many people would give an unqualified "yes" to those questions and be prepared to swear to the truth of what they remember. People tend to put great faith in the memory as an objective recorder of the facts, and the memory is usually thought of as a fairly stable and reliable instrument. An "eyewitness" account is often the deciding factor in a court case.

But can eye witnesses be wrong? Does the memory sometimes err in recording information from the senses? Does the memory sometimes confuse sensation with imagination? Do people unconsciously fabricate or elaborate on incoming information? The answer is "yes" on all counts. Many times eye witnesses tell different stories about the same event. Why and how does this happen? Research conducted by Elizabeth Loftus of the University of Washington in Seattle, reported at the recent meeting of the American Psychological Association, suggests some answers.

Loftus's research begins at the scene of the accident. She uses film of an accident, for experimental purposes. Her thesis is that "questions asked about an event shortly after it occurs may affect, in terms of an alteration or distortion, the development of a witness's memory for that event." The questions asked of a witness are important for several reasons. Studies have shown that the wording of a question can have a substantial effect on the answers given. In one experiment Loftus and her colleagues showed films of auto acci-

dents and then immediately asked the viewers questions about what they had seen. Some subjects were asked, "How fast were the cars going when they smashed into each other?" Others were asked, "How fast were the cars going when they bumped into each other?" The word "smashed" in the question consistently elicited higher estimates of speed than did "bumped," "collided," "contacted" or "hit."

In another experiment, 100 students viewed a short film segment showing a multiple-car accident. They then filled out a 22-item questionnaire that contained six critical questions; three about items that appeared in the film and three about items not present in the film. For half of the subjects the critical questions began with the words, "Did you see a . . .," as in, "Did you see a broken headlight?" For the other half, the critical question began with the words, "Did you see the . . .," as in, "Did you see the broken headlight?" Witnesses who were asked "the" questions were more likely than the others to report having seen what was asked about—even if that object did not appear in the film. So the wording of a question, even the changing of an article, can have a measurable effect on answers given.

But the main concern of Loftus "is not on the effect of the wording of a question on its answer, but rather on the answers to other questions subsequently asked, often considerably later." In other words, she is studying memory and what she calls a "memorial phenomenon of some importance." She has explored this phenomenon through a number of experiments.

In one study, 150 students were shown a film of a multiple-car accident in which one car (Car A), after failing to stop at a stop sign, makes a right turn into the

main stream of traffic. The cars in the oncoming traffic lane stop suddenly and a five-car collision results. At the end of the film a 10-item questionnaire was administered. For half of the subjects the first question was, "How fast was Car A going when it ran the stop sign?" For the other half the first question was, "How fast was Car A going when it turned right?" The last question was the same for all subjects: "Did you see a stop sign for Car A?"

More than 50 percent of those in the "stop sign" group reported that they saw the stop sign. Only 35 percent of those in the "turn right" group reported seeing the stop sign. "Thus," says Loftus, "the wording of a presumption into a question asked immediately after a recently witnessed event can affect the answer to a question about that presupposition asked a very short time later."

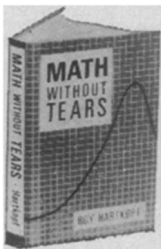
One possible explanation of this effect is the "construction hypothesis." In answering the initial stop sign question, subjects may visualize or mentally reconstruct that portion of the incident needed to answer the question. If the presupposition is accepted, then a stop sign may be introduced into the visualization whether or not it was truly in the memory. When asked later about the stop sign, subjects may respond on the basis of the visualized or constructed stop sign rather than on what was remembered from the actual incident. If this is what is happening, then parts of the memory might be constructs of the mind, rather than objective representations based on fact. But the stop sign did exist. If the construction hypothesis has any validity, it should be possible to introduce into the memory something that never existed.

Loftus has taken her research several steps further and shown that it is possible

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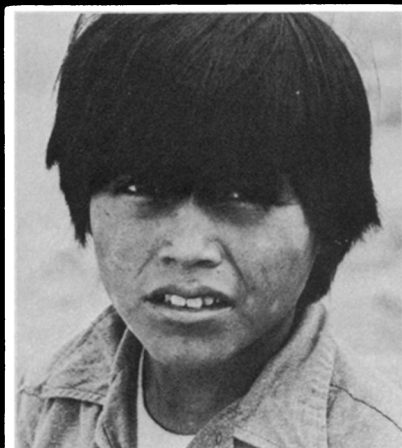
to make memories in this manner. A brief video tape of an automobile accident was shown to 150 students who were then asked to answer 10 questions about the accident. The critical question had to do with the speed of a white sports car. Half of the subjects were asked, "How fast was the white sports car going when it passed the barn while traveling along the country road?" The other half were asked, "How fast was the white sports car going while traveling along the country road?" Actually, no barn appeared in the scene.

All of the subjects returned one week later and, without reviewing the videotape, answered 10 new questions about the accident. The final question was, "Did you see a barn?" Of those who had been exposed to the false presupposition, 17.3 percent responded that they had seen a barn. Only 2.7 percent of the others claimed to have seen it. "So," says Loftus, "an initial question containing a presupposition can influence a witness's tendency later to report the nonexistent object corresponding to that presupposition."

In a final experiment Loftus asks whether or not this effect is wholly due to the word "barn" having occurred or not in the earlier session. Suppose an initial question merely asks about, instead of presupposes, a nonexistent object. For example, "Did you see a barn?" when no barn existed. Presumably most people will respond negatively to such questions. But what if that same question is asked again some time later? Is it possible that a subject will reflect, "I remember something about a barn, so I guess I must have seen one?" Can merely asking about a nonexistent object increase the tendency to report the existence of that object? In a final experiment Loftus showed that this is the case—sometimes. Subjects were asked direct questions about items that did not appear in the film they had just seen. The questions contained no presuppositions. One week later more than 15 percent of the subjects responded "yes" to the same question. They reported that they had seen the objects that were not in the film.

The construction hypothesis helps to explain such results. Thus, says Loftus, we need to consider "a theory of memory for complex visual experiences in which a constructive mechanism plays an integral role."

Loftus' work raises some interesting questions for memory theorists, but it also has some important practical implications for everyone. If a nonexistent barn can be remembered, it is quite possible that a nonexistent gun, knife, word or almost anything else can be remembered. Memories like that can be extremely important, especially in the legal system. Loftus' work tells judges, lawyers, police interrogators, accident investigators and all potential witnesses to anything to be aware of the malleability of the memory. □



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