PSYCHOLOGY AND THE REAL WORLD

Essays Illustrating Fundamental Contributions to Society

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Societal Justice

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Memory. It's a paradox. Memory is the center of our identity. It defines who we are and where we come from. Without memory, life would not have the sense of continuity that it does. It would consist only of momentary experiences that do not relate to each other. Without memory, we could not remember what we want to say. Nor would we have the sense of continuity to know who we are. At the same time, as my scientific research over the last 30 years has shown, memory is utterly malleable, selective, and changing. The malleable nature of memory doesn't matter when the changes are small and insignificant—as when I tell my friend I ate chicken last night when I really had beef. But sometimes the changes are so significant that they can lead to ruined lives.

Each year, my work brings me face to face with an important group of people—individuals falsely accused of crimes that someone else committed. Sometimes I meet people who are accused of crimes that never even happened. And when I learn more about the cases, I usually discover that faulty human memory is the major cause of these human tragedies. To put faces on some of these wrongfully convicted people, one need only visit the Web site of the Innocence Project (http://www.innocenceproject.org).

The project, initiated by two law professors, brings together lawyers, journalists, and institutions to tackle claims of innocence that can be proven (for example, by DNA evidence.) On the Innocence Project Web site, you can see...
the faces of actual innocence. One of the most famous, Ronald Cotton, had been identified by Jennifer Thompson, an attractive college student, as the man who raped her. Cotton served roughly 10 years of a life sentence before he was exonerated based on DNA evidence. Unlike many cases, the real perpetrator was found. To her credit, Jennifer accepted her mistake and used her newfound knowledge of faulty memory to crusade for the victims of mistaken memory—the wrongly accused. Eventually Jennifer Thompson, a true victim, and Ronald Cotton, a different kind of victim, came together for a meeting. She apologized. He forgave her (Thompson-Cannino & Cotton, 2009).

Cases of actual innocence have been thoroughly studied by University of Virginia Law Professor Brandon Garrett (2011). It is clear that faulty eyewitness memory is the major cause of wrongful convictions, responsible in approximately 75% of the cases.

The Science of Memory Distortion

It was my scientific work on memory distortion that brought me face to face with the falsely accused. In the initial studies, conducted in the 1970s, I showed what can happen when a person sees a crime or an accident and is later questioned about the incident in a biased way. In one study, people who had seen simulated car accidents were asked, “How fast were the cars going when they smashed into each other?” This leading question led them to estimates of speed that were higher than those of people asked the more neutral question: “How fast were the cars going when they hit each other?” Moreover, the leading “smashed” question led more witnesses to later falsely remember that they had seen broken glass at the scene, when there was no broken glass at all (see Figure 1).

In another study, a simple question that referred to a stop sign (when it was actually a yield sign) led many people to believe they had seen a stop sign. In yet another study, we created a false memory for something as large and conspicuous as a barn. We asked some witnesses to a simulated accident a leading question that made reference to a barn. Some of those witnesses later claimed to have seen a barn in the country landscape that contained no buildings at all. (See Loftus, 1979/1996. for a review of these early studies.)

In the years since my initial work, hundreds of studies have documented the ways in which exposure to misinformation can supplement, contaminate, or distort our memories. We pick up misinformation not only from biased and leading questions, but also when we talk with other people who (consciously or inadvertently) give an erroneous version of a past event (Loftus, 2005). Inaccuracy in memory caused by erroneous information provided after an event is known in psychology as the misinformation effect.

Based on this research, we know that the timing of misinformation is important. For example, if the original memory has a chance to fade, it becomes more prone to being altered by misinformation. Young children are especially susceptible to having their memories modified by misinformation. Once the modified version takes hold, people can be very confident about their misinformed memories, even though they may be totally wrong.

Eyewitness Identifications of People

It is not just memory for event details that can be changed, but so can memory for people we have seen before. Every day in the United States alone, hundreds of people are estimated to become defendants in criminal cases after having been identified by a witness from a lineup or photo spread. Thousands of studies have shown that certain conditions increase the chances that someone will be identified mistakenly (Wells, Memon, & Perrett, 2006). Even highly trained military personnel can be led, with a bit of suggestion, to misidentify a person who aggressively interrogated them for 30 minutes (Morgan, Southwick, Steffian, Hazlett, & Loftus, 2013). Some factors we simply have to live with because the justice system can’t change them—for example, the comparatively low reliability of cross-racial identifications. But the justice system can change other factors, such as the instructions that are given to a witness before viewing a lineup.

Concerned about the growing number of proven cases of wrongful conviction based on faulty memory, the U.S. Department of Justice released a national guide for collecting and preserving eyewitness evidence (Technical Working Group for Eyewitness Evidence, 1999). The authors of the guide relied on findings from scientific memory research to shape their recommendations. The guide, for example, instructs investigators to use open-ended questions (“What can you tell me about the car?”), augmented by more specific ones (“What color was the car?”), rather than leading questions (“Was the car red?”). The guide offers advice about what instructions to give witnesses before they view lineups, how many fillers should be in the lineup, and how those fillers should be selected. Although at times arduous, the process of eliciting agreement among prosecutors, defense attorneys, police, and scientists ultimately resulted in a landmark product that surely is a major step toward reducing the chances of wrongful convictions (Doyle, 2005).
Placing Wholly False Memories

In the early 1990s, North America began to see an altogether more-extreme sort of memory phenomenon. Some individuals were going into therapy with one kind of problem, like depression or anxiety, and leaving with another problem—"memory" of horrific abuse, perpetrated against them by loved ones, often involving satanic rituals that included bizarre and sometimes impossible elements. One woman recalled being impregnated by her father even though she was ultimately shown to be a virgin and he was sterile. Hundreds of the accused found themselves being prosecuted or sued civilly based on these suspect memories. Hundreds of the accusers would eventually retract their memories, and some of them sued their former therapists for malpractice, charging that they had planted false memories. Monetary settlements for the retractor were often high, topping $10 million in one case.

Where could these bizarre "memories" have come from? Highly suggestive therapy procedures, such as guided imagination, dream interpretation, hypnosis, and exposure to false information became the suspects.

To explore whether such techniques could in fact lead to rich false memories, researchers developed procedures that were inspired by some of the problematic therapies. Using suggestion, my colleagues and I initially got people to believe that when they were children they had been lost in a shopping mall for an extended time. The lost-in-the-mall technique used information obtained from their mothers and fathers to help create scenarios that described some true events and also the false event about getting lost. The scenarios were then fed to the participants as if they were entirely true. In that initial work, about a quarter of the participants fell away to the misinformation and claimed to have gotten lost in the suggested fashion.

Later research using the lost-in-the-mall technique showed that people would also accept suggestions that they experienced events that were more bizarre and upsetting. In one Tennessee study, about a third of participants were persuaded that as children, they had nearly drowned and had to be rescued by a lifeguard. In a study done in Canada, researchers succeeded in convincing half of the participants that something as horrible as being a victim of a vicious animal attack had occurred in their childhood (see Loftus, 2003 for a review of this work).

Telling people that their parents are the source of biographical information is a strong form of suggestion, without a doubt. But subsequent work showed that comparatively subtle suggestions may also lead people to develop false beliefs and memories. One such technique, common in some psychotherapy offices, is guided imagination, in which a therapist says something like, "You don't remember your abuse, but you have all the symptoms. Why don't you just close your eyes and try to imagine who might have done it?" The guided imagination technique persists despite good evidence that imagining an event that didn't happen (like breaking a window with your hand) can lead people to think that it did happen. Researchers call this phenomenon imagination inflation.

Who is susceptible to inflation by manipulation? Probably, we are all susceptible to some degree. But some individuals are somewhat more susceptible than others—for example, people who tend to have lapses in memory and attention and people who have vivid visual imagery. The implications for clinical practice are obvious: Professional therapists who use techniques involving any form of imagination need to better appreciate its capacity for distorting memory.

A common complaint about false memory research is the suggestion that reviving a true memory rather than planting a false one may occur. Perhaps the individual really did break a window, forgot it, and the imagination exercise revived it. Perhaps the individual really did get attacked by an animal, forgot it, and the strong suggestion revived the memory. To address this concern, researchers sought to plant implausible or even impossible memories. In one set of studies, people were led to believe that they had witnessed a person being possessed demonically as a child. Even though participants entered the experiment thinking this was not very plausible, many of them ended up, after strong suggestion, with increased confidence that this had occurred to them before the age of three. In another set of studies, many people were led to believe that as children they had met and shaken hands with Bugs Bunny on a trip to a Disney resort. This event is impossible because Bugs Bunny is a Warner Brothers character and would not be seen at a Disney resort. Nevertheless, some participants even embellished their "memories" with unique sensory details, such as remembering that they hugging Bugs, or touched his tail, or heard him say, "What's up, Doc?"

The sensory details are especially important to memory scientists because people typically use sensory detail to assist in distinguishing between true memories and those that are products of imagination, dreams, or some other process. And when we listen to the stories of others, which we do as therapists, or police officers, or jurors, or friends, we use sensory detail as a cue to tell us that we are hearing a report that is based on authentic memory. But these studies show that false memories can be detailed. In fact, false memories not only can be detailed, but they can be held with confidence, and expressed with emotion—other cues that usually make us think that memory reports are true.

False Memories Have Consequences

People who have developed false beliefs about relatives brutalizing them in childhood often act on those beliefs. They sever ties with their family members. They sometimes initiate criminal prosecutions or civil litigation against those whom they have accused. They frequently fail to get the kind of professional help that might restore their health (McNally, 2003). Sometimes they end up with a diagnosis of what used to be called multiple personality disorder and is now called Dissociative Identity Disorder. One famous case, a woman known by the name Sybil, may have been a product of suggestive therapy, or, less generously, a complete fabrication (Nathan, 2011). Although ethical barriers prevent researchers from experimentally producing such dire consequences, they have devised harmless ways of collecting evidence about the consequences of false beliefs. In one set of studies, researchers planted a false belief that as children, participants had gotten sick...
False Memories and Society

The Science of False Memory is a 557-page tome published by Oxford University Press (Brainerd & Reyna, 2005). Thousands of researchers have contributed to the solid science reported in this book. Despite more than a quarter century of investigation, however, false memories remain a problem for society. Hundreds of individuals—most of whom landed in hot water because of someone’s faulty memory—have been convicted wrongly of crimes. While they were imprisoned, the real culprit was free—often committing further crimes. Hundreds, if not thousands, of fathers and mothers and uncles and grandparents and neighbors have been accused of crimes that may not have occurred at all. Some of the accused remain in prison. False memory is the root cause.

The science of false memory teaches us much about innovations that can reduce these tragedies, and police, mental health professionals, and others are already implementing some of the changes (Cutler, 2013). Communicating what we have learned to the broader public will go a long way toward minimizing the damage that false memories can cause. If there is one lesson to be learned from our findings, it is this: Just because a memory is expressed with confidence, just because it contains detail, just because it is expressed with emotion, doesn’t mean it really happened. We cannot reliably discriminate true memories from false ones yet; we still need independent corroboration. Advances in neuroimaging and other techniques may someday aid in this endeavor (Schacter & Loftus, 2013). But in the meanwhile, we as a society would do well continually to keep in mind that memory—like liberty—is fragile.

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