Remembering Changes Memory

Most people picture memory as a kind of recording. A camera captures an event, the file is stored, and each time it is played back the picture is the same. Human memory does not work this way. The act of remembering is not a neutral readout of a fixed file; it is itself an event that can change the memory it draws on. As the introductory overview explained, memory is reconstructive: a recollection is assembled at the moment of retrieval from partial traces, cues, general knowledge, inference, and sometimes imagination (Bartlett, 1932; Johnson, Hashtroudi, & Lindsay, 1993; Tulving, 1983). Because the trace is reassembled rather than replayed, each act of remembering can leave the underlying memory easier to reach, harder to reach, or subtly altered in content. This paper explains how remembering changes memory, why the effect cuts in both directions, and why it matters for testimony.

The point is not academic for a courtroom. By the time a witness testifies, that witness has almost always remembered the event many times before. Surveys of investigators show that witnesses are routinely interviewed more than once during an investigation (Kassin et al., 2007), and before trial a witness will typically meet with counsel or staff. Crimes are also rare, salient, and emotional, which makes them exactly the kind of event people retell to police, to other witnesses, and to friends and family. Every one of those retellings is a retrieval, and every retrieval is an opportunity for memory to be strengthened, narrowed, or reshaped (Lane & Houston, 2021). Understanding which way a given act of remembering pushes is essential to evaluating the report that finally reaches the jury.

Remembering Can Strengthen Memory

The first thing to understand is that retrieval is often helpful. More than a century of research shows that the simple act of recalling information makes it more durable than additional study would (Gates, 1917; Roediger & Karpicke, 2006). This is the testing effect: when people retrieve material rather than merely re-read it, they remember it better later. In a frequently cited demonstration, participants who studied a passage once and then attempted to recall it three times forgot far less a week later than participants who studied the same passage four times without ever retrieving it (Roediger & Karpicke, 2006). A meta-analysis of 159 studies confirmed the effect is robust, with an overall advantage of retrieval over restudy of about $g = 0.50$, and larger benefits when the initial retrieval is open-ended (free or cued recall) rather than recognition, and when memory is tested after a longer delay (Rowland, 2014).

Applied to witnesses, this means a good early interview does more than gather facts; it can function as a learning event that slows later forgetting. Research on interviewing bears this out: an early, properly conducted interview tends to reduce subsequent forgetting without lowering accuracy, particularly when questions are open-ended rather than leading (Goodman et al., 1991; La Rooy, Lamb, & Pipe, 2009). The Cognitive Interview, a protocol built from memory research, reliably elicits more complete accounts than standard police questioning without sacrificing accuracy (Fisher & Geiselman, 1992; Memon, Meissner, & Fraser, 2010), and when administered soon after an event it can even help inoculate a witness against later misinformation (Memon, Zaragoza, Clifford, & Kidd, 2010). The Self-Administered Interview, a written tool a witness can complete shortly after a crime, similarly improves the completeness and accuracy of later recall (Gabbert, Hope, & Fisher, 2009; Hope, Gabbert, Fisher, & Jamieson, 2014). The practical lesson is that the timing and quality of the first retrieval matter a great deal.

One consequence of this strengthening confuses many courtrooms. Because retrieval can recover details that were not reported the first time, a witness may genuinely remember something at a second interview that did not surface at the first. Laboratory work calls the recovery of previously unreported items reminiscence, and the net gain across repeated tests hypermnesia (Payne, 1987).

A naive assumption holds that memory must always be best immediately after the event, so a newly recalled detail looks like fabrication. Research shows that assumption is often wrong: reminiscent details are frequently accurate (Fisher, Brewer, & Mitchell, 2009). A later-recalled detail is therefore not, by itself, a mark of unreliability; whether it is reliable depends on how it was elicited and what corroborates it.

Remembering Can Reshape or Suppress Memory

Retrieval is not always benign. The same process that strengthens what is retrieved can weaken what is not. In retrieval-induced forgetting, practicing recall of some items from a category makes related, unpracticed items harder to recall later, compared with items from categories that were never probed at all (Anderson, Bjork, & Bjork, 1994; Anderson, 2003). Selectively remembering part of an experience can thus suppress access to neighboring parts of the same experience. The leading account attributes this to inhibition, though alternative explanations remain under active debate (Murayama, Miyatsu, Buchli, & Storm, 2014); for the courtroom the mechanism matters less than the demonstrated effect.

Critically, this effect appears in conditions that resemble real conversation. When one person selectively recounts a shared event while another listens, both the speaker and the listener later show reduced memory for the details the speaker left out, a pattern labeled socially shared retrieval-induced forgetting (Cuc, Koppel, & Hirst, 2007; Coman, Manier, & Hirst, 2009). Later work found the effect is stronger when speaker and listener share a group identity (Coman & Hirst, 2015). The implication is direct: when witnesses discuss a crime, the parts one witness emphasizes can quietly suppress other witnesses' memory for the parts that went unmentioned, even without anyone introducing false information.

How an event is retold also shapes what is later remembered. People recount their experiences for many reasons other than accuracy, including to entertain, to persuade, or to connect with a listener, and they tailor the telling accordingly (Marsh & Tversky, 2004). In one study, participants reported that 42% of their everyday retellings were inaccurate in some respect, with the most exaggeration when the goal was to entertain (Marsh & Tversky, 2004). These distortions do not stay in the retelling. When participants read about two roommates and then wrote a letter recommending or complaining about one of them, their later memory of the original account shifted to fit the slant they had adopted, including false memories for perspective-consistent details they had never actually read (Tversky & Marsh, 2000). Adopting a biased frame while retelling, in other words, can rewrite the source memory itself. Related work shows that reviewing an event in fine detail, or retelling it with an emotional rather than factual focus, can increase errors in later recall relative to a neutral or factual account (Lane, Mather, Villa, & Morita, 2001; Marsh, Tversky, & Hutson, 2005).

Conversation between witnesses raises the same concern in sharper form. In a survey of real witnesses, 58% reported having discussed the event with a co-witness (Skagerberg & Wright, 2008), and other estimates run higher still, with the great majority of multiple-witness crimes involving some post-event discussion (Wright, Memon, Skagerberg, & Gabbert, 2009). When witnesses talk, one person's error can migrate into another person's account, a phenomenon called memory conformity. In a much-cited experiment, witnesses who discussed the event before being tested mistakenly reported details they had picked up only from a co-witness 71% of the time (Gabbert, Memon, & Allan, 2003). Conformity can arise from social pressure to agree, from a belief that the other witness saw more, or from a genuine source-monitoring error in which the borrowed detail comes to feel like a personal memory (Wright et al., 2009). Whatever the route, the result is that two accounts can converge not because both witnesses saw the same thing but because they talked.

A final, more contested mechanism is reconsolidation. Animal and some human studies suggest that reactivating a consolidated memory can briefly return it to an unstable state in which it might be altered before it stabilizes again (Nader, Schafe, & LeDoux, 2000; Chan & LaPaglia, 2013). If correct, this

would mean the very act of recalling an event opens a window in which new information can edit the original trace. The evidence is genuinely disputed. Other researchers, using a forced-choice procedure designed to detect whether the original memory survives, found that reactivation changed what witnesses reported but not whether they could still recognize the original detail, pointing to a reporting effect rather than a true overwriting of the memory (Rindal, DeFranco, Rich, & Zaragoza, 2016). A responsible summary is that reactivation can change what a witness says, while whether it erases the underlying memory remains unsettled.

Why This Matters for Testimony

Taken together, these findings describe a memory that is dynamic rather than fixed. That has two practical consequences a court should hold in mind at once. The first is that a high-quality early interview is genuinely protective: it preserves detail, slows forgetting, and can buffer a witness against later contamination, so the conditions of the first retrieval are worth close attention. The second is that everything that happens to a memory after the event, including repeated interviews, co-witness conversation, media exposure, and ordinary retelling to friends and family, can add, subtract, or reshape its contents, usually without the witness being aware of it. The courts have begun to absorb this science. In State v. Henderson (2011), the New Jersey Supreme Court, after an exhaustive review of the research, recognized that memory is malleable and vulnerable to the contaminating effects of post-event information and suggestive procedures, and revised its framework for evaluating identification evidence accordingly. The science does not tell a court that a much-remembered account is therefore false, nor that a first account is therefore complete. It tells the court to ask how a memory was retrieved, by whom, in whose company, and how often, because the answers bear directly on what the testimony is worth.

Special Issues in Legal Practice

The principles described above apply with equal force to every party in a legal proceeding. Memory operates the same way regardless of who is asking the questions, and the science summarized here favors no side. What differs between the parties is not the science but the vantage point — the particular places where memory issues tend to surface, and the particular errors each party is best positioned to guard against. The two summaries below identify those recurring issues. They are offered for orientation, not as litigation strategy; in every case the controlling question is what the evidence in that case will, and will not, support, and the expert's role is to inform the trier of fact rather than to advocate for either side.

Special Issues for Prosecutors

For the State, the recurring issue is the gap between how memory actually behaves and how a fact-finder may assume it behaves. Because retrieval can recover accurate details that were not reported initially, a witness who remembers more at a later interview is not necessarily embellishing; the reminiscence literature shows such details are often correct (Fisher et al., 2009). The prosecution is well positioned to forestall the inference that any later-recalled detail is fabrication by documenting how the detail emerged and what corroborates it. The corresponding error the State should guard against runs the other way. The same science that explains genuine reminiscence also shows that repeated and suggestive questioning, co-witness conversation, and feedback can implant or harden details that were never independently observed (Gabbert et al., 2003; Skagerberg & Wright, 2008). The safeguards are practical and well supported: conduct an early, open-ended interview, ideally a Cognitive or Self-Administered Interview; separate witnesses and ask whether they have already spoken with one another; and preserve a record of each interview so that growth in an account can be traced to its source rather than presumed reliable or presumed invented.

Special Issues for Defense

For the defense, the recurring issue is that an account which sounds consistent and confident at trial may owe part of its content to the history of remembering that preceded it rather than to the original observation. Multiple interviews, conversations with other witnesses, exposure to media, and repeated

retelling can each add or reshape detail, and retrieval-induced forgetting can suppress observations that were never rehearsed, all without the witness's awareness (Cuc et al., 2007; Marsh et al., 2005; Wright et al., 2009). The defense is well positioned to develop the provenance of the testimony: how many times the witness was interviewed, how the questions were framed, whether witnesses spoke before being interviewed, and whether confident later details were present in the first account. The corresponding error to guard against is overclaiming. The science does not establish that a much-remembered or co-witnessed account is false, and reconsolidation in particular remains contested (Rindal et al., 2016); responsible cross-examination and expert testimony should present these processes as documented risks that bear on weight, not as proof that any particular memory has been rewritten.

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