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## HYPNOSIS AND MEMORY

Hypnosis is a social interaction in which one person, called the subject, acts on suggestions from another person, called the hypnotist, for imaginative experiences involving alterations in cognition and voluntary action. Among those individuals who are most highly hypnotizable, these alterations in consciousness can be associated with subjective conviction bordering on delusion, and an experience of involuntariness bordering on compulsion.

### Posthypnotic Amnesia

Upon termination of hypnosis, some subjects find themselves unable to remember the events and experiences that transpired while they were hypnotized. This posthypnotic amnesia does not occur unless it has been specifically suggested to the subject, and the memories are not restored when hypnosis is merely reinduced. Moreover, amnesia can be suggested for events that occurred outside of hypnosis. Thus, posthypnotic amnesia is not a form of state-dependent memory. However, it is temporary: Upon administration of a prearranged cue, the amnesia is reversed and the formerly amnesic subject is able to remember the events perfectly well. Reversibility marks posthypnotic amnesia as a disruption of memory retrieval, as opposed to encoding or storage, somewhat like the temporary retrograde amnesias observed in individuals who have suffered concussive blows to the head. The difference is that posthypnotic amnesia is a functional amnesia—an abnormal amount of forgetting that is attributable to psychological factors rather than to brain insult, injury, or disease. Posthypnotic amnesia may serve as a laboratory model of the functional amnesias associated with hysteria and dissociation, such as psychogenic (dissociative) amnesia, fugue, and multiple-personality disorder (dissociative identity disorder).

Posthypnotic amnesia impairs conscious recollection, or explicit memory, while leaving implicit memory unimpaired. Evidence for spared implicit memory is provided by studies of savings in relearning, proactive and retroactive interference, preserved skill learning during hypnosis, source amnesia for factual information learned during hypnosis, repetition priming in word-stem completion, and semantic priming on free association and category generation tasks. In contrast to the explicit-implicit dissociation

observed in other forms of amnesia, however, the items in question were deeply processed at the time of encoding. Moreover, posthypnotic amnesia is the only form of amnesia where implicit memories can be restored to explicit recollection, following administration of the prearranged reversibility cue.

### Hypnotic Agnosia

In contrast to posthypnotic amnesia, which is a disruption in episodic memory, hypnotic agnosia is best construed as a disruption in semantic or procedural memory—that is, in the subject's ability to access generic, context-free, declarative, and procedural knowledge. For example, subjects who receive suggestions that a particular digit will disappear from their number systems have difficulty when asked to perform additions in which the offending digit appeared in the problem, intermediate step, or solution. Similarly, subjects who are told that certain words are meaningless show no priming when these words are presented for free associations. In contrast to posthypnotic amnesia, hypnotic agnosia has not been subject to much experimental investigation.

### Hypnotic Hypermnnesia

A great deal of popular interest in hypnosis stems from its reputation as a means of transcending normal limits on human performance. While subjects who receive suggestions for performance enhancement often have the impression that their performance has in fact improved, this impression appears to be illusory. This conclusion holds for learning and memory as it does for strength and endurance. For example, the induction of hypnosis and suggestions for enhanced memory add little or nothing to the hypermnnesia that often occurs on repeated test trials in the normal waking state.

Although there is little or no evidence that hypnosis enhances accurate recollection, hypnosis does appear to increase false recollection, or illusory memories. On recognition tests, for example, hypnosis increases the frequency of false alarms and confidence levels attached to items endorsed by subjects without increasing the accuracy of recognition itself. Moreover, perhaps by virtue of their increased suggestibility, hypnotized subjects may be more vulnerable to postevent misinformation effects. It seems likely that the suggestive atmosphere of hypnosis interacts with the reconstructive nature of memory retrieval to create, or enhance, an illusion of remembering.

### Hypnotic Age Regression

The role of illusory experience in hypnosis is dramatically revealed in the phenomenon of age regres-

sion. While age-regressed subjects may genuinely believe that they are children again, and behave in a childlike manner, they do not grow smaller in the chair. In terms of psychological changes, there are at least three different facets of age regression that bear on questions of hypnosis and memory. First is *ablation*: To what extent does an age-regressed person lose access to the fund of knowledge and repertoire of skills characteristic of his or her chronological age? This is really a question about both amnesia and agnosia, because the loss of access extends to semantic and procedural knowledge as well as episodic memory. The question of ablation is generally coupled to the conceptually distinct question of *reinstatement*: To what extent does an age-regressed adult return to “archaic” modes of cognitive and emotional functioning characteristic of the suggested age? Finally, there is the question of *revivification*: Can the imagined experience of returning to childhood, perhaps coupled with specific suggestions for hypermnnesia, enhance memory for childhood events?

Unfortunately for those who would like to use hypnosis as a shortcut in developmental research, studies employing a wide variety of experimental paradigms—including the Babinski reflex, a characteristic of infancy, various illusions that show developmental trends, memory tests, and a host of tasks derived from the developmental theories of Heinz Werner and Jean Piaget, not to mention psychoanalysis—have yielded nothing by way of replicable evidence of either ablation or reinstatement. Positive findings either have not replicated or have proved to be artifacts of the demand characteristics of the testing situation. Age-regressed adults may have the subjectively compelling experience of being children again, and they may appear to behave in a childlike manner, but what observers see is an imaginative reconstruction of childhood—not a reversion to the genuine article.

Although age regression does not yield a faithful reproduction of childlike mental functioning, the subjectively convincing experience of being a child might produce revivification, the third issue in age-regression research, in a manner analogous to state- or context-dependent memory. As with hypnotic hypermnnesia, however, there is no convincing evidence that revivification actually occurs. The few studies that have attempted to corroborate the memories reported by age-regressed subjects did yield results favorable to hypnosis. However, these studies suffer from serious methodological flaws that render their positive findings suspect. There may be some memory enhancement produced by hypnotic age regression, as would be expected with any reinstatement of context, but age regression is a product of the imagination. As with hypnotic hypermnnesia, any accurate memory

produced during age regression is likely to be blended with a great deal of false recall, and the ultimate test is whether the procedure reliably enhances memory.

### **Hypnotic Recovery of Memory in the Court and the Clinic**

Some proponents of clinical hypnosis have criticized studies, such as those described in this entry, on the grounds that they test memories that are devoid of affect and personal meaning in the sterile confines of the experimental laboratory. They have suggested that different results might be obtained with more lifelike materials and settings. However, this claim rests on an evidentiary base that is almost entirely anecdotal and uncorroborated. Testimonials are no substitute for evidence. One carefully controlled *in vivo* study staged a mock organized-crime execution in front of an introductory criminal justice class (after first insuring that none of the police officers in attendance were carrying their service weapons). Although a standard forensic interview technique produced an increase in correct responses compared to controls, chiefly by reducing the incidence of response omissions, hypnosis added nothing to the experiment. In another controlled but lifelike study, in which subjects viewed police training films, a nonhypnotic “cognitive interview” increased the number of correct memory reports; however, when hypnosis was added to the experiment, performance went down somewhat. Although police investigators still sometimes turn to hypnosis in an attempt to enhance the memories of witnesses and victims, most jurisdictions in the United States hold that no special credence should be placed on hypnotically refreshed memory is of uncertain reliability, and some states prohibit testimony based on such memories.

Despite the conclusions of laboratory research and the courts, some clinical practitioners continue to use hypnosis to recover “repressed” or “dissociated” memories of incest, sexual abuse, or other forms of trauma, and hypnosis has even been used to recover memories of prenatal experiences and of alien abductions. However, there is little evidence that genuine amnesia occurs in these situations: The chief effect of emotional arousal is to increase, rather than diminish, memory. Moreover, there is no reason to think that hypnosis can overcome the effects of infantile or childhood amnesia. Most important, the “memories” recovered in recovered-memory therapy are rarely subjected to independent confirmation, so it cannot be determined to what extent they are distorted or illusory. In the clinic as in the courtroom, uncorroborated memory reports are useless as evidence about the historical past. In fact, there is almost no evidence

supporting either the validity of the trauma-memory argument or the efficacy of recovered memory therapy.

### Conclusion

Although hypnosis appears to be incapable of enhancing memory, hypnotic procedures can impair memory in at least two different ways. First, by means of suggestions for posthypnotic amnesia, hypnosis can impair explicit memory for the events and experiences that transpired during hypnosis—although, as with many other forms of amnesia, it appears to spare implicit memory. The mechanism for this amnesia appears to be a division of consciousness, such that the subject is unaware of events that would otherwise be memorable. Hypnosis appears incapable of expanding awareness, so as to enable subjects to remember things that would otherwise remain forgotten. However, the social context of hypnosis, including widely shared (though false) beliefs about its capacity for memory enhancement (with or without age regression), and the suggestive context in which hypnosis occurs in the first place, renders the hypnotized subject vulnerable to various kinds of distortions in memory. Because the risks of distortion vastly outweigh the chances of obtaining any useful information, forensic investigators and clinical practitioners should avoid hypnosis as a technique for enhancing recollection.

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