

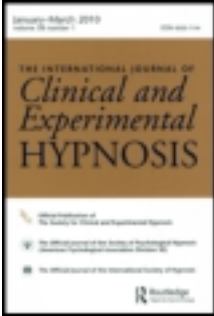
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Eliciting autobiographical pseudomemories: The relevance of hypnosis, Hypnotizability and attributions

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ELICITING AUTOBIOGRAPHICAL PSEUDOMEMORIES: *The Relevance of Hypnosis, Hypnotizability, and Attributions*¹

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Abstract: The authors investigated the roles of hypnosis, hypnotizability, and attributions in autobiographical pseudomemories. Experiment 1 administered a suggestion for recall of their second birthday to hypnotized high and low hypnotizable participants and nonhypnotized, high hypnotizable participants; Experiment 2 administered a similar suggestion to real and simulating participants. Recall was tested during hypnosis, after hypnosis, and after a challenge procedure. In Experiment 1, more highs than lows reported a memory during hypnosis; however, following the challenge, half the waking highs but none of the hypnosis highs retracted their memory. Notably, highs attributed their memories to reconstructions based on other birthdays. In Experiment 2, whereas an equal number of reals and simulators reported a memory of their second birthday during hypnosis and then retracted following the challenge, they made different attributions about their memories. These findings highlight the value of a closer investigation of attributional processes that reconcile believed-in autobiographical memories with conflicting evidence.

Although many clinicians regularly attempt to facilitate clients' recall of early childhood experiences (Poole, Lindsay, Memon, & Bull, 1995), research indicates that adults cannot accurately recall events that occurred before the age of 3 (Howe & Courage, 1993). Hypnosis is commonly employed as a tool to increase recall of early autobiographical events (Poole et al., 1995), even though hypnotic techniques to enhance recall have been criticized because they increase the probability of fantasy being attributed reality status (McConkey, Barnier, & Sheehan,

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1998). For example, hypnotic suggestion for age regression to previous lives can result in elaborate reports of previous identities (Spanos, Menary, Gabora, DuBreuil, & Dewhirst, 1991). Although considerable research has investigated pseudomemory formation for recent events following hypnotic suggestion (e.g., Barnier & McConkey, 1992; Sheehan, Statham, & Jamieson, 1991; for a review, see McConkey et al., 1998), less research has investigated hypnotic pseudomemories for early autobiographical experiences (e.g., Marmelstein & Lynn, 1999 [this issue]; Spanos, Burgess, Burgess, Samuels, & Blois, in press). Accordingly, we conducted two experiments that investigated the processes that mediate reported pseudomemories of subjects' early childhood experiences.

We focused on the roles of hypnosis, hypnotizability, and attributions in reporting pseudomemories of early childhood experiences. The role of hypnosis is indicated by evidence that a pseudomemory is more likely to be incorporated following a hypnotic than a nonhypnotic suggestion (Green, 1999 [this issue]; Marmelstein & Lynn, 1999; McConkey et al., 1998; Orne, Whitehouse, Dinges, & Orne, 1988). The role of hypnotizability was studied because of claims that pseudomemories are more likely to be accepted by high rather than low hypnotizable subjects (Barnier & McConkey, 1992; Laurence & Perry, 1983; Malinoski & Lynn, [this issue]; McConkey et al., 1998). In a relevant study, Labelle, Laurence, Nadon, and Perry (1990) found that pseudomemory reporting occurred in high and high-medium subjects after an inaccurate event was suggested during an age regression; this pattern was not observed for low hypnotizable subjects.

We also focused on the commitment that subjects displayed to their reported pseudomemories after their reports were challenged with conflicting information. Previous research suggests that pseudomemory reporting decreases when assessed with more critical questioning (Spanos et al., 1991; but see Malinoski & Lynn, 1999). In contrast, there is evidence from research on other hypnotic phenomena that hypnotized subjects strongly defend their belief in the suggested experience even in the face of conflicting evidence. For instance, in the case of hypnotic blindness, many subjects maintain the suggested blindness despite salient evidence that they process visual information (Bryant & McConkey, 1989, in press). We were interested in indexing the extent to which hypnotic subjects would defend their belief in their pseudomemory in the face of challenging information, and also how they would reconcile this information with their reported pseudomemory. Hypnotic subjects typically maintain the integrity of the suggested experience by actively resolving the conflict between reality and suggestion in a way that permits continued commitment to the suggestion (Bryant & McConkey, in press; McConkey, 1983, 1991). This feature of pseudomemory reporting has implications for the wider understanding of memory reports of early

experiences because of the frequent scenario of individuals needing to defend their believed-in memory against contrary evidence.

We also recognize that pseudomemory reporting occurs in a social context and that hypnotic subjects' responses to suggestions for memory enhancement may be influenced by demand characteristics. A number of studies have indicated that contextual factors play a significant role in shaping the nature of reported pseudomemories (Green, 1999; McCann & Sheehan, 1988; Spanos & McLean, 1986). Moreover, previous research has indicated that hypnotized and simulating participants report comparable rates of pseudomemories for recent events (Lynn, Rhue, Myers, & Weekes, 1994; Lynn, Weekes, & Milano, 1989). Accordingly, in Experiment 2 we employed the real-simulating design to index the role of demand characteristics on hypnotic subjects' reports of early autobiographical pseudomemories.

In summary, in each experiment we suggested to subjects that they would recall their second birthday. This event was determined as an appropriate index of an early pseudomemory because empirical research suggests that people do not have reliable recall of events from this early age (Howe & Courage, 1993; Kihlstrom & Harackiewicz, 1982). We did not index the veridicality of these reported memories because our focus was on subjects' attributions about implausible memories rather than the specific accuracy of these recollections. In this sense, these reports of pseudomemories differ from other studies that have objective evidence of discrepancies between reported memories and historical events. We indexed subjects' recall before and after hypnosis. In addition, in both experiments we conducted a posthypnotic inquiry in which participants were informed that scientific evidence indicates that accurate memory for the second birthday is not possible. We indexed the attributions that participants gave for their pseudomemory after they were provided with this evidence. Specifically, we aimed to assess the interactive influences of hypnosis, hypnotizability, and attributions on the commitment subjects hold to reported pseudomemories of early events.

EXPERIMENT 1

Experiment 1 investigated the influence of hypnosis and hypnotizability on reported pseudomemories of a second birthday. Specifically, we compared the responses of high hypnotizable individuals given a hypnotic induction procedure, high hypnotizable individuals who were not given a hypnotic induction (nonhypnotic procedure), and low hypnotizable individuals given a hypnotic induction procedure. Because previous work has indicated that the combination of hypnotizability and hypnosis is more often associated with a high degree of belief in suggested experiences even in the face of conflicting evidence (Bryant & McConkey, 1989, *in press*), we expected that our high hypnotizable,

hypnotized participants would maintain their belief in their early memories, despite the presence of conflicting information.

METHOD

Participants

Twelve (9 female and 3 male) high hypnotizable participants of mean age 19.3 years ($SD = 3.7$), 13 (10 female and 3 male) high hypnotizable participants of mean age 20.9 years ($SD = 5.9$), and 12 (9 female and 3 male) low hypnotizable participants of mean age 18.8 years ($SD = 0.6$) comprised the high hypnosis, high nonhypnotic, and low hypnosis groups, respectively. Participants were undergraduate psychology students at the University of New South Wales, who received research credit for their participation. Participants were preselected on the basis of their extreme scores on both the group-administered, 12-item Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A; Shor & Orne, 1962) and an individually administered 10-item tailored version of the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962). High hypnosis participants scored in the range of 9 to 12 on the HGSHS:A ($M = 10.3$, $SD = 1.2$) and 8 to 10 on the SHSS:C ($M = 8.6$, $SD = 0.7$), high nonhypnotic participants scored in the range of 9 to 12 on the HGSHS:A ($M = 10.4$, $SD = 1.3$) and 8 to 10 on the SHSS:C ($M = 8.5$, $SD = 0.5$), and low hypnosis participants scored in the range of 0 to 4 on the HGSHS:A ($M = 3.3$, $SD = 1.1$) and 0 to 3 on the SHSS:C ($M = 2.4$, $SD = 0.7$).

Procedure

Initially, the experimenter welcomed subjects, gave them an overview of the experiment, and asked them to read and sign an informed consent form. Following this, she treated subjects according to their allocation to either the hypnotic or nonhypnotic conditions. High and low hypnotizable subjects in the hypnotic conditions were administered a standardized hypnotic induction procedure (adapted from Weitzenhoffer & Hilgard, 1962). High hypnotizable subjects in the nonhypnotic condition were given a puzzle task and asked to work on it for 15 minutes (adapted from Nogrady, McConkey, & Perry, 1985). After either the hypnotic induction or the puzzle task, the experimenter instructed subjects to close their eyes (if they had not already done so). She then gave all subjects suggestions for hands moving apart, finger lock, and speech inhibition. In the nonhypnotic condition, these suggestions were presented without any reference to hypnosis.

Following this, the experimenter suggested to participants that they would recall their second birthday. The suggestion instructed that "you will be able to remember this day very clearly, and recall all sorts of

details about that day" and that "this memory will not be something you've just heard about or seen in a photograph but something you will be able to recall yourself." Participants were then asked to tell the experimenter if they could remember their second birthday and to provide details concerning their memory for that event (Recall Test 1). Following this, they were asked to rate how confident they were about the accuracy of their memory (Confidence Rating 1; 1 = *not at all confident*, 10 = *extremely confident*), and the clarity of their memory (1 = *not at all clear*, 10 = *extremely clear*). The experimenter then administered a suggestion for a tactile hallucination. Finally, subjects in the hypnotic conditions were administered a 1-minute de-induction procedure; subjects in the non-hypnotic condition were asked to complete a numeric filler task for 1 minute.

Following this, the experimenter conducted a posthypnotic inquiry into participants' perceptions of the overall procedures, obtained a second report of their memory for their second birthday (Recall Test 2), and obtained a confidence rating for their memory (Confidence Rating 2). The experimenter then directly challenged participants' reported memories of their second birthday by informing them that reliable scientific evidence has demonstrated that immature neurological development precludes accurate recall of events at 2 years of age. The experimenter then obtained a third report of their memory for their second birthday (Recall Test 3) and requested an explanation for their reported memory. Finally, the experimenter requested a third confidence rating of their memory report (Confidence Rating 3).

Verbatim scripts of the experimental sessions were examined by the experimenter and an independent rater who was unaware of the hypotheses of the experiment. The experimenter and the rater categorized participants' memory attributions when the experimenter challenged participants with evidence that memories for second birthdays were not possible. Subjects who did not report memories of their second birthday did not (and had no reason to) provide attributions. Attributions were categorized as either (a) reconstruction of the memory from secondary sources (e.g., photographs, parental reports) or from subsequent birthdays, or (b) remembered because of the reported salience of the event. These categorizations were decided upon because following preliminary analysis they comprehensively described subjects' attributions. The interrater agreement was high (Kappa value: $r = .85$). Analyses of ratings were based on the rater's categorizations.

Table 1
Experiment 1: Frequencies and Percentages of Pseudomemory Reports

Recall Test	Participant Group		
	High Hypnosis	High Nonhypnotic	Low Hypnosis
Recall Test 1 (during hypnosis)	7 (58%)	11 (85%)	1 (8%)
Recall Test 2 (after hypnosis)	7 (58%)	10 (77%)	0 (0%)
Recall Test 3 (after challenge)	7 (58%)	5 (39%)	0 (0%)

Table 2
Experiment 1: Mean Confidence Ratings and Mean Clarity Ratings

Recall Test	Participant Group		
	High Hypnosis	High Nonhypnotic	Low Hypnosis
Confidence Ratings:			
Recall Test 1 (during hypnosis)	5.71 (1.70)	5.60 (1.67)	—
Recall Test 2 (after hypnosis)	5.43 (1.62)	5.80 (1.30)	—
Recall Test 3 (after challenge)	5.00 (2.31)	5.40 (1.52)	—
Clarity Ratings			
	5.43 (1.62)	6.00 (1.73)	—

Note. Confidence and clarity ratings are based only on participants who reported a pseudomemory on each occasion (no low hypnosis participants satisfied this criterion). For confidence ratings, 1 = *not at all confident*, 10 = *extremely confident*; for clarity ratings, 1 = *not at all clear*, 10 = *extremely clear*. Standard deviations appear in parentheses.

RESULTS

Reported Autobiographical Memory

Table 1 presents the number of participants who reported a memory for their second birthday during hypnosis (Recall Test 1) and during the posthypnotic inquiry (Recall Tests 1 and 2). Fisher's Exact Test indicated that during Recall Test 1 more high hypnosis (58.3%) and high nonhypnotic (84.6%) participants reported a memory for their second birthday than low hypnosis participants (8.3%), $\chi^2(37) = 16.0, p < .01$. During Recall Test 2, more high hypnosis (58.3%) and high nonhypnotic (76.9%) participants reported a memory for their second birthday than low hypnosis participants (0%), $\chi^2(37) = 17.2, p < .01$. The challenge instructions were not administered to any low hypnosis participants because none of these participants reported a memory following the challenge. Whereas all the high hypnosis participants (58.3%) who reported a memory

during hypnosis maintained their reported memory after the challenge (Recall Test 3), less than half of the high nonhypnotic participants who initially reported a memory (38.5%) maintained their reported memory on this test. A McNemar test indicated that this differential change in memory reporting was marginally significant, $\chi^2(37) = 5.3, p < .06$.

Confidence and Clarity Ratings

Participants were asked to rate their confidence in the accuracy of their memory during hypnosis, after hypnosis, and after the accuracy of the memory was challenged. The mean confidence ratings for those participants who reported a memory on each recall test are presented in Table 2. A 2×3 (Participant Group \times Rating Occasion) repeated measures ANOVA of confidence ratings indicated no significant main or interaction effects. That is, high hypnosis and high nonhypnotic participants reported similar confidence ratings across the recall tests. A t test of the mean clarity ratings for the reported memories of those high hypnosis and high nonhypnotic participants who reported a memory during hypnosis indicated no significant difference (only 1 low hypnosis subject reported a memory). However, confidence and clarity ratings were significantly correlated for memories reported on this recall test ($r = 0.58, p < .05$).

Memory Attribution

Low hypnosis participants are not included in the attribution data because none reported a pseudomemory following the challenge when subjects' attributions were indexed. Following the challenge, more subjects reported attributing their pseudomemory to reconstructive processes than to the salience of the event, $\chi^2 = 12.79, p < .001$. Specifically, 6 (86.0%) high hypnosis and 5 (100.0%) high nonhypnotic participants attributed their reported pseudomemory to a reconstruction of events. For example, one participant reported that "I saw photos of my birthday and I guess I got it from there." Another reported that "I can only think that I've heard stories from mum about that day." In contrast, only one (14.0%) high hypnosis and no (0%) high nonhypnotic participants reported that they recalled their second birthday because it was a salient event.

DISCUSSION

Experiment 1 indicated that high hypnotizability increases the likelihood of early pseudomemories being reported and maintained following a hypnotic suggestion for memory enhancement. Notably, there was no difference in the reporting of high hypnosis and high nonhypnotic participants, which suggests that hypnotizability rather than the induction of hypnosis was the more important factor in participants' performance. Interestingly, high hypnotizable subjects reconciled their reports

with the challenge from the experimenter by attributing their memories to other sources. In this way, subjects appeared to maintain the integrity of their response to suggestion in the face of conflicting evidence. However, this experiment did not index the potential influence of demand characteristics on participants' responses. Findings that hypnotized and simulating participants report comparable rates of pseudomemories (Lynn et al., 1989; 1994) point to the potential importance of contextual cues in such reporting. Accordingly, in Experiment 2 we investigated the extent to which demand characteristics may have influenced the responses of high hypnotizable participants in Experiment 1.

EXPERIMENT 2

Experiment 2 was a partial replication and extension of Experiment 1. Experiment 2 employed the same protocol as Experiment 1 in that participants were administered a suggestion for memory enhancement for their second birthday and, following hypnosis, were provided with information that challenged their reported pseudomemory. To index the role of demand characteristics in hypnotized participants' responses, we employed the real-simulating paradigm (Orne, 1959, 1979). This paradigm compares the performance of hypnotized individuals (reals) with that of nonhypnotized individuals who are instructed to behave as they believe hypnotized individuals would (simulators). The participants are initially instructed by an experimenter, and the hypnotic testing is conducted by a second experimenter who is unaware of the real or simulating identity of the participants. The real-simulating paradigm allows a determination of the extent to which the demand characteristics of the test setting may have influenced the performance of the hypnotized participants. Specifically, if reals and simulators respond similarly, then an explanation of reals' responses in terms of demand characteristics cannot be ruled out. If reals and simulators respond differently, factors other than demand characteristics can be said to be involved in reals' responses.

METHOD

Participants

Twenty (16 female and 4 male) reals of mean age 19.9 years ($SD = 2.8$) and 20 (11 female and 9 male) simulators of mean age 22.3 years ($SD = 5.8$), who were undergraduate psychology students at the University of New South Wales, participated in return for research credit. Participants were preselected on the basis of their extreme scores on both the group-administered, 12-item HGSHS:A (Shor & Orne, 1962) and an individually administered 10-item tailored version of the SHSS:C (Weitzenhoffer & Hilgard, 1962). Reals had scored in the range of 9 to 12 on the HGSHS:A ($M = 10.4$, $SD = 0.9$) and 8 to 10 on the SHSS:C ($M = 8.4$, $SD = 0.7$), and

simulators had scored in the range of 0 to 3 on the HGSHS:A ($M = 2.8$, $SD = 1.3$) and 0 to 3 on the SHSS:C ($M = 1.5$, $SD = 1.2$).

Procedure

Initially, an experimenter instructed the hypnotizable and nonhypnotizable participants according to the exact procedures of the real-simulating paradigm (see Orne, 1959, 1979). Reals were told they would be taken to a second experimenter (the hypnotist) who would conduct a hypnotic session with them. Simulators were told they would be taken to a second experimenter, and their task was to fool this experimenter into believing that they were hypnotizable individuals. They were told that the hypnotist did not know which participants were hypnotized and which were faking, and that she would stop the session if she discovered they were faking. The experimenter then took participants to the hypnotist, who was unaware of the real or simulating identity of participants.

The hypnotist initially rated the real or simulating identity of participants. The experiment then followed the same procedure described in Experiment 1, including the administration of a suggestion to recall their second birthday, a hypnotic test of recall (Recall Test 1; including ratings of confidence and clarity), a posthypnotic test of recall (Recall Test 2; including ratings of confidence), the challenge procedure, and a final test of recall (Recall Test 3; including ratings of confidence). At the completion of the hypnosis session, the hypnotist rated the real or simulating identity of participants a second time, and then escorted them to the original experimenter. This experimenter conducted a postexperimental inquiry into participants' experiences of the hypnosis session and asked simulators whether they had experienced any effect of hypnosis and whether they considered that they had performed as a hypnotized participant would.³

Verbatim scripts of the experimental sessions were examined by the experimenter and an independent rater who was unaware of the hypotheses of the experiment. The experimenter and the rater categorized participants' memory attributions following the challenge. Attributions were categorized as either (a) reconstruction of the memory from secondary sources (e.g., photographs, parental reports) or from subsequent birthdays, or (b) remembered because of the reported salience of the event. The interrater agreement was high (Kappa value: $r = .89$). Analyses of ratings were based on the rater's categorizations.

³The hypnotist identified 50% and 75% of reals and simulators, respectively. Postexperimentally, all simulators considered that they had responded as hypnotized participants would and had not experienced any effect of hypnosis.

Table 3

Experiment 2: Frequencies and Percentages of Pseudomemory Report

Recall Test	Participant Group	
	Reals	Simulators
Recall Test 1 (during hypnosis)	15 (75%)	17 (85%)
Recall Test 2 (after hypnosis)	10 (50%)	10 (65%)
Recall Test 3 (after challenge)	10 (50%)	13 (65%)

RESULTS

Reported Autobiographical Memory

Table 3 presents the number of participants who reported a memory for their second birthday during hypnosis (Recall Test 1) and during the posthypnotic inquiry (Recall Tests 2 and 3). Whereas memories were reported by most reals and simulators during Recall Test 1, half of each group reported a memory on Recall Test 2. No participants retracted their reported pseudomemory following the challenge (Recall Test 3). Fewer participants reported the early memory following hypnosis compared to during hypnosis, $\chi^2(39) = 13.5, p < .01$.

Confidence and Clarity Ratings

Participants were asked to rate their confidence in the accuracy of their memory during hypnosis, after hypnosis, and after the accuracy of the memory was challenged. The mean confidence ratings of participants who reported a memory on each recall test are presented in Table 4. A 2×3 (Participant Group \times Rating Occasion) repeated measures ANOVA of confidence ratings indicated a significant main effect for the participant group, $F(1, 27) = 4.9, p < .05$. That is, simulators reported more confidence in the accuracy of their memories than reals. Further, the analysis yielded a significant interaction effect for participant group and rating occasion, $F(2, 54) = 4.6, p < .05$. A trend analysis indicated a linear decrease in the confidence ratings of simulators across the three ratings; in comparison, reals maintained their confidence ratings across the rating occasions. A planned comparison between reals and simulators indicated a significant difference, $t(28) = 7.6, p < .01$. That is, simulators reported more vivid memories than reals. Correlations between clarity ratings and confidence ratings were comparable for simulators ($r = .55$) and reals ($r = .42$).

Memory Attribution

Following the challenge of the accuracy of the reported memories during the posthypnotic inquiry, no participant retracted their reported memory (on Recall Test 3). Whereas 9 (90.0%) reals and 6 (46.0%)

Table 4

Experiment 2: Mean Confidence Ratings and Mean Clarity Ratings

Rating Occasion	Participant Group	
	Reals	Simulators
Confidence Ratings:		
Recall Test 1 (during hypnosis)	5.23 (2.16)	7.97 (1.74)
Recall Test 2 (after hypnosis)	5.33 (2.38)	6.59 (2.24)
Recall Test 3 (after challenge)	5.00 (2.42)	5.53 (2.55)
Clarity Ratings	4.73 (1.79)	6.44 (1.69)

Note. Confidence and clarity ratings are based only on participants who reported a pseudomemory on each occasion (no low hypnosis participants satisfied this criterion). For confidence ratings, 1 = *not at all confident*, 10 = *extremely confident*; for clarity ratings, 1 = *not at all clear*, 10 = *extremely clear*. Standard deviations appear in parentheses.

simulators attributed their reported pseudomemory to a reconstruction based on secondary sources, 1 (10.0%) real and 7 (54.0%) simulators attributed their reports to the salience of the event.

DISCUSSION

Reals and simulators responded similarly to the suggestion for memory enhancement for their second birthday. Half of each group reported a pseudomemory following hypnosis (Recall Test 2), and none retracted their memory following the challenge (Recall Test 3). Whereas simulators decreased their level of reported confidence in their pseudomemories, reals maintained a stable level of confidence at each report. Further, whereas nearly all reals attributed their pseudomemory to reconstructive processes that reconciled their reported pseudomemory with the conflicting information, half of the simulators insisted that their report was valid because of the salience of the reported event.

GENERAL DISCUSSION

Experiment 1 found that most high hypnotizable subjects reported a pseudomemory for a childhood event following an appropriate suggestion in both hypnotic and nonhypnotic conditions. In contrast, low hypnotizable subjects who had received a hypnotic induction did not show this pattern. Importantly, we noted that whereas high hypnotizable subjects in the hypnotic condition maintained their belief in the suggested memory, half of the highs in the nonhypnotic condition did not. Although our rate of pseudomemory reporting is somewhat higher than previous studies of hypnotic pseudomemory for recent events (Lynn et al., 1994), it is comparable to recent studies of early autobiographical pseudomemory outside of hypnosis (Malinoski, Martin, Aronoff, Lynn, & Gedeon, 1995). Overall, this pattern of results implies that hypnotizability and hypnosis interact in their influence on the degree of belief that a

hypnotized individual holds in their (inaccurate) memory of a childhood experience. Specifically, although high hypnotizable subjects were equally likely to report a pseudomemory for a childhood event in both hypnosis and nonhypnotic conditions, there was a greater tendency for those who were hypnotized to maintain their belief in the face of conflicting evidence.

In Experiment 2, most reals and simulators reported a pseudomemory during hypnosis, and comparable numbers of reals and simulators confirmed their pseudomemory following hypnosis. The decrease in reports of pseudomemories after hypnosis is consistent with previous descriptions of the variability of pseudomemory reporting as a function of the context of the reporting environment (Barnier & McConkey, 1992; McConkey, Labelle, Bibb, & Bryant, 1990). Importantly, all of those subjects who reported a pseudomemory following hypnosis maintained their belief in the reported memories in the face of challenging information. The comparable rate of pseudomemory reports in reals and simulators suggests that situational demands may have been responsible for the hypnotized participants' reports. Studies of hypnotic pseudomemories for recent events have also found comparable rates between reals and simulators (Lynn et al., 1989, 1994).

Interestingly, in the present study, reals and simulators reported different patterns of confidence in their pseudomemories. Whereas simulators reported less confidence with each report of their pseudomemory, reals maintained their belief in their reported memory across the three assessment points. This finding suggests that reals' reported pseudomemories, or at least their belief in these reports, were mediated by different processes than those of simulators. Specifically, whereas contextual influences, as indexed by the responses of simulators, suggested less confidence in reported pseudomemories with more critical questioning, reals who maintained their reported pseudomemory in the face of conflicting evidence maintained their belief in this memory. This finding is consistent with reports that hypnotized participants report more novel pseudomemories than simulators (Weekes, Lynn, Green, & Brentar, 1992). This pattern of finding points to the manner in which reals reconstruct and embellish their pseudomemories in a way that permits a compelling belief to develop in the reality of the reconstructed events.

An intriguing feature of the participants' responses was the commitment to the hypnotic suggestion despite information that saliently contradicted their reported experience. This finding is consistent with previous reports of hypnotic subjects maintaining their belief in the suggestion despite contrary evidence (Bryant & McConkey, 1989, in press). For instance, many subjects reported that the memory that they described was subjectively genuine and did reflect events that actually occurred. They reconciled this belief with the challenging information by conceding that their recall may have been of their third or fourth

birthday rather than their second. In Experiment 2, reals and simulators reported different attributions after receiving information that these memories could not be accurate. Half of the reals reported that they mistook the reported birthday for a subsequent birthday, and half reported that they reconstructed the memory on the basis of secondary information. In this sense, reals maintained the integrity of their initial reported memory in a way that reconciled their initial report with the challenging feedback from the experimenter. One third of simulators defied the experimental challenge and maintained that they had accurately recalled their second birthday because of the salience of the event. It appears that a significant proportion of simulators did not perceive an experimental expectation to reconcile the hypnotically elicited memory with the conflicting information. This pattern suggests that whereas reals and simulators can provide similar reports about pseudomemories for early events, hypnotized subjects engage in distinctive strategies that allow them to maintain their commitment to the suggested memory.

Although most researchers agree that memories for the second year cannot be regarded as accurate (Howe & Courage, 1993; Kihlstrom & Harackiewicz, 1982), some research has suggested that adults can recall events for this age (Usher & Neisser, 1993). We did not index the veridicality of our participants' memories, and future research may rigorously define autobiographical pseudomemories by establishing the fictitious nature of elicited pseudomemories. It may also be argued that the second birthday does not entail sufficient salience to permit comparison with more traumatic events often associated with hypnotically elicited recall of early events. Further, we recognize that our small sample sizes limit statistical power and future research on the influence of hypnosis and hypnotizability on pseudomemory reporting should be conducted.

These limitations notwithstanding, the present findings indicate that distorted memories for very early events can be elicited in highly hypnotizable participants, and this effect can be heightened by hypnosis (Malinoski & Lynn, 1999; Marmelstein & Lynn, 1999; Spanos et al., in press). Although the current findings cannot be directly generalized to clinical settings, these data suggest that pseudomemories for early experiences in the clinical context may be better understood by closer investigation of the commitment to the reported memory and the attributions made to reconcile the reported memory with available evidence. Further experimental study of the interaction of these cognitive processes and the social forces that influence these attributions will shed light on the factors that mediate belief in false memories both within and beyond the laboratory.

REFERENCES

- Barnier, A. J., & McConkey, K. M. (1992). Reports of real and false memories: The relevance of hypnosis, hypnotizability, and test context. *Journal of Abnormal Psychology, 101*, 521-52.
- Bryant, R. A., & McConkey, K. M. (1989). Hypnotic blindness, awareness, and attribution. *Journal of Abnormal Psychology, 98*, 443-447.
- Bryant, R. A., & McConkey, K. M. (in press). Functional blindness: A construction of social and cognitive influences. *Cognitive Neuropsychiatry*.
- Green, J. P. (1999). Hypnosis, context effects, and the recall of early autobiographical memories. *International Journal of Clinical and Experimental Hypnosis, 47*, 284-300.
- Howe, M. L., & Courage, M. L. (1993). On resolving the enigma of infantile amnesia. *Psychological Bulletin, 113*, 305-326.
- Kihlstrom, J. F., & Harackiewicz, J. (1982). The earliest recollection: A new survey. *Journal of Personality, 50*, 134-148.
- Labelle, L., Laurence, J. -R., Nadon, R., & Perry, C. (1990). Hypnotizability, preference for an imagic style, and memory creation in hypnosis. *Journal of Abnormal Psychology, 99*, 222-228.
- Laurence, J. -R., & Perry, C. (1983). Hypnotically created memory among highly hypnotizable participants. *Science, 222*, 523-524.
- Lynn, S. J., Rhue, J. W., Myers, B. P., & Weekes, J. R. (1994). Pseudomemory in hypnotized and simulating participants. *International Journal of Clinical and Experimental Hypnosis, 42*, 118-129.
- Lynn, S. J., Weekes, J. R., & Milano, M. J. (1989). Reality versus suggestion: Pseudomemory in hypnotizable and simulating participants. *Journal of Abnormal Psychology, 98*, 137-144.
- Malinoski, P. T., & Lynn, S. J. (1999). The plasticity of early memory reports: Social pressure, hypnotizability, compliance, and interrogative suggestibility. *International Journal of Clinical and Experimental Hypnosis, 47*, 320-345.
- Malinoski, P. T., Martin, D. F., Aronoff, J. B., Lynn, S. J., & Gedeon, S. (1995, November). *Hypnotizability, individual differences, and interpersonal pressure to report early childhood memories*. Paper presented at the 46th Annual Meeting of the Society of Clinical and Experimental Hypnosis, San Antonio, TX.
- Marmelstein, L. R., & Lynn, S. J. (1999). Normative, group, and hypnotic influences on early autobiographical memory reports. *International Journal of Clinical and Experimental Hypnosis, 47*, 301-319.
- McCann, T., & Sheehan, P. W. (1988). Hypnotically induced pseudomemories: Sampling their conditions among hypnotizable subjects. *Journal of Personality and Social Psychology, 54*, 339-346.
- McConkey, K. M. (1983). Challenging hypnotic effects: The impact of conflicting influences on response to hypnotic suggestion. *British Journal of Experimental and Clinical Hypnosis, 1*, 3-10.
- McConkey, K. M. (1991). The construction and resolution of experience and behavior in hypnosis. In S. J. Lynn & J. W. Rhue (Eds.), *Theories of hypnosis: Current models and perspectives* (pp. 542-563). New York: Guilford.
- McConkey, K. M., Barnier, A. J., & Sheehan, P. W. (1998). Hypnosis and pseudomemory: Understanding the findings and their implications. In S. J. Lynn and K. M. McConkey (Eds.), *Truth in memory* (pp. 227-259). New York: Guilford.
- McConkey, K. M., Labelle, L., Bibb, B. C., & Bryant, R. A. (1990). Hypnosis and suggested pseudomemory: The relevance of test context. *Australian Journal of Psychology, 42*, 197-205.
- Nograd, H., McConkey, K. M., & Perry, C. (1985). Enhancing visual memory: Trying hypnosis, trying imagination, and trying again. *Journal of Abnormal Psychology, 94*, 195-204.

- Orne, M. T. (1959). The nature of hypnosis: Artifact and essence. *Journal of Abnormal and Social Psychology*, 58, 277-299.
- Orne, M. T. (1979). On the simulating subject as a quasi-control group in hypnosis research: What, why, and how. In E. Fromm & R. E. Shor (Eds.), *Hypnosis: Developments in research and new perspectives* (pp. 519-566). New York: Aldine.
- Orne, M. T., Whitehouse, W. G., Dinges, D. F., & Orne, E. C. (1988). Reconstructing memory through hypnosis: Forensic and clinical implications. In H. M. Pettinati (Ed.), *Hypnosis and memory* (pp. 21-63). New York: Guilford.
- Poole, D. A., Lindsay, D. S., Memon, A., & Bull, R. (1995). Psychotherapy and the recovery of memories of childhood sexual abuse: U.S. and British practitioners' opinions, practices, and experiences. *Journal of Consulting and Clinical Psychology*, 63, 426-437.
- Sheehan, P. W., Statham, D., & Jamieson, G. A. (1991). Pseudomemory effects and their relationship to level of susceptibility to hypnosis and state instruction. *Journal of Personality and Social Psychology*, 60, 130-137.
- Shor, R. E., & Orne, M. T. (1962). *Harvard Group Scale of Hypnotic Susceptibility, Form A*. Palo Alto, CA: Consulting Psychologists Press.
- Spanos, N. P., Burgess, C. A., Burgess, M. F., Samuels, C., & Blois, W. O. (in press). Creating false memories of infancy with hypnotic and nonhypnotic procedures. *Journal of Applied Cognitive Psychology*.
- Spanos, N. P., & McLean, J. (1986). Hypnotically created pseudomemories: memory distortions of reporting bias? *British Journal of Experimental and Clinical Hypnosis*, 3, 155-159.
- Spanos, N. P., Menary, E., Gabora, N. J., DuBreuil S. C., & Dewhirst, B. (1991). Secondary identity enactments during hypnotic past-life regression; A sociocognitive perspective. *Journal of Personality and Social Psychology*, 61, 308-320.
- Usher, J. A., & Neisser, U. (1993). Childhood amnesia and the beginnings of memory for four early life events. *Journal of Experimental Psychology: General*, 122, 155-165.
- Weekes, J. R., Lynn, S. J., Green, J. P., & Brentar, J. T. (1992). Pseudomemory in hypnotized and task-motivated subjects. *Journal of Abnormal Psychology*, 101, 356-360.
- Weitzenhoffer, A. M., & Hilgard, E. R. (1962). *Stanford Hypnotic Susceptibility Scale: Form C*. Palo Alto, CA: Consulting Psychologists Press.

Hervorrufen von autobiographischen Pseudoerinnerungen: Die Relevanz von Hypnose, Hypnotisierbarkeit und Attributionen

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Zusammenfassung: Die Verfasser untersuchten die Rolle von Hypnose, Hypnotisierbarkeit und Attributionen bei autobiographischen Pseudoerinnerungen. In Experiment 1 wurde hoch- und niedrigsuggestiblen Probanden sowie nicht hypnotisierten, hochsuggestiblen Probanden die Rückrufung ihres zweiten Geburtstages suggeriert; in Experiment 2 wurde hypnotisierten Probanden und Simulanten eine gleiche Suggestion administriert. Rückruf wurde während und nach der Hypnose, sowie nach einem Herausforderungsverfahren [challenge procedure] getestet. In Experiment 1 berichteten mehr Hochsuggestible als Niedrigsuggestible eine Erinnerung unter Hypnose; aber die Hälfte der wachen hochsuggestiblen Vpn., jedoch keine der hypnotisierten hochsuggestiblen Vpn., widerriefen bei Herausforderung [challenge] die Erinnerung. Hervorzuheben ist, daß die Hochsuggestiblen ihre Erinnerungen Rekonstruktionen zuschrieben, die auf anderen Geburtstagen basierten. In Experiment 2 berichtete zwar eine gleichgroße Anzahl von hypnotisierten Probanden und Simulanten unter Hypnose eine Erinnerung über

den zweiten Geburtstag und widerriefen sie dann bei Herausforderung [challenge], aber sie schrieben ihre Erinnerungen anderen Erklärungen zu. Diese Ergebnisse zeigen, daß weitere Untersuchungen über Attributionsprozesse, in denen von den Vpn. geglaubte, autobiographische Erinnerungen mit widersprechenden Fakten in Einklang gebracht werden, angebracht sind.

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Susciter les pseudo souvenirs autobiographiques: la pertinence de l'hypnose, de l'hypnotisabilité et de l'imputation (ou attribution)

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Résumé: Les auteurs ont étudié les rôles de l'hypnose, l'hypnotisabilité et des imputations dans les pseudo mémoires autobiographiques. L'expérience 1 administre une suggestion pour retrouver le 2^e anniversaire à des sujets hautement et des sujets faiblement hypnotisables. L'expérience 2 administre une suggestion identique à des vrais participants et à des simulateurs. Le rappel de souvenir a été testé pendant et après hypnose et après la procédure de recherche. Dans l'expérience 1, les sujets plus hypnotisables ont rapporté un souvenir pendant l'hypnose. Toutefois, en poursuivant le travail, près de la moitié des sujets d'assez haute hypnotisabilité et aucun des sujets hautement hypnotisables n'ont rétracté leur souvenir. En particulier, les sujets très hypnotisables ont attribué leurs souvenirs à une reconstruction effectuée à partir d'autres anniversaires. Dans l'expérience 2, un nombre identique de sujets réellement hypnotisables et de simulateurs ont rapporté un souvenir de leur 2^e anniversaire pendant l'hypnose puis l'ont rétracté par la suite. Ils ont donc imputé différemment leur souvenir. Ces découvertes mettent en exergue la valeur d'une recherche plus appropriée sur le mécanisme d'imputation qui concilie les croyances de souvenir autobiographique avec une évidence de sens opposé.

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La obtención de las memorias autobiográficas: La relevancia de la hipnosis, la hipnotizabilidad y las atribuciones

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Resumen: Los autores investigaron el papel de la hipnosis, la hipnotizabilidad, y las atribuciones en las pseudomemorias autobiográficas. En el experimento 1 se administró una sugestión para recordar el segundo cumpleaños a participantes de alta y baja hipnotizabilidad bajo hipnosis, y a participantes muy hipnotizables en vigilia. En el experimento 2 se administró una sugestión similar a participantes reales y simuladores. Se hicieron pruebas de recuerdo durante y después de la hipnosis, y después de un procedimiento de desafío.

En el experimento 1, obtuvimos más recuerdos de los participantes con alta hipnotizabilidad; sin embargo, durante la prueba de desafío, la mitad de los participantes muy hipnotizables en vigilia retractaron sus recuerdos, pero ningún participante muy hipnotizable durante la hipnosis lo hizo. Es de notar que los participantes altamente hipnotizables atribuyeron sus recuerdos a reconstrucciones en base a otros natalicios. En el experimento 2, un número igual de reales y simuladores mencionaron un recuerdo de su segundo natalicio durante la hipnosis, que retractaron después del desafío, pero reales y simuladores hicieron atribuciones diferentes sobre sus recuerdos. Estos hallazgos realzan el valor de una investigación más precisa de los procesos de atribución que reconcilian una evidencia conflictiva con recuerdos autobiográficos en los que la persona cree.

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