Posthypnotic Suggestion, Response Complexity, and Amnesia

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Thirty-eight high hypnotisable participants were given a suggestion for either a simple or a complex posthypnotic response. The suggestion was given either with or without an accompanying suggestion for posthypnotic amnesia. The type of suggestion had an impact on responding: 94% of participants given the simple suggestion and 16% given the complex suggestion responded. The accompanying presence of amnesia did not have an impact on responding: 46% of participants with amnesia and 63% without responded; 58% of those who did not receive the amnesia suggestion responded. The findings are discussed in terms of a model that highlights the interaction of internal and external processes that encourages or discourages posthypnotic responding.

Historical accounts of posthypnotic suggestion typically highlight the complexity of the suggested posthypnotic response. Liégeois (1889; see also Gauld, 1992) reported a successful posthypnotic suggestion that involved a visual hallucination of a dog with a monkey on its back coming into the room, followed by a gipsy and a large, tame, dancing, American bear. Despite the implication that hypnotised, high hypnotisable individuals will invariably respond to even the most elaborate and challenging suggestions, researchers and clinicians generally acknowledge that hypnotic suggestions differ in their effectiveness. In the case of posthypnotic suggestion, some investigators have argued that such differences may be due to the nature of the requested response (e.g., Sheehan & Orne, 1968; Weitzenhoffer, 1950). Sheehan and Orne (1968) pointed to the need to "consider the quality of the posthypnotic act ... it seems that only the more unusual acts ... disrupt the normal stream of consciousness" (p. 212). Although it is well established that high, rather than low, hypnotisable subjects are more likely to respond to posthypnotic suggestion, there have been only a few empirical comparisons of posthypnotic suggestions that differ along various dimensions, such as type, complexity, or salience (e.g., Barnier & McConkey, 1996; Berrigan, Kurtz, Stabile, & Strube, 1991; Trussell, Kurtz, & Strube, 1996; Weitzenhoffer, 1950).

Trussell et al. (1996) gave three types of posthypnotic suggestions (positive hallucination, motor, or cognitive distortion) of two levels of difficulty (easy or difficult) to high hypnotisable subjects and tested them four times across 8 weeks. Trussell et al. (1996) reported that fewer subjects passed the difficult than the easy suggestions regardless of type, fewer passed the suggestions over time, and the decay in pass rate was larger for the easy suggestions (due mainly to their higher initial pass rate). Similarly, in two recent experiments, Barnier and McConkey (1996) gave high hypnotisable subjects a posthypnotic suggestion for either a motor response which involved putting their hands behind their head or a verbal response which involved saying "Psych 1". Barnier and McConkey (1996) found different patterns of responding across three tests according to the nature of the suggested posthypnotic act; specifically, the suggestion to say "Psych 1" in response to the question "Well, what did you think of that?" was more likely to interfere with subjects' ongoing behaviour

and the ongoing social interaction than was asking them to put their hands behind their head.

In the present experiment, we sought to understand further the nature of the suggested posthypnotic act; in particular, we focused on the dimension of complexity, which we defined operationally as the number of behavioural actions involved in responding. Specifically, we gave subjects a posthypnotic suggestion that asked for either a simple motor behaviour that involved rubbing their right ear lobe, or a complex motor behaviour that involved putting their left hand and arm out and feeling it getting heavy and moving down. The latter suggestion was considered to be complex in that it involved multiple behavioural actions; also, it was more salient to individuals, it interrupted their ongoing behaviour, and it could not be easily incorporated into another gesture (as rubbing the car could be). In the present experiment, we also investigated the role of accompanying amnesia. Various theoretical and clinical accounts have highlighted the individual's apparent lack of awareness of the motivation for and performance of suggested posthypnotic behaviour, and some investigators have argued that amnesia covers the source of the behaviour and inhibits resistance to the response (e.g., Orne, Sheehan, & Evans, 1968; Sheehan & Orne, 1968; Weitzenhoffer, 1957). Orne et al. (1968; see also Sheehan & Orne, 1968) gave subjects a posthypnotic suggestion to touch their forehead whenever they heard the word experiment during the next 48 hours. These investigators indexed the responding of subjects inside and outside the laboratory, and found that those who continued to respond across the settings were amnesic for their entire hypnotic experience. Orne et al. (1968) concluded that posthypnotic responding can occur in the absence of amnesia, but that the best responders are amnesic for their experience. Others, however, have argued that amnesia is not necessary, and its presence does not change the quality of posthypnotic behaviour (e.g., Barber, 1958, 1962a, 1962b; Edwards, 1965).

In summary, in the present experiment we examined the interaction between the complexity of the suggested response and accompanying amnesia. Because they were most likely to experience the suggested effects, we used high hypnotisable subjects, and we focused on whether those who responded to the posthypnotic suggestion were amnesic for their experiences regardless of the nature of the suggested act. We gave subjects a posthypnotic suggestion that either did or did not include a

The research reported in this article was supported in part by a grant from the Australian Research Council to Kevin M. McConkey. Amanda Barnier was supported by an Australian Postgraduate Award. We are grateful to Fiona Martalhum and Gladiss Warda for research assistance. Address for correspondence: Kevin M. McConkey, School of Psychology, University of New South Wales, Sydney NSW 2052, Australia. E-mail: K.McConkey@unsw.edu.au

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suggestion for accompanying amnesia of the hypnosis session as a whole. This allowed us to compare the behaviour and experience of individuals who showed amnesia, did not show amnesia, or were not given a suggestion for amnesia.

Standardised scales of hypnotisability include posthypnotic suggestions that differ in the responding that is required (e.g., touching the left ankle, changing chairs, automatic writing), and in the criteria that are used to assess responding. Some scales score any movement or response to the posthypnotic suggestion as a positive response (e.g., Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A); Shor & Orne, 1962), whereas others require a complete or specific response (e.g., Revised Stanford Profile Scales, Forms I and II (RSPS: I & II); Weitzenhoffer & Hilgard, 1967). In this experiment (see also Barnier & McConkey, 1996, 1998a), we were interested in the extent to which individuals responded in a behaviourally complete or incomplete way. That is, we differentiated between a response that corresponded to the letter of the suggestion (complete), a response that was consistent with the suggestion but did not meet its total requirements (incomplete), and no response. We expected that subjects would respond more often and more completely to the simple rather than to the complex suggestion, and that those who showed amnesia would be more likely to respond than those who either did not show amnesia or were not given the amnesia suggestion.

METHOD

Participants

Thirty-eight (9 male and 29 female) high hypnotisable individuals of mean age 19.53 years (SD = 3.44), who were undergraduate psychology students at the University of New South Wales, voluntarily participated in return for research credit. Subjects were selected on the basis of their high scores on the 12-item HGSHS:A (Shor & Orne, 1962), and their hypnotisability was confirmed by a 10-item tailored version of the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962; see also Hilgard, Crawford, Bowers, & Kihlstrom, 1979). Subjects had scored in the range 9 to 12 on the HGSHS:A (M = 10.11, SD = 0.83) and 8 to 10 on the tailored SHSS:C (M = 8.45, SD = 0.72).

Apparatus

A Panasonic VHS video camera and video cassette recorder were used to record from the beginning of the posthypnotic suggestion until the conclusion of the experimental session onto Sony video cassettes. The video camera was focused on the participant throughout, and the recorded image included the individual's head, upper body, arms, and hands.

Procedure

The experiment involved a hypnosis session and an inquiry session, which were conducted by the experimenter (the hypnotist). The posthypnotic suggestion was incorporated into the tailored SHSS:C and was administered just prior to the deinduction procedure. The test of posthypnotic responding was administered during the inquiry session.

Hypnosis session. Following informed consent procedures, the experimenter administered the SHSS:C induction procedure and 10 of the SHSS:C test items. She then administered one of four versions of the posthypnotic suggestion; 19 individuals received the simple suggestion (10 were given the version with amnesia and 9 were given the version without) and 19 received the complex suggestion (9 were given the version with amnesia and 10 were given the version without). Individuals given the simple suggestion were told that after they woke up

and when they heard the word *experiment* they would rub their right ear lobe, whereas those given the complex suggestion were told that after they woke up and when they heard the word *experiment* they would hold their left arm out at shoulder height with the palm up, imagine holding something heavy, and feel their left hand and arm getting heavier and heavier and moving down until it reached the arm of the chair. Those who received the suggestion for accompanying amnesia were told also that they would not remember the posthypnotic suggestion or any of the other items that were presented during hypnosis. Following this, the experimenter allowed 10 seconds before she administered a standardised deinduction procedure.

Inquiry session. Immediately following the deinduction procedure, the experimenter administered the posthypnotic test. She asked participants: "Well, what did you think of the experiment?" and allowed 30 seconds to elapse from the end of the response cue; she avoided eye contact and noted subjects' behavioural and verbal responses. The experimenter then conducted the standard inquiry into amnesia for those who were given this suggestion, which involved an initial test of recall, cancellation of the amnesia, and a final test of recall for any further items remembered. She then asked subjects to rate how much they felt like rubbing their right ear lobe or holding their left arm out and feeling it get heavy when they heard the response cue during the posthypnotic test (1 = did not at allfeel like it, 7 = totally felt like it). Finally, the experimenter cancelled the posthypnotic suggestion, answered any questions, thanked participants, and ended the session.

RESULTS

Posthypnotic responses were categorised by two independent raters (who viewed the videotape and who were unaware of the aims of the experiment) according to whether they constituted a complete response, an incomplete response, or no response. Inter-rater reliability was k = 0.88 (Cohen, 1960). The raters disagreed on only three occasions; these disagreements were resolved through discussion with a third independent rater. Analyses are based on the agreed categorisations of response.

Twenty-one (55%) participants made a complete (n = 14) or incomplete (n = 7) response and 17 (45%) made no response. Figure 1 presents the percentage of posthypnotic responding according to suggestion complexity and amnesia suggestion. Of subjects given the simple suggestion, 90% (9/10) of those given the version with amnesia and 100% (9/9) of those given the version without amnesia made some response (either complete or incomplete) to the posthypnotic test. In comparison, of subjects given the complex suggestion, only 11% (1/9) of those given the version with amnesia and 20% (2/10) of those given the version without amnesia made some response. Thus, regardless of the amnesia suggestion, the majority of subjects given the simple suggestion made some response, whereas the majority of those given the complex suggestion made no response, $\chi^2(1) = 23.95$, p < .001. Response was not dependent on an accompanying experience of amnesia. Across the two suggestions, a similar percentage of subjects given the version with or without amnesia made some response. Notably, in contrast to the prediction that subjects would respond more completely (as well as more often) to the simple suggestion, 37% (7/19) of subjects made an incomplete response to the simple suggestion, whereas no-one made an incomplete response to the complex suggestion.

Amnesia was categorised in terms of whether subjects recalled three or fewer hypnotic items (including the posthypnotic suggestion). Of the 19 subjects who were given the suggestion for amnesia, 11 (58%) passed amnesia and 8 (42%) did not on the basis of this dual criterion.¹ It is useful, there-

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fore, to consider whether those who experienced amnesia responded differently from those who did not. The behavioural responding of three subgroups was considered: (a) subjects who passed amnesia (n = 11); (b) subjects who failed amnesia (n = 8); and (c) subjects who were not given a suggestion for amnesia (n = 19).

Figure 2 presents the percentage of posthypnotic responses for these three groups. Of subjects given the simple suggestion, 83% (5/6) of those who passed amnesia, 100% (4/4) of those who failed amnesia, and 100% (9/9) of those given the suggestion without amnesia made some response (either complete or incomplete). In contrast, of subjects given the complex suggestion, none (0/5) of those who passed amnesia, 25% (1/4) of those who failed amnesia, and 20% (2/10) of those given the suggestion without amnesia made some response. Thus, consistent with the previous analysis, the majority of subjects given the simple suggestion made some response, whereas the majority of those given the complex suggestion made no response, $\chi^2(1) = 23.95$, p < .001. This pattern was independent of the presence of amnesia. Across the two suggestions, a similar percentage of subjects who passed amnesia, failed amnesia, or were given the posthypnotic suggestion without amnesia made some response. Notably, however, of those given the simple suggestion, 75% (3/4) of subjects who failed amnesia made an incomplete response compared to only 17% (1/6) of those who passed amnesia, and 33% (3/9) of those given the suggestion without amnesia.

Table 1 presents subjects' mean ratings of experiential compulsion associated with their posthypnotic response. As can be seen, differences in the level of behavioural responding



Figure I

Percentage of posthypnotic responses according to suggestion complexity and amnesia suggestion.

Note. AS = Amnesia suggested. ANS = Amnesia not suggested.

Table I

Mean Ratings of Compulsion

across the conditions influenced the pattern of data. In general, however, subjects who passed amnesia did not rate their experience as more compelling than those who failed amnesia or who were not given the amnesia suggestion; also, the complexity of the suggested response had no effect. Rather. compulsion was associated with the extent to which subjects responded to the posthypnotic suggestion; those who made a complete response (M = 5.54, SD = 1.20) gave higher ratings than those who made an incomplete response (M = 2.29, SD = 1.70) or no response (M = 2.06, SD = 1.64), F(2, 34) = 21.58, p < .001.

DISCUSSION

The nature of the suggested response influenced subjects' behaviour; individuals were more likely to respond to a simple suggestion than to a complex suggestion. This is consistent with previous findings that different suggested responses are associated with different response rates (Barnier & McConkey, 1996; Berrigan et al., 1991; Trussell et al., 1996). Individuals who were given a posthypnotic suggestion with amnesia were equally likely to respond as those who were given the suggestion without amnesia. More importantly, those who experienced amnesia showed a similar pattern of response to subjects who did not experience amnesia and to subjects who were not given the amnesia suggestion. Not only was their pattern of behavioural response similar, but their ratings of experiential compulsion were comparable also. These findings are in contrast to theoretical accounts that highlight subjects' limited awareness of the posthypnotic suggestion or their response to it (e.g., Sheehan & Orne, 1968; Weitzenhoffer, 1957); our



Figure 2

Percentage of posthypnotic responses according to suggestion complexity and amnesia group.

Note. PA = Passed amnesia. FA = Failed amnesia. ANS = Amnesia not suggested.

Suggestion version and amnesia	Behavioural response		
	Complete	Incomplete	No response
Simple			
Passed amnesia	6.00 (1.73)	3.00 ()	I.00 ()
Failed amnesia	5.00 ()	1.00 (0.00)	
No amnesia	5.33 (1.37)	3.33 (2.08)	
Complex			
Passed amnesia		—	1.40 (0.89)
Failed amnesia	6.00 ()	<u> </u>	1.00 (0.00)
No amnesia	5.50 (0.71)	_	3.00 (1.93)

Note. Standard deviations appear in parentheses. For compulsion ratings, 1 = did not at all feel like it. 7 = totally felt like it.

findings indicate that the best posthypnotic responders are not necessarily amnesic for their experience (see also Barber, 1962a, 1962b; Edwards, 1965; Hoyt, 1990).

There was no interaction between the complexity of the suggestion and the experience of amnesia. We used a suggestion for general amnesia of the hypnosis session as a whole. Although this included the posthypnotic suggestion, it may be that a specific suggestion for amnesia of the posthypnotic suggestion would have yielded a different pattern of findings. Future research should investigate the impact of a specific suggestion for amnesia. Such research could determine whether amnesia facilitates posthypnotic responding by inhibiting potential resistance to the suggested act in a more direct way. Nevertheless, in our experiment, the findings indicated that the presence of accompanying amnesia did not influence response to posthypnotic suggestion.

Our findings encourage some speculation about the factors that influence posthypnotic responding. For instance, it may be that subjects were more willing to respond to the simple rather than the complex suggestion because rubbing the ear lobe may have been easier to integrate into their behaviour, less socially significant or disruptive, and more appropriate in the context than holding an arm out and feeling it getting heavier and move down. Specifically, whereas rubbing an ear lobe is more of an "everyday" behaviour, arm lowering might be seen solely as an "hypnotic" behaviour and appropriate only in particular situations. Thus, differences in what we called the "complexity" of the suggestion may be related to differences in subjects' assessment of the social appropriateness or social consequences of the suggested behaviour in the context of their interactions after hypnosis (see also Barnier & McConkey, 1998b, in press). Alternatively, such differences may be related to the degree to which posthypnotic responding requires cognitive resources (see also Kihlstrom, 1996). Posthypnotic responding is not automatic (Gorassini, 1987; Hoyt & Kihlstrom, 1986; Knox, Crutchfield, & Hilgard, 1975; Stevenson, 1976), but requires attentional resources: our findings may reflect differences in the need for such resources across the simple and complex suggestions. These possibilities are consistent with the findings of other research on posthypnotic suggestion (e.g., Barnier & McConkey, 1996, 1998a; Berrigan et al., 1991; Trussell et al., 1996).

Our findings remind us that the hypnotic interaction, although distinctive in some ways, is a social encounter that depends on communication, interpretation, and decision making. It depends also on the personal traits, cognitive skills, and attentional resources of the hypnotised subject. If the communications of the participants within that interaction are ambiguous, then the interpretations that are placed on them and the decisions that are made (either consciously or unconsciously) will be influenced accordingly (see Kihlstrom, 1995; McConkey, 1991). It must be acknowledged, however, that in the present experiment we did not directly test the influence of social factors or demand characteristics. Also, it must be acknowledged that we did not assess the attentional demands that the suggestion for posthypnotic responding and for amnesia placed on subjects. Application of the real-simulating paradigm (Orne, 1959) or the experiential analysis technique (Sheehan & McConkey, 1982) in future research would allow closer examination of both the extent to which the nexus of social cues in the test setting influenced responding and subjects' interpretations of appropriate responding. Also, use of dual-task paradigms or cognitive decision tasks to assess levels of attention and automaticity would allow a better understanding of the cognitive effort associated with subjects' response to the posthypnotic suggestion and suggestion for amnesia.

In this experiment, we drew a distinction between behaviourally complete and incomplete responding. The relationship between ratings of compulsion and the manner of responding indicated that individuals who responded completely gave higher ratings than those who responded incompletely or not at all. This correspondence between experience and responding is consistent with our previous research (Barnier & McConkey, 1996, 1998a), and highlights that the distinction among complete, incomplete, and no responding is a useful one. Also, it helps to clarify what can be said to constitute a "legitimate" response to a posthypnotic suggestion. The findings suggest that a "complete" response, incorporating both a complete behavioural response and a strong subjective experience, best represents a valid posthypnotic response. Other experiments, however, have found that an incomplete response may be experienced as compelling and successful (Barnier & McConkey, 1996, 1998a), and research needs to delineate more carefully the parameters of a legitimate response. Nevertheless, we acknowledge that retrospective ratings of compulsion are open to contamination from successful or unsuccessful behavioural responding, and further research is needed that uses more subtle measures of experience.

Footnotes

1. Although argument can be made to focus on those who did not recall/report the posthypnotic suggestion, it is relevant to note that 17 (90%) of the 19 subjects who were not given a suggestion for amnesia did not recall/report the posthypnotic suggestion; it would not be appropriate to consider these subjects to be amnesic, however, in the absence of a suggestion for amnesia.

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