

INDIVIDUAL DIFFERENCES AMONG HYPNOTIC VIRTUOSOS: A CASE COMPARISON

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We tested two excellent hypnotic subjects on the major items of positive visual hallucination, negative visual hallucination, circle anaesthesia, and posthypnotic amnesia. Detailed comparison of their behavioural responses and experiential reports pointed to inter- and intra-individual variability reflecting differences in subjects' interpretation and processing of the suggestions offered by the hypnotist. We argue that more attention needs to be paid to individual differences among hypnotic virtuosos, and that yoked, single-case comparisons provide a useful way of delineating theoretically important processes that are associated with hypnosis.

Individuals differ in their level of hypnotisability and substantial research in the area of hypnosis has focused on the differences that exist between individuals of high, medium, and low hypnotisability. Much less research, however, has focused on differences among individuals of the same level of hypnotisability. About 25 years ago, Hilgard (1965) pointed to the variation that existed even among high hypnotisable subjects and argued the need to understand this variation. Partly in recognition of this need, Weitzenhoffer and Hilgard (1963, 1967) developed the Stanford Profile Scales of Hypnotic Susceptibility, Forms I and II. Unfortunately, these scales have been used rarely in research and there have been relatively few empirical investigations of the individual differences that exist among high hypnotisable subjects (see Brennehan, Hilgard, & Kihlstrom, 1989). Moreover, there has been relatively little theoretical discussion of the processes that underlie the differential responding that can be seen among subjects of high hypnotisability.

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One of the reasons that the variability among excellent hypnotic subjects has received relatively little attention may relate to the type of experimental designs that are employed in the majority of hypnosis studies. These designs do not easily allow such differences to become apparent. Given this, some researchers have turned to the detailed analysis of particular subjects in order to isolate the inter- and intra-individual variation that exists in the processes of interest. Sheehan, McConkey, and Cross (1978), for instance, examined the experiential reports of 10 excellent hypnotic subjects and pointed to the variation that existed in these subjects' interpretation and experience of the suggested events.

In similar vein, we conducted the present study within a context of discovery of the behavioural responses and experiential reports of excellent hypnotic subjects. The study was driven in part by our interest in particular hypnotic phenomena and in part by our desire to bring a single-case comparison approach to the investigation of individual differences in excellent hypnotic responding. We tested two excellent hypnotic subjects on the major items of positive visual hallucination, negative visual hallucination, circle anaesthesia, and posthypnotic amnesia. Positive visual hallucination involved seeing an assistant with whom the subjects had interacted just prior to the hypnosis session (see also McConkey, 1984; McConkey, Bryant, Bibb, & Kihlstrom, 1989). Negative visual hallucination involved blindness for line-drawings of faces on otherwise blank pages (see also Bryant & McConkey, 1989; Sackeim, Nordlie, & Gur, 1979). Circle anaesthesia involved numbness for a circular area on the palm of one hand (see also Eiblmayr, 1987; McConkey, Bryant, Bibb, Kihlstrom, & Tataryn, 1989). Posthypnotic amnesia involved forgetting the events of the hypnosis session (see also McConkey & Sheehan, 1981; Kihlstrom, 1980). These major items were chosen because they allowed a close analysis of how two high hypnotisable subjects would react in terms of both their behavioural responses and experiential reports.

METHOD

Subjects

Connie and Susan were two 19-year-old, female undergraduate psychology students at the University of Arizona. Both had been tested previously on the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A; Shor & Orne, 1962) and the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962). Connie had scored 11 on each of these 12-point scales, and Susan had scored 12 and 11 on the HGSHS:A and SHSS:C, respectively. The subjects received \$10 nominal payment each in return for their participation in the present study.

Procedure

Initially, the first experimenter (the assistant) met the subjects, and explained that a second experimenter (the hypnotist) would test them on a number of hypnotic items. She then took the subjects to the hypnosis setting. The second experimenter established rapport with the subjects, and told them that he would test them on some items they had and some items they had not experienced previously. He also told them that he would ask them to describe their experiences of hypnosis at the end of the session.

The hypnotist then administered a standardised induction (eye closure) and 9 items in the following order: hand lowering, negative visual hallucination (boxes), hand levitation, circle anaesthesia, positive visual hallucination (assistant), moving hands apart, negative visual hallucination (faces), and posthypnotic amnesia. (The procedure of the items will be described in the following section, together with the responses of the subjects.)

Following the awakening procedure and the cancellation of posthypnotic amnesia, the hypnotist asked the subjects to describe their experiences of each of the items. He probed their comments to better understand the nature of their phenomenal experience. Finally, the hypnotist escorted the subjects back to the first experimenter, who thanked them for their participation and ended the session.

RESULTS

Consistent with their status as hypnotic virtuosos, Connie and Susan responded quickly to the hypnotic induction and positively to all of the hypnotic suggestions. Connie and Susan displayed essentially similar responses in terms of their behavioural performance on the items. Despite this objective similarity, however, their postexperimental comments indicated that meaningful differences in subjective experience were occurring.

Induction and Ideomotor Items

The induction (eye closure) and the hand lowering and moving hands apart items were from the SHSS:C. Both subjects responded positively to these relatively easy suggestions. The hand levitation item involved the suggested raising of the right arm, and the hypnotist suggested that helium balloons were tied to the right wrist; when the hand was at approximately shoulder height, the hypnotist asked the colour of the balloons. Both subjects responded positively to this suggestion, and both reported colours for their balloons. Postexperimentally, the subjects provided vivid descriptions of their subjective experiences. Connie commented: "It was like you could feel every joint and your muscles start moving up. It was kind of a weird feeling." The subjects expressed surprise about the balloons. Connie commented: "I saw these two big huge red balloons", and she noted that she hadn't seen these until the hypnotist asked her about the colour "because I wasn't looking up." Later,

when asked about her favourite item in the session, Connie responded: "The balloons floating in the air. That was pretty cool." Similarly, when asked about her favourite item, Susan responded: "The balloon one. When you asked about the balloons I could tell you, but otherwise I wouldn't have known about them." Susan added that when the hypnotist asked, she just looked and said to herself, "Oh, they're blue."

Visual Hallucination Items

The negative visual hallucination (boxes) item was also from the SHSS:C, and involved suggesting that subjects would see two small boxes on a board, where in fact there were three. The subjects both responded positively to this suggestion, but provided quite different descriptions of their subjective experiences. On the one hand, Connie commented: "When you said I would see two boxes, I like didn't see anything between those two boxes." On the other hand, Susan commented: "It was like you really know there is three, but your mind says 'no.' It's hard to explain, it's like you know, but you block it out. Realistically you know it's there, but you're not letting yourself admit it. Like your mind says 'no, it's not there,' so you can't see it." Susan added that in order to "block out" the third box, "you just tell yourself you don't see it."

The positive visual hallucination (assistant) item was based on McConkey (1984) and involved suggesting that the assistant would be sitting in a chair that was directly opposite the subject. The subjects responded positively to this suggestion. Whereas Connie indicated that the image was not distinct, however, Susan behaved as if the image was clear and vivid. Their subjective comments reflected these different responses, and may also reflect that, whereas Susan had been tested in another hypnosis session by the assistant, Connie had not. In describing her experience, Connie commented: "When I was supposed to see [the assistant] in the chair, she was kind of funny, she was in black-and-white, while everything else was in colour." When asked what she was expecting to see when she opened her eyes, Connie said: "I was expecting to see a person, but I didn't know what she would look like for sure. Maybe that's why it seemed like a fuzzy image. I didn't like have an image that I thought I would see for sure. It was like it just happened when I looked [at the chair]." When the hypnotist asked for comment about the chair, Connie said: "The chair looked like it looks now. It was blue and everything, but there was like a part of it that was missing that was in black-and-white, like where the person was taking up that spot." By contrast, the comments of Susan conveyed a quite different subjective experience. Susan commented: "It's like you can visualise her sitting there. I knew she wasn't there, because I didn't hear the door, but like I could picture her sitting there." When the hypnotist asked for clarification about the nature of the visualisation, Susan said: "The picture of her is kind of both [in my mind and out there on the chair]. I think it in my mind, so I can see her there [in the chair]. I was

expecting her to be in the chair, so that's why I saw her there; it didn't just like happen when I opened my eyes." When the hypnotist asked for comment about the chair, Susan said: "The parts [of the chair] where she'd be I couldn't see, because you were picturing her there."

Negative visual hallucination (faces) was from Bryant and McConkey (1989), and involved suggesting that subjects would see nothing on a series of pages, that in fact had line-drawings of either happy, sad, or neutral faces on them. In addition, the hypnotist asked the subjects to tell him what feeling they experienced as he turned each page. The subjects responded positively to this suggestion, and reported that they saw nothing on the pages. The subjects also displayed apparently incongruous behaviour by giving responses of "happy," "sad," or "neither happy nor sad" that matched completely the 4 happy, 4 sad, and 4 neutral faces that they were shown. That is, the subjects reported that they could see nothing on the pages, but their responses about their feelings were influenced by the visual information that was presented to them. On this item, the subjects reported quite different phenomenal experiences.

In commenting on her experience when being given the suggestion, Connie said: "The picture started to be like absorbed into the page. It was as if the ink was like just being soaked through, and it just started fading." In commenting on the task of reporting feelings in response to the other pages, Connie noted they: "were all blank, but it was weird because like each page made you feel a different way. It was as if, I don't know, it was as if you could sense something was on the page, or you like saw something on the page, but subconsciously." When the hypnotist asked her postexperimentally what was on the pages, Connie said: "I didn't see anything as far as that goes. It was just a feeling, I guess you could say. And it came on pretty fast, it was like you could just sense something right off the bat that like something was taking place, but you couldn't necessarily see something that would make you feel that way." At the end of the session when the hypnotist asked Connie what would stick in her mind about the session, she said: "Turning the pages and having the happy feeling or the sad feeling, that was like different from anything that I've ever done." By contrast, when commenting on her experience of being given the suggestion, Susan said: "You know that there's something there, but your mind says 'no, you're not supposed to see anything.' It doesn't really make sense, but you look around [what you shouldn't see]." When the hypnotist asked her postexperimentally what was on the pages, Susan said: "I think there were faces [on the other pages], but I'm not sure. You imagine a blank page and so you see it there, it's weird to describe."

Circle Anaesthesia

The circle anaesthesia item was from McConkey, Bryant, Bibb, Kihlstrom, and Tatarzyn (1989), and involved suggesting that the subjects would feel nothing in a circular area approximately 1 inch in diameter that the hypnotist drew

on the palm of the right hand. The hypnotist told the subjects that he would touch them a number of times (with a 4.08 g von Frey hair), and asked them to say "yes" when they felt the touch (i.e., outside the circle), and "no" when they did not (i.e., inside the circle). The subjects responded positively to this suggestion, and reported that they felt nothing inside the circle. In response to the touches, Connie displayed apparently incongruous behaviour by responding "no" to 5 of the 6 touches inside the circle (i.e., in the anaesthetised area); she responded "yes" to 1 touch inside (but close to the perimeter of) the circle, and to all of the 6 touches outside the area. In contrast, Susan gave no response at all to 10 of the 12 touches; she responded "yes" to 1 touch inside and 1 touch outside the circle. The comments of the subjects on their phenomenal experiences help us to understand these different patterns of response.

In commenting on her experience when being given the suggestion, Connie said: "It started to feel like tingly, and then it was like I couldn't feel it anymore, like there was a big hole in my hand, just emptiness and stuff." When asked how she responded to the touches, Connie said: "I could feel it in some spots, and in others I couldn't feel it at all, and then there were some spots where I wasn't really sure whether I could feel it or not." By contrast, in commenting on her experience when being given the suggestion, Susan said: "Your mind tells you, 'this is what's going to happen' and so it does. If you like feel a pin-prick or something, it's like 'no, I didn't feel it' because I'm not supposed to." She noted, however, that the sensation of numbness, "was more general around my hand, because the circle wasn't well-defined." Whereas Connie did not, Susan did express concern postexperimentally about the apparently illogical nature of the instructions: "I didn't know when to say 'no,' because like well if I don't feel it how do I know when to do this. Like even if you do feel it, you're telling yourself that you're not. You said 'say yes if you feel it, and no if you don't,' and I remember thinking 'how do I say no if I don't feel it, when I don't know whether or not you actually touched my hand?' I felt like a little bit confused, because logically it wouldn't be right."

Posthypnotic Amnesia

The posthypnotic amnesia item was from the SHSS:C. Both subjects responded positively to the suggestion. Prior to cancellation of the suggestion for amnesia, both subjects reported that they could remember none of the 9 items administered during the session; following cancellation, Connie and Susan reported remembering 6 and 7 of these items, respectively; both reported remembering the remaining items after the hypnotist mentioned them. In commenting on her experience of amnesia, Connie said: "It was like, I didn't really feel anything at the time when you said you would not remember. But later when you asked me questions it was like nothing, like dumbfounded. It was totally erased from anything you had done. It was as if you were

sleeping, but you weren't." By contrast, Susan said: "It was like there was a wall there." When the hypnotist asked about the reversal of the amnesia following cancellation, Susan said: "[The wall went away] when you said you can remember now. It didn't drop or anything, it just wasn't there."

DISCUSSION

We tested two excellent hypnotic subjects on a number of items in order to undertake a single-case comparison study of their behavioural reactions and experiential reports. The methodology of this study is limited in a number of ways, and allows us only to suggest, rather than test, particular interpretations of the data. Further, we should acknowledge that we rely upon, but do not uncritically accept, the verbal reports of the subjects; in this respect, we recognise that problems exist in the elicitation and interpretation of verbal reports (see Nisbett & Wilson, 1977; Sheehan & McConkey, 1982). Nevertheless, a number of themes are apparent from the outcome of this study.

What was the most interesting to the subjects was not necessarily what we thought would be the most interesting to them, or theoretically meaningful to researchers. For instance, the subjects found the balloon aspect of the hand levitation item the most interesting part of the hypnosis session, even though this would seem to be a relatively minor aspect of a simple ideomotor item. This divergence between the weight that the subjects placed on the experience and the importance that we attached to it suggests that researchers should look more closely than they normally do at hypnosis sessions from the subject's point of view. It is, after all, the meaning that subjects place on the communications of the hypnotist, rather than the communications themselves, that determine the behaviour and experience of subjects.

With that perspective in mind, it is clear that Connie and Susan interpreted and processed the suggestions in quite different ways. Whereas Connie was relatively passive in her processing of the suggestions, Susan was cognitively active and reported using various strategies in order to respond positively. The suggested effects "just happened" for Connie, but for Susan they were created by her cognitive efforts. This difference between "happenings" (for Connie) and "doings" (for Susan) lies at the heart of much theoretical debate that occurs in hypnosis (see Sarbin & Coe, 1972). On the one hand, the emphasis of some investigators on processing outside awareness and nonvolitional responding fits Connie well (see Hilgard, 1977). On the other hand, the emphasis of other investigators on goal-directed fantasy and social influences fits Susan well (e.g., Spanos & Chaves, 1989). As noted elsewhere, one of the problems in resolving divergent theoretical views of hypnosis is that different data and different subjects often lend themselves to quite distinct interpretations (Sheehan & McConkey, 1982). The challenge, of course, is for investigators to be able to explain why a particular interpretation is most appropriate in each case.

Although the responses of Connie and Susan were generally similar on the majority of items, subtle differences were apparent that need to be understood. On positive visual hallucination (assistant), the subjects both

hallucinated the assistant sitting in the chair, but the quality of their hallucinations differed markedly. Whereas Connie's hallucination was relatively incomplete, Susan's was complete. Nevertheless, the comments of Connie seemed to indicate a greater belief in the reality of the hallucination than did the comments of Susan. That is, whereas Susan reported that she knew the assistant was not there even though she could see her, Connie displayed greater belief in the presence of the assistant even though she could not see her very well. The interrelationship of completeness of a suggested experience and the belief that a hypnotised individual develops in the virtual reality of that experience is an issue that needs to be examined in greater detail (see also McConkey, Bryant, Bibb, & Kihlstrom, 1989).

Further investigation of the relevance of completeness and belief in suggested experiences would help us to understand also the responses of hypnotised individuals when they are faced with apparently paradoxical situations. On negative visual hallucination (faces), Connie and Susan were asked to indicate the feelings that they had when looking at pages for which they had reported hypnotic blindness. Nevertheless, there was a perfect correspondence between the faces on the pages and the feelings that they reported. Differences were seen between Connie and Susan, however, in their postexperimental comments. Whereas Connie reported that she still did not know what was on the pages and seemed at a loss to explain the feelings that she had, Susan reported she thought that faces were on the pages and she attributed her feelings to these faces. Whether the responses of Connie and Susan were based on the processing outside of awareness of the visual information (for Connie) or on the active denial of the visual information that is nevertheless in awareness (for Susan) is an important theoretical issue (see Kihlstrom, 1987; Spanos, 1986).

Connie and Susan differed also in both their behaviour and experience on circle anaesthesia, which involved the apparent paradox of asking them to say "no" when they did not feel a touch. Connie responded in accord with these instructions, and displayed apparently incongruous behaviour. Postexperimentally, Connie did not appear concerned about the illogicality of the instructions and did not appear to recognise the apparent paradox. By contrast, Susan typically gave no response when the hypnotist touched her in either the anaesthetised or the normal area. Postexperimentally Susan reported that she recognised the illogical nature of the instructions and that she was confused by the instructions. From this perspective, Susan's lack of verbal responses when touched can be explained in terms of the confusion causing her to "play safe" and give no responses when touched. This is not consistent, however, with her behaviour when she reported the feelings conveyed by the pages on the negative visual hallucination (faces) item. In this sense, the behaviour and experiences of Susan point to the issue of intra-individual differences in hypnotic responding that needs to be addressed in greater detail by investigators.

Finally, the present study suggests that theoretically important gains could be made by focusing on the individual differences that exist among high hypnotisable subjects. On the one hand, work is needed to determine the particular patterns of abilities that exist among hypnotic virtuosos (see Brenneman et al., 1989; Register & Kihlstrom, 1986). On the other hand, extending the approach of the present study and focusing on the individual differences that exist in the cognitive styles that high hypnotisable subjects use to process hypnotic suggestions would allow us to better understand hypnosis from the subject's point of view.

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