Enhancing Suggestibility: The Effects of Compliance vs. Imagery

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Specific Aims

For more than 30 years, studies based on a social-learning, cognitive skill model of hypnotic responsiveness have documented appreciable increases on behavioral and subjective measures of susceptibility following hypnotizability modification training (Diamond, 1972; Gfeller, Lynn, & Pribble, 1987; Kinney & Sachs, 1974; Sachs & Anderson, 1967; Springer, Sachs, & Morrow, 1977). By far the most impressive demonstration of training-related increments has come from a body of studies conducted by Spanos and his associates (see Spanos, 1986, for a review). In more than fifteen studies (see Gorassini & Spanos, 1999; Spanos, 1991; Spanos, Lush, & Gwynn, 1989), Spanos has shown that between 50% and 80% of initially low-hypnotizable subjects who underwent a multi-faceted cognitive skill training program (termed herein Carleton Skills Training Program, CSTP) scored as high hypnotizables at posttesting. The CSTP provides participants with accurate information about hypnosis, and uses direct instruction and observation of a videotaped model to teach participants to: (a) physically enact responses, as opposed to waiting passively for the suggested effects to happen to them (Spanos et al., 1986), and (b) use a variety of cognitive and imaginal strategies to facilitate responding to suggestions including goal-directed imagery or fantasies (GDF’s; e.g., imagining a hand rising in response to a helium balloon attached to the wrist) to experience the suggestion-related response as involuntary.

What is particularly impressive is that treatment effects have been of large magnitude, persist for an average of two and a half years after training (Spanos, Cross, Menary, & Smith, 1988), and generalize to novel, demanding test suggestions (e.g., see Acknowledgment: National Institutes of Health (grant no. 1 RO1 MH67483-01). Request reprints from:

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Spanos, 1986). Research in Spain (Cangas & Perez, 1998), Poland (Niedzwieska, 2000), and England (Fellows & Ragg, 1992) has provided cross-cultural support for the effectiveness of the CSTP.

The fact that the CSTP substantially enhances hypnotic responsiveness constitutes support for the sociocognitive model of hypnosis. Sociocognitive theorists (Barber, 1969; Kirsch, 1991; Lynn & Rhue, 1991; Spanos, 1991) conceptualize hypnotic responsiveness as the byproduct of a constellation of potentially modifiable attitudes, beliefs, and expectations, as well as imaginative skills and strategies. Additionally, participants’ accurate interpretation of hypnotic suggestions is posited to be an influential determinant of hypnotizability. According to this view, hypnotic responsiveness is not an immutable trait or propensity locked in at birth. Rather, it can be substantially modified.

Defenders of the idea that hypnosis is largely a trait-like ability or aptitude have criticized the CSTP on the grounds that post-training gains do not reflect valid and enduring enhancements of hypnotizability. More specifically, external demands, social pressure, and expectancies for compliance with suggestions inherent in the training procedures are believed to result in trained subjects simply acquiescing to suggestions in the absence of suggestion-related experiences or genuine modifications in hypnotic responsivity (see Bates, 1990; Bowers & Davidson, 1991; Hilgard, 1989).

Leading hypnosis theorists (Bowers & Davidson, 1991; Gearan, Schoenberger, & Kirsch, 1995; Hilgard, 1989; Spanos, 1986) concur that the issue of how the CSTP works to achieve treatment gains is of paramount importance from a theoretical perspective. Moreover, empirically supported techniques that augment hypnotic responsiveness may have considerable utility that extends far beyond the laboratory: high hypnotizability can confer a wide range of benefits in a variety of treatment contexts (see Lynn, Kirsch, Barabasz, Cardena, & Patterson, 2000).

**Background and Significance**

The findings of the CSTP are particularly impressive not only because of the magnitude of hypnotizability increments obtained, but also because treatment gains generalize to novel suggestions. The CSTP has documented treatment gains in response to novel suggestions with the following instruments or test items: the 7-item Carleton University Responsiveness to Suggestion Scale (CURSS; Spanos, Radtke, Hodgins, Stam, & Bertrand, 1983); a 10-item version of the Stanford Hypnotic Susceptibility Scale, Form C (SHSS: C; Weitzenhoffler & Hilgard, 1962); an “untrained” amnesia item (Spanos, Cross, Menary, Brett, & deGroh, 1987; Spanos, deGroh, & & de Groot, 1987); and finally, difficult test suggestions that are considered “cognitive items” (e.g., analgesia, age-regression, visual hallucination, selective amnesia, and posthypnotic response) and “trance logic” items (Spanos et al., 1989) purported to reflect key aspects of hypnotic responding (Spanos et al., 1988). In these studies, trained subjects’ performance was indistinguishable from that of “natural,” untrained hypnotizable subjects who received the generalization measures. Finally, training gains have been shown to persist for an average of 2.5 years after training (Spanos, et al., 1988).

The magnitude of the training-effect reported by researchers at Carleton University is substantial, and there is a need to determine whether such impressive findings are robust or are specific to the ecological conditions of that particular
laboratory. Indeed, a number of other attempts to investigate the CSTP, outside Spanos’s laboratory: (a) failed to secure impressive and durable treatment effects (Bates, Miller, Cross, & Brigham, 1988); (b) found that treatment gains were achieved on a behavioral measure of performance but not a measure of subjective experience (Bates & Brigham, 1990); and (c) documented treatment gains that were not as impressive as the gains obtained in Spanos’s laboratory (Bertrand, Stam, & Radtke, 1993; Gfeller et al., 1987; low rapport condition; Niedzwienska, 2000). One of the aims of our research is to examine the degree to which treatment gains are robust, generalize to novel test items, and persist across diverse situations.

From a clinical perspective, there is much to be gained by developing procedures to enhance hypnotic responsiveness—thus, effectively turning mediocre subjects into hypnotic “virtuosos.” Gfeller (1993) has written perceptively about ways in which exposure to the CSTP might improve clinical outcomes of a variety of psychological disorders and medical conditions. Moreover, elucidating the effective components of the CSTP can pave the way for the development of more cost-effective training procedures that can benefit a broad clientele.

The issue of whether the CSTP can produce valid enhancements of hypnotizability is important from a theoretical perspective as well, as it bears directly on the trait-versus-situation controversy in the study of personality (Allport, 1966). Proponents of the idea that hypnotizability is dispositional have generally argued that hypnotic responsiveness is best construed as a relatively stable, aptitudinal capacity of the individual (e.g., Hilgard, 1975, 1982; Perry, 1977). In contrast, advocates of the idea that hypnotizability is modifiable (e.g., Diamond, 1972; Spanos, 1986) have maintained that response to hypnotic suggestions is the byproduct of potentially modifiable social-cognitive skills and attitudes. Yet there is no intrinsic conflict between the contention that hypnotizability can be enhanced and the notion that certain personal attributes and abilities related to hypnotizability exist that are stable, enduring, and resistant to modification (Gfeller et al., 1987). An analogy taken from outside the arena of hypnosis may prove useful: IQ is relatively stable, has high heritability, but also has been shown capable of massive population-wide changes (Flynn, 1984).

Perhaps the crucial issue is whether the CSTP actually changes skills and aptitudinal capacities that underlie hypnotic responding, or whether the CSTP functions more like a “coaching program” that engenders compliant performance on specific tests without altering fundamental skills and abilities on an enduring basis. Indeed, there is agreement among hypnosis researchers of diverse persuasion (Bates, 1990; Bowers & Davidson, 1991; Hilgard, 1989; Spanos, 1986) that the question of whether modifications of hypnotizability are valid is important to address. With few exceptions, hypnotizability modification studies have been interpreted as providing support for social-cognitive models of hypnosis while undercutting opposing viewpoints. For example, Fellows (1990) notes that, “The overall impact of Spanos’s work has been to severely undermine the special process view of hypnosis” (p. 83). Despite claims to the contrary, crucial experiments have not been performed that provide a secure basis for ruling out compliance-based explanations of the promising CSTP findings.

**Preliminary Studies**

Preliminary studies relevant to the proposed application have been conducted
since the inception of my laboratory nearly 25 years ago. In fact, my colleagues and I (Gfeller, et al., 1987) conducted the first independent replication of the work done on the CSTP at Carleton University. We succeeded in confirming the magnitude of treatment effects achieved at Carleton when rapport with the trainer was optimized (50% of low hypnotizables tested as highs after training). However, when the trainer administered the CSTP in a formal, impersonal way, the success rate was somewhat lower (25% of low hypnotizables posttested as highs), confirming the direction but not the magnitude of treatment effects previously reported. We also demonstrated that treatment gains generalized not only to the Harvard Group Scale of Hypnotic Susceptibility (HGS$H$: $A$; Shor & Orne, 1962), but also to a battery of novel, demanding suggestions that have been found to differentiate highly hypnotizable subjects from unhypnotizable role-playing (i.e., simulating) subjects (see Orne, 1979 for a discussion of the simulation design).

My colleagues and I (Lynn, Weekes, Neufeld, Zivney, Brentar, & Weiss, 1991) have also shown that low-hypnotizable participants are particularly sensitive to variations in the hypnotist’s behavior, and that hypnotizability can be substantially enhanced by the hypnotist’s efforts to optimize rapport. This is not surprising in that other studies conducted in our laboratory have shown that certain low-hypnotizable participants appear to be motivated to actively and purposefully assert their independence from the hypnotist’s influence when no special efforts are made to cultivate rapport (see Lynn, Rhue, & Weekes, 1990). However, even when we tested low-hypnotizable participants under optimum interpersonal conditions, they were not as responsive as highly hypnotizable subjects tested under less than optimum conditions. Accordingly, the large gains observed following the CSTP are probably not attributable to efforts to increase rapport with the hypnotist.

An important focus of Study 1 is on the relation between imagination, imagery, and hypnotizability. We have conducted many studies over the years on fantasy proneness (see Lynn & Rhue, 1988, for a summary), imagination and goal-directed fantasies (see Lynn & Sivec, 1992), and the link between expectancies, imaginal strategies, and hypnotic responsiveness (Lynn, Snodgrass, Rhue, & Hardaway, 1987). These studies underscore the importance of imagery in hypnotic responding, particularly when accompanied by the expectation that imagery will lead to the enactment of a physical response to a suggestion.

A theme that permeates the proposed studies is that demand characteristics and expectations are powerful determinants of hypnotic responding. Over the years, my colleagues and I have conducted numerous investigations that have documented the influential role of expectancies in relation to the following phenomena: the experience of nonvolition during hypnosis (see Kirsch & Lynn, 1999; Lynn et al., 1990 for a review), hypnotizability (Lynn, Green, Jacquith, & Gasior, 2003; Lynn, Vanderhoff, Shindler, & Stafford, 2002), literalism of responding (Green et al., 1990), and hypnotic pseudomemories (Hirt, Lynn, Payne, Krackow, & McCrae, 1999; Lynn, Lock, Myers, & Payne, 1997 for reviews).

Two of the measures used in the studies proposed, the Posthypnotic Experiences Scale (Brentar, Lynn, & Carlson, 1990; Lynn, Brentar, Carlson, Kurzhals, & Green, 1992) and the Hypnotic Simulation Index (Martin & Lynn, 1996), were developed in my laboratory. The first scale assesses a broad range of positive and negative
posthypnotic experiences, and the second scale is the first instrument to reliably distinguish participants who simulate hypnosis and participants who genuinely attempt to experience hypnotic suggestions. Previous research in my laboratory has shown that highly hypnotizable individuals can be distinguished from low-hypnotizable individuals in terms of measures of nonvolition (Lynn, Nash, Rhue, Frauman, & Sweeney, 1984), “trance logic” (Stanley, Lynn, & Nash, 1986), altered body perceptions (Nash, Lynn, & Stanley, 1984), literalism of responding (Green et al., 1990), and hidden observer responses (Mare, Lynn, Kvaal, Segal, & Sivec, 1994). However, many of these measures do not distinguish a majority of real and simulating persons. Accordingly, it is important to further evaluate the Hypnotic Simulation Index in the proposed studies. In conclusion, previous research conducted in my laboratory provides a strong foundation for the proposed program of research.

Study 1: The Role of Compliance and Imagination

A potentially trenchant criticism of the CSTP is that posttraining gains are attributable to behavioral compliance. For example, Hilgard (1989) contends that the CSTP involves a “great deal of authoritarian pressure” (p. 9) and “persuasive salesmanship” (p. 9), and states, “There can be no question but that demands are made throughout the training for better performance” (p. 10). He further implies that CSTP-related gains result in behavioral compliance in the absence of concomitant subjective experiences.

Bowers and Davidson (1991) note that the crucial question that has not been addressed regarding the CSTP is: “To what extent does this program genuinely enhance hypnotic responsiveness, and to what extent does it provoke outward compliance in the absence of altered experience?” (p. 24). Bates (1990) has observed that CSTP gains may reflect compliance rather than, or in addition to, enhanced hypnotic ability for two reasons. First, participants are informed that the goal of training is to increase hypnotic responsiveness. Second, the procedures themselves indicate that compliance is an essential part of successful hypnotic responding, as exemplified by the following excerpt of the training materials:

Arm Raising Suggestion: “Of course, your arm will not really go up by itself, you must raise it.” Hand Lock Suggestion: “...Do not move your hands apart...You want it to seem that this is not happening through any effort on your part.”

In support of Bates’s critique, two studies (Bates & Brigham, 1990; Spanos et al., 1986) deleted instructional elements of the CSTP and found that treatment gains were compromised as a result. Spanos and his colleagues (Spanos et al., 1986) tested subjects in a “partial training” program that encouraged them to become involved in suggestion-related imagery but did not inform them that suggested responses must be enacted and do not just happen. None of the subjects who participated in this treatment scored in the high-hypnotizability range on two posttest measures. However, when “instructional” information was provided to an independent group of individuals, more than half of the trained participants tested as high hypnotizables.

In a later study (Spanos et al., 1996), participants administered the full CSTP exhibited large increases on objective and subjective dimensions of hypnotizability. In
contrast, participants who received the partial treatment exhibited small but significant increases in hypnotizability but did not differ in their responsivity from no treatment controls. The authors noted that their findings demonstrated that the full CSTP leads to consistently higher scores on behavioral and subjective dimensions of hypnotizability than does the partial CSTP.

Bates and Brigham (1990) administered three components (information, modeling, and instructions) of the CSTP to subjects in one of three sequences. Regardless of whether instructions (i.e., imaginal strategies and instructions to enact responses) were presented first, second, or third in the training sequence, no significant changes occurred until the instructional component was provided. Furthermore, the researchers maintained that because treatment gains were achieved on a behavioral measure of performance but not on a measure of subjective experience, the effects of the training were the product of behavioral compliance. Unfortunately, the authors tested only 12 subjects in total; only 4 subjects were tested in each sequence.

To contest Bates and Brigham’s (1990) argument, Spanos and his colleagues (Spanos et al., 1986) maintained that if compliance were a credible hypothesis, then the subjects they tested in both the complete and partial (instructional-component deleted) treatment conditions would have shown comparable and substantial hypnotizability gains, inasmuch as participants in both groups were exposed to equivalent demands to comply. That is, both groups were told that the goal of training is to improve hypnotic performance. However, Bates (1990) argued that Spanos’s explanation ignores the possibility that the instructional condition contains stronger demands for compliance than any other treatment component and therefore is most predictive of treatment outcome.

Like Bates and Brigham (1990), Gearan et al. (1995) contended that the instructional component consists of instructions to: (a) intentionally enact suggested behaviors, and (b) become involved in suggestion-related imagery. The researchers conducted a component analysis in which they tested the full (original) CSTP treatment versus a treatment in which all references to the need to intentionally enact suggested behaviors were deleted, but imagery instructions were retained.

Gearan et al. (1995) found that both treatments increased objective and subjective responses to hypnosis. Additionally, the two treatments were comparable in terms of response enhancement. However, participants who were exposed to the original CSTP reported an increase in the extent to which they intentionally enacted suggestions, whereas participants in the modified training program reported increased fantasy without voluntary physical enactment. Across conditions, increases in behavioral and subjective responses to suggestion were correlated with increased use of fantasy.

Contrary to both Spanos and his colleagues’ (1986) and Bates and Brigham’s (1990) contention that instructions for physical enactment of responses are needed to engender increases in hypnotizability scores, Gearan et al. (1995) maintained that the critical CSTP ingredient is instructions to actively imagine along with the suggested state of affairs. Instructions for physical enactment increase behavioral compliance, but do not affect overall hypnotic responsiveness. Whereas Gearan et al. (1995) contended that imaginal instructions are crucial to producing hypnotic responses, the findings of a recent component analysis of the CSTP (Niedziwzmiska, 2000) imply that
imaginal strategies are not associated with treatment gains. Niedzwieaska (2000) compared the full CSTP with a “partial” training program that deleted information about imaginal strategies. In this latter condition, participants were “told that the suggested responses must be enacted but could be made to feel involuntary through relaxation and absorption in the hypnotist’s words” (p. 409). Niedzwieaska (2000) found that participants who received the original CSTP responded comparably to participants who received the partial training, suggesting that imaginal strategies do not play a particularly important role in accounting for hypnotizability enhancement.

Furthermore, unlike Gearan et al. (1995), Niedzwieaska (2000) failed to find an association between goal-directed fantasies or imagery and increases in hypnotizability following training. Gearan et al. (1995) concluded that imagery strategies were essential to producing hypnotic response. However, Niedziewska reached a different conclusion. She argued that training in imagery is not necessary for the CSTP to work and contended that “...compliance and social pressure would appear to remain prime candidates for explaining changes in overt and subjective responding following training” (p. 414).

Previous component analyses are difficult to interpret. Both Spanos and his colleagues’ (Spanos et al., 1986, 1996) and Bates and Brigham’s (1990) partial treatments eliminated information regarding imaginal strategies along with instructions to enact physical responses. Indeed, Spanos’s partial treatment excised a great deal of information related to the use of imagery and imaginal strategies in the process of eliminating much of the model’s dialogue with the experimenter in the videotape participants viewed. Whereas Spanos et al. and Bates and Brigham found that the removal of enactment instructions compromised hypnotizability gains, Gearan et al. (1995) found that this was not the case. This discrepancy in findings may be attributable to the fact that Spanos and Bates eliminated imagery instructions in addition to enactment instructions, whereas Gearan et al. (1995) deleted only imagery instructions.

The disparate conclusions reached by Gearan et al. (1995) and Niedziewska (2000) may be attributable to the fact that although Niedziewska (2000) eliminated imaginal strategies from her partial treatment, she did not eliminate instructions to physically enact responses. Accordingly, the retention of the enactment instructions in both conditions might have accounted for the equivalence of responsiveness between subjects who received the full CSTP and those who received the treatment that eliminated imagery. Additionally, there is no mention in Niedziewska’s (2000) report that she eliminated imagery from the suggestions presented during training and the suggestions that participants rehearsed. If she did not eliminate suggestion-related imagery during the training, it could cue imagery in response to suggestions during the posttest, thereby minimizing potential differences between the partial (imagery deleted) and the full CSTP. The failure of researchers to independently manipulate the provision of enactment instructions and imaginal strategy information has rendered the interpretation of previous component analyses ambiguous.

Although Niedziewska (2000) found no evidence for a relation between imagery and increases in hypnotizability in her training program, her measures of imagery were limited to a single question/suggestion that assessed whether an “appropriate goal-directed fantasy” was described. Gearan et al. (1995) also used a single measure of “active imagination” that was included in a more global measure of “interpretive set.” Unfortunately, the measure of active imagination was not measured independently of
other interpretive sets (e.g., resistance, passive responding) and could not be entered into the regression analyses that were conducted.

In summary, previous studies have not independently examined the effects of providing information regarding: (a) the use of imaginal strategies and (b) the provision of information that suggested responses must be enacted. Indeed, the fact that we do not understand precisely how different aspects of the instructional component affect hypnotic responsiveness is one reason why it is difficult to disentangle a compliance-based from an ability-based account of training effectiveness (see Bates & Brigham, 1990). Accordingly, Study 1 will independently manipulate the provision of instructions to enact responses and instructions to implement imaginal strategies and will include a measure of imagery vividness in addition to the measures of interpretive set.

Study 2: Testing the CSTP in Different Situational Contexts

Bates and his associates (Bates et al., 1988) examined the influence of demand characteristics on hypnotizability gains. After two screening sessions, a replication and experimental group received the CSTP program, whereas a control group merely practiced hypnotic responding. The replication group was informed that training and testing were part of the same experiment; the experimental group was told that training and testing were unrelated.

Treatment gains reported by Bates and his associates were not of comparable magnitude to those reported by Spanos and his colleagues, and they were not maintained at follow-up. One reason why Bates may have failed to replicate the effects obtained in Spanos’s laboratory is that subjects failed to master requisite skills. As Bates and his colleagues (Bates et al., 1988) acknowledge, “trainers in this study were discouraged from cultivating rapport, as we feared that this might confound results” (p. 126). Studies have shown that poor rapport can dampen training effects (Spanos et al., 1988), decrease the percentage of subjects who retest as high hypnotizable (Gfeller et al., 1987), and diminish receptivity to training procedures (Cross & Spanos, 1988; Spanos, Flynn, & Niles, 1990). Conducting training under conditions of “low rapport” fails to resemble the real-world conditions in which hypnotists attempt to cultivate rapport with clients, and therefore lack ecological validity.

Research is needed that permits rendering firm conclusions about the role of demand characteristics and the robustness of training effects. As in Bates et al. (1988), participants in Study 2 will be tested in a separate session in either “same” (High Demand) or “different” (Low Demand) context conditions. In the latter context, hypnotizability testing will be conducted as part of an ostensibly separate study in the Decker Nursing School. Study 2 will ensure that adequate rapport is established with the trainers and that the manipulation of demand characteristics is effective.

Spanos has claimed that CSTP-related gains cannot be accounted for entirely in terms of compliance because trained participants and low-hypnotizable participants instructed to simulate or role-play undergoing the CSTP procedures generally do not respond comparably (Spanos et al., 1995; Spanos et al., 1996; Spanos & Flynn, 1989; Spanos et al., 1986). Study 2 includes the following groups: a.) practice-alone controls who do not receive the training; b.) low-hypnotizable individuals who receive the training; c.) untrained highly hypnotizable subjects; d.) low-hypnotizable participants who simulate the performance of subjects who undergo the training procedures; and e.)
simulators who are only told about the CSTP. Simulating and nonsimulating (trained low-hypnotizable) individuals will be tested for hypnotizability in either High Demand or Low Demand conditions. Our studies include a 1-2 month follow-up with the Stanford Profile Scale (Form II; Weitzenhoffer & Hilgard, 1967) to assess the generalization of treatment effects to a variety of novel, demanding suggestions. Participants will also receive measures of response expectancy, posthypnotic experiences, interpretive set, vividness of imagery, relationship with the hypnotist, and an index of hypnotic experiences that discriminates simulating and nonsimulating individuals.

References


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