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EDITORIAL COMMENTARY

It is very pleasing to be able to announce that, commencing with Volume 14, we will be publishing four issues of *Contemporary Hypnosis* each year instead of three issues as at present. This is an important change for the journal and a necessary one if we are to accommodate the increasing numbers of good quality papers that are being submitted for publication. Publishing papers from the BSECH Annual Conference as a special issue, as we have done for the past 2 years, has also put pressure on space. These Conference Special Issues have been very well received and we intend to continue with them, though with some changes. As an innovation, this issue contains the abstracts of all the papers presented at the most recent BSECH/BSMDH Annual Conference as a complete official record in the form of Conference Proceedings. We intend to publish selected papers from that conference in full as a special issue next year. We are also planning a special issue in 1997 based on the main presentations at the recent discussion meeting on 'The Nature of Hypnosis', organized in London by the Ciba Foundation. This international meeting was convened by John Gruzelier and included a paper by him ('A neuropsychophysiological model of hypnosis'), and other presentations by Helen Crawford ('Hypnosis and analgesia: Electrocortical and blood flow evidence'), Leslie Walker ('Hypnosis and immunology'), Eva Banyai ('The interactive nature of hypnosis'), and myself ('Hypnotic susceptibility, or F-bias: Its relevance to eating disorders'). It is perhaps a reflection of a growing acceptance of hypnosis as a valid and important area of study that an organization as influential in scientific circles as the Ciba Foundation was willing to initiate and to sponsor a meeting of this sort.

Important as scientific respectability is to *Contemporary Hypnosis* and to the field of hypnosis generally, as a clinician I am equally impressed by the need to foster and disseminate good clinical research and practice. To the latter end we intend to increase substantially the number of clinical reports we publish and to invite the submission of short review essays on clinically relevant topics. The change to four issues a year will help us to achieve that increase without cutting back in those other areas where we are currently strong. My own brief survey of papers and reports in the journal over the past 5 years shows that we have published 64 on the nature of hypnosis and hypnotic phenomena generally, 23 on clinical research and techniques, and 20 featuring primarily case material. It is noticeable that the number of papers in the two latter categories has been considerably increased by the two Conference Special Issues, which may in part account for their popularity. It is also noticeable that, though dentists form a major group of users of hypnotic procedures, there was only one paper that addressed specifically the use of hypnosis in dentistry. Overall, however, the pattern of increase in clinically related papers in recent years is a healthy base upon which to build. In that positive vein this is also perhaps an opportune moment to thank Tom Kraft for contributing almost one-third of the case reports we have published in the past 5 years.

On a less happy note, we have recently heard of the death of Ken Bowers on 4 July 1996. Ken was an important influence in hypnosis and a strong supporter of *Contemporary Hypnosis*. He will be missed by his many friends and colleagues. We

intend to publish an appreciation of Ken Bowers and his work in a forthcoming issue.

All the papers in this issue were accepted for publication while Brian Fellows was Editor. I am grateful to him for planning so far ahead so effectively.

David Oakley

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SIMULATION, SURREPTITIOUS OBSERVATION AND THE MODIFICATION OF HYPNOTIZABILITY: TWO TESTS OF THE COMPLIANCE HYPOTHESIS

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ABSTRACT

In Experiment 1, two groups of subjects low in hypnotizability were administered the full Carleton Skills Training Package (CSTP) to enhance hypnotizability and two groups were given a partial version of the CSTP, which eliminates information aimed at teaching an active interpretation of suggestions. Half the subjects given the full CSTP and half given the partial CSTP were instructed to fake their way through the training and later hypnotizability post-tests. Simulators in both the full and partial group exhibited equivalently high post-test scores, but non-simulators given the full CSTP attained higher post-test scores than non-simulators given the partial CSTP. These findings suggest that the partial and full CSTP contain equivalent compliance demands and that differences between these procedures in enhancing hypnotizability stems from the interpretational skills taught by the full CSTP. In Experiment 2, hypnotic post-test responding was surreptitiously observed when subjects believed that they were alone. Simulators instructed to fake their way through the CSTP and the post-test stopped responding when they believed they were alone. CSTP non-simulators and subjects who attained high hypnotizability without training exhibited high levels of post-test responding while alone. Together the findings of the two experiments indicate that compliance cannot account adequately for the hypnotizability enhancements induced by skill training.

INTRODUCTION

Hypnotizability is conceptualized by many investigators as involving a stable cognitive capacity that makes it largely resistant to modification (e.g., Perry, 1977). Consistent with this hypothesis, a number of early studies (reviewed by Perry, 1977) found that many training procedures aimed at enhancing hypnotizability produced only small and frequently non-significant gains in hypnotizability scores. As pointed out by Spanos (1986), however, most of these unsuccessful studies were based on the assumption that hypnosis was an altered state of consciousness, and involved attempts to enhance hypnotizability by changing consciousness (e.g., EEG biofeedback, repeated individual inductions).

More recent attempts to modify hypnotizability have usually been based on the sociocognitive hypothesis that hypnotic responding involves learnable cognitive and interpersonal skills rather than fundamental alterations in conscious state (Spanos,

1991). Contrary to the notion that hypnotizability is unmodifiable, many of these studies have demonstrated that cognitive skill training procedures produce large and sustained gains on behavioural and subjective indexes of hypnotizability (Diamond, 1972; Gfeller, Lynn & Pribble, 1987; Gorassini & Spanos, 1986; Sachs, 1971; Spanos, Cross, Menary & Smith, 1988; Spanos, Robertson, Menary & Brett, 1986a). During the past decade, most of the studies in this area have used the Carleton Skills Training Package (CSTP; Spanos, 1986) to modify hypnotizability. The CSTP includes three components; it is aimed at providing information that (1) produces positive attitudes about hypnosis; (2) teaches the use of imaginal strategies for experiencing responses as involuntary; and (3) teaches an active interpretation of suggestions. The interpretational component is of particular importance. It informs subjects that suggested responses do not occur automatically but must be enacted. However, it also teaches subjects how to use imaginal strategies in order to experience their enacted responses as feeling involuntary (Spanos, 1986).

CSTP-induced gains in hypnotizability have now been obtained in a number of independent laboratories outside of the Carleton laboratory (Bates & Kraft, 1991; Bertrand, Radtke & Stam, 1993; Gfeller *et al*., l987; Kirkeby, Payne, Hovanitz & Moser, 1991; Robertson, McInnis & St Jean, 1992), and therefore, the robustness of the phenomenon is well established. The interpretation of CSTP-induced hypnotizability gains, however, remains controversial. The sociocognitive hypothesis (Spanos, 1986, 1990) holds that the CSTP provides subjects with the interpretations and motivations required to subjectively experience and enact the effects called for by hypnotic suggestions (e.g., displays of amnesia, analgesia, age regression). Alternatively, Bates (1990) hypothesized that CSTP training simply motivates subjects to comply with suggested demands in the absence of the subjective experiences called for. More specifically, this hypothesis suggests that subjects who attain high hypnotizability without training (i.e., natural highs) subjectively experience the effects called for by suggestions, and manifest behaviours (e.g., reports of reduced pain) that are congruent with their subjective experiences (i.e., experienced reductions in pain). On the other hand, CSTP trained subjects purportedly manifest suggested behaviours (e.g., reports of reduced pain) in the absence of the corresponding subjective experiences.

A number of studies have examined the compliance hypothesis of CSTP gain using several different paradigms. For instance, two studies (Spanos *et al*., 1988; Spanos, DuBreuil & Gabora, 1991) found that CSTP trained subjects maintained substantially higher levels of hypnotizability than untrained controls months after their training session, and when tested by experimenters who were not involved in their original training. Two other studies (Spanos & Flynn, 1989; Spanos, Lush & Gwynn, 1989) found that skill trained subjects and natural highs performed in the same way on behavioural and subjective indexes of hypnotizability. However, in these studies both the natural highs and CSTP trained subjects performed differently than low hypnotizables who had been explicitly instructed to fake hypnotic responding (i.e., simulators). In addition, Spanos and Flynn (1989) found that these results held even when the simulators had been administered the CSTP with instructions to fake their way through it.

The present study includes two experiments that further assess the possible role of compliance in CSTP-induced hypnotizability gain. Both studies compare simulators to non-simulators who undergo the CSTP. Unlike most previous studies, however, the simulators in the present experiments were instructed to fake their way through CSTP training as well as through the post-tests.

EXPERIMENT 1

Spanos *et al.* (1986) compared low hypnotizables given the full component CSTP with low hypnotizables given a partial CSTP. Subjects administered the partial CSTP were given information aimed at creating positive attitudes toward hypnosis, and information encouraging them to carry out suggestion related imaginings. However, these subjects were not administered the third component of the CSTP: encouragement to interpret suggestions as calling for the active generation of the requisite responses, while at the same time, learning to experience these responses as feeling involuntary. Spanos *et al.* (1986) found that subjects given the full CSTP exhibited higher levels of hypnotizability on post-tests than did those administered the partial CSTP.

Spanos *et al.* (1986) argued that subjects administered the full CSTP exhibited large hypnotizability gains because they had learned how to generate the combination of behavioural and subjective responses required to meet the demands of test suggestions. According to this argument subjects given the partial CSTP, despite learning positive attitudes toward hypnosis, failed to show large hynotizability gains because they had not learned how to both generate the requisite responses and interpret those responses as feeling involuntary.

This hypothesis holds that both the partial and the full CSTP contain strong demands calling for subjects to respond to test suggestions (Spanos, 1990). However, psychological experiments also contain implicit demands for honest and accurate reporting. In hypnosis experiments, responses to suggestions that are experienced as feeling voluntary are usually defined as cheating. By teaching subjects how to generate suggested responses that feel involuntary the full CSTP enables subjects to respond to demands for enhanced hypnotizability without defining themselves as cheating. Subjects administered the partial CSTP have not learned how to enact suggested responses that feel involuntary. Consequently, these subjects tend to ignore strong demands for enhanced hypnotizability because they are unable to meet those demands without simultaneously violating implicit demands for honest responding.

Bates (1990) offered an alternative interpretation. He suggested that the full CSTP contained stronger compliance demands than the partial CSTP and, consequently, that the full CSTP elicited the higher levels of compliant responding.

Low hypnotizable simulators are instructed to fake their way through an hypnotic situation by attempting to behave like responsive hypnotic subjects. To accomplish this goal simulators shape their responses on the basis of their understandings of the demands present in the situation. Simulators are unconstrained by demands for honesty, and instead are explicitly and repeatedly instructed to fake the requisite behavioural responses and subjective reports in the absence of corresponding subjective experiences (Orne, 1979). Because they are unconstrained by implicit honesty demands simulators frequently respond to hypnotic suggestions more strongly than do non-simulators (deGroot & Gwynn, 1989). However, simulators also temper their responses in terms of the strength of the demands present in the situation. For example, Spanos, Burgess, DuBreuil, Liddy, Bowman & Perlini (1995) exposed simulating and non-simulating subjects to two versions of the full CSTP. Subjects in one condition were provided explicitly and repeatedly with the expectation that the CSTP would lead to the development of very high levels of hypnotizabilty. Those in a second condition were informed that the CSTP might enhance hypnotizability somewhat, but that the extent of any such gains were unknown. Both simulators and non-simulators exhibited the same pattern of results; higher post-test hypnotizability scores when exposed to the high expectancy CSTP than the low expectancy CSTP. In

addition, however, simulators given the low expectancy CSTP outperformed non-simulators given the low expectancy CSTP, and simulators given the high expectancy CSTP also outperformed non-simulators given the high expectancy CSTP. In short, simulators outperformed non-simulators exposed to the same expectancy demands, but both simulators and non-simulators also moderated their responses in terms of those expectancy demands.

If, as Bates suggests, the full and partial CSTP differ from one another in terms of the strength of the compliance demands that they contain, then simulators exposed to the supposedly weak demands of the partial CSTP should exhibit lower hypnotizability scores than simulators exposed to the stronger clemands of the full CSTP. In other words, even though simulators are likely to exhibit somewhat higher levels of responding than corresponding non-simulators, both the simulators and non-simulators should exhibit sensitivity to the supposedly weak compliance demands contained in the partial CSTP.

Alternatively, if both the full and partial CSTP contain strong compliance demands along with implicit demands for honesty, then simulators (who it will be recalled are instructed to ignore honesty demands) should exhibit large hypnotizability gains after administration of both the partial and the full CSTP. Non-simulators, on the other hand will remain sensitive to implicit demands for honesty. Consequently non-simulators given the partial CSTP will show relatively low levels of hypnotizability because they have not learned how to create responses that feel involuntary and thereby meet implicit demands for honesty. On the other hand, subjects given the full CSTP will show relatively high hypnotizability because they have learned how to enact responses that will both meet honesty criteria and fulfill demands for heightened responsivity.

Method

Subjects. Fifty-five Carleton University undergraduates (ages 18–39 years) who, in previous testing had attained low scores (0–2) on the objective (O) dimension of the 7-item Carleton University Responsiveness to Suggestion Scale (CURSS:O, Spanos, Radtke, Hodgins, Stam & Bertrand, 1983) volunteered to participate in a three-session hypnosis experiment. All subjects received course credit for their participation.

Procedure. Subjects were randomly assigned to five conditions with the restriction of an equal number of subjects (n = 11) in each condition. Subjects in two conditions were administered the full three-component CSTP, those in two other conditions were administered a two-component partial CSTP, and those in a fifth group were no-treatment control subjects. Immediately before their CSTP session half the subjects given the full CSTP and half given the partial CSTP were administered instructions to simulate their way through the skill training session and also through later post-tests. Within 2 weeks of CSTP administration (or after an equivalent interval for the controls), all subjects were post-tested in groups of 2–5 individuals on the CURSS.

The CURSS assesses three dimensions of hypnotizability. CURSS:O scores range from 0 to 7 and reflect behavioural responsiveness to suggestions; CURSS:S scores range from 0 to 21 and reflect the intensity with which the subjective experiences called for by suggestions were reported; CURSS:OI scores range from 0 to 7 and reflect the extent to which subjects both responded overtly to suggestions and reported their responses as feeling involuntary.

Within 2 weeks of their CURSS post-test all subjects were post-tested a second time using a 10-item version of the Stanford Hypnotic Susceptibility Scale (SHSS:C, Weitzenhoffer & Hilgard, 1962), modified in our laboratory for group administration

(Spanos, Salas, Menary & Brett, 1986b). Like the CURSS, the modified SHSS:C included O (range 0–10), S (range 0–30) and OI (range 0–10) dimensions.

Simulation instructions. All subjects assigned to a CSTP treatment were greeted at the laboratory by a technician, who was a different person than the experimenter conducting the skill training session. The technician informed each subject that she would escort them to a different room where they would meet an experimenter who would administer to them a procedure designed to enhance hypnotizability. All subjects (both simulators and non-simulators assigned to the full and partial treatments) were explicitly informed that '[the trainer] will administer to you a training programme designed to teach people who score low in hypnotizability how to become highly hypnotizable people who are capable of responding very well to hypnotic suggestions.'

Subjects assigned to the simulation conditions were further told that their task was to fake their way through the training session in order to fool the trainer into believing that they were not faking. Following Orne (1979), simulators were told (accurately) that the trainer would know that some subjects were faking, but that she would not know who was who. They were further told (inaccurately) that if the trainer figured out who was faking she would stop the session, and therefore, if the trainer did not stop them they should continue doing whatever they were doing to fool her. Simulators were explicitly told not to fill out questionnaires honestly, and not to report on them their actual feelings, but instead, to fill them out the way that they believed that a real subject exposed to the training would fill them out.

Full/partial CSTP. The CSTP is described in more detail elsewhere (Spanos, 1986). Briefly, it is an individually administered cognitive skill training programme for the enhancement of hypnotizability that takes approximately one and a half hours to administer. Subjects are provided with information designed to demystify hypnosis, and build positive attitudes and expectations about hypnotic responding. Subjects are explicitly and repeatedly informed that, by using the information provided, they can learn to greatly enhance their responsiveness to suggestions. Subjects are also provided with information about how to interpret and respond to hypnotic suggestions. This information is provided directly from the trainer and also from audiotapes and videotapes. Emphasis is placed on the fact that hypnotic responding involves an 'active doing' rather than a 'passive happening'. However, subjects are further informed that involvement in suggestion-related imaginings will enable them to experience their responses to suggestions as happening involuntarily. Subjects also practise responding to several suggestions and are provided with corrective feedback from the trainer.

Subjects administered the full CSTP were given the complete procedure described above. The partial CSTP was taken from Spanos *et al.* (1986). It was the same as the full CSTP with the exception that all information depicting responses to suggestions as requiring goal-directed enactment was omitted from the pre-recorded audio and video information and from all feedback and discussion with the subject. Thus, subjects given the partial CSTP were given information aimed at building positive attitudes and expectations, and practice and encouragement at imagining suggested events. They were also informed repeatedly that they could use the information provided to greatly enhance their hypnotizability.

Results

CURSS scores. Separate 5×2 mixed ANOVAs that contained one between-subjects

variable (simulation-full CSTP/simulation-partial CSTP/full CSTP/partial CSTP/control) and one within-subjects variable (pre-/post-test) were conducted on CURSS:O, S and OI scores. Each ANOVA is described in turn.

CURSS:O. The 5 × 2 ANOVA on CURSS:O scores yielded a significant interaction, $F(4,50) = 29.34$, $P < 0.01$; and the relevant means are shown in Table 1. The simple main effect of condition at the pre-test was non-significant. Within-subjects simple main effects indicated significant CURSS:O increases from pre-test to post-test for the full simulators, $F(1,50) = 157.78$; the partial simulators, $F(1,45) = 120.81$, $P < 0.01$; the full non-simulators, $F(1,45) = 44.53$, $P < 0.01$; and the partial non-simulators, $F(1,50) = 6.54$, $P < 0.05$. The control subjects showed no significant pre-test to post-test changes on the CURSS:O.

Table 1. Baseline and post-test mean CURSS: O, S, and OI scores for subjects in the five groups

Hypnotizability dimension	Condition	Pre-test M	Pre-test S.D.	Post-test M	Post-test S.D.
CURSS: O	Complete simulators	0.82	0.87	6.64	0.51
	Partial simulators	1.46	0.93	6.55	0.93
	Complete non-simulators	1.18	0.75	4.27	2.15
	Partial non-simulators	1.09	0.94	2.27	2.33
	Low controls	1.27	0.65	1.18	1.17
CURSS: S	Complete simulators	3.73	2.87	17.73	3.44
	Partial simulators	4.91	3.24	18.46	2.21
	Complete non-simulators	4.18	2.68	11.27	4.92
	Partial non-simulators	3.18	2.18	6.91	3.89
	Low controls	3.91	3.11	3.46	3.48
CURSS: OI	Complete simulators	0.27	0.47	5.82	1.08
	Partial simulators	0.82	0.87	6.36	0.92
	Complete non-simulators	0.55	0.82	2.82	2.40
	Partial non-simulators	0.36	0.67	1.27	1.79
	Low controls	0.27	0.47	0.27	0.65

n = 11/per group

The simple main effect of conditions at the post-test was highly significant, $F(4,50) = 41.72$, $P < 0.01$. *Post hoc* comparisons (LSD) indicated that the full and partial simulators failed to differ significantly from one another. However, subjects in both of these conditions attained significantly higher post-test CURSS:O scores than subjects in the remaining conditions. In addition, non-simulators in the full condition attained significantly higher CURSS:O scores than non-simulators in the partial condition or than the controls. Non-simulators in the partial condition and controls failed to differ significantly on the CURSS:O.

CURSS:S. The 5 × 2 ANOVA on CURSS:S scores yielded a significant interaction, $F(4,45) = 27.56$, $P < 0.01$; and the relevant means are given in Table 1. The simple main effect of condition on the pre-test trial was non-significant. Within subjects

analyses indicated significant pre-test to post-test increments in CURSS:S scores for the full simulators, $F(1,50) = 138.03$, $P < 0.01$; the partial simulators, $F(1,50) = 129.21$, $P < 0.01$; the full non-simulators $F(1,50) = 35.41$, and the partial non-simulators, $F(1,50) = 9.78$, $P < 0.01$. Control subjects showed no significant pre-test to post-test changes on the CURSS:S. The simple main effect of condition at the post-test was significant, $F(4,50) = 43.88$, $P < 0.01$. *Post hoc* analyses indicated that full and partial simulators failed to differ from one another, but subjects in both of these conditions attained higher CURSS:S post-test scores than subjects in the remaining conditions. The full non-simulators attained higher CURSS:S post-test scores than the partial non-simulators and controls, who failed to differ significantly from one another.

CURSS:OI. The 5×2 ANOVA on CURSS:OI scores also yielded a significant interaction, $F(4,50) = 35.19$, $P < 0.01$; and the means are shown in Table 1. Once again the simple main effect of condition at pre-test was non-significant. Within-subject simple main effects indicated significant gains from pre-test to post-test for full simulators, $F(1,50) = 161.08$, $P < 0.01$; partial simulators, $F(1,50) = 161.09$, $P < 0.01$; full non-simulators, $F(1,50) = 27.06$, $P < 0.01$; and partial non-simulators, $F(1,50) = 4.32$, $P < 0.05$. The controls showed no significant changes from pre-test to post-test on CURSS:OI scores. The simple main effect of condition at post-test attained significance, $F(4,50) = 58.25$, $P < 0.01$; and *post hoc* tests revealed that full and partial simulators failed to differ significantly but attained higher post-test CURSS:OI scores than subjects in the remaining conditions. Full non-simulators attained significantly higher post-test CURSS:OI scores than partial non-simulators and control subjects. Subjects in the latter two groups failed to differ significantly from one another.

SHSS:C scores. Table 2 shows the SHSS:C post-test means for subjects in the five conditions. Separate one-way ANOVAs indicated significant differences between

Table 2. SHSS: C post-test mean scores: O, S, and OI scores for subjects in the five conditions

Hypnotizability dimension	Condition	M	S.D.
SHSS: C: O	Complete simulators	9.09	0.94
	Partial simulator	8.73	1.01
	Complete non-simulators	6.18	2.60
	Partial non-simulators	4.00	2.90
	Low controls	1.73	1.90
SHSS: C: S	Complete simulators	25.55	4.68
	Partial simulators	24.46	4.50
	Complete non-simulators	16.18	7.22
	Partial non-simulators	10.64	7.02
	Low controls	4.73	3.77
SHSS: C: OI	Complete simulators	8.27	2.15
	Partial simulators	8.09	1.87
	Complete non-simulators	4.82	2.89
	Partial non-simulators	2.64	2.46
	Low controls	0.46	0.82

n = 11/per group

conditions for the SHSS:C/O, $F(4,50) = 26.09$, $P < 0.01$; SHSS:C/S, $F(4,50) = 27.17$, $P < 0.0l$; and SHSS:C/OI, $F(4,50) = 27.52$, $P < 0.01$. *Post hoc* tests revealed the same pattern of differences between conditions for each SHSS:C dimension. In the case of each dimension, full and partial simulators failed to differ significantly in SHSS:C scores, but attained higher SHSS:C scores than subjects in any of the remaining conditions. In addition, full non-simulators attained significantly higher SHSS:C scores than partial non-simulators who, in turn, attained significantly higher SHSS:C scores than controls.

Discussion

Among non-simulating subjects, those administered the full CSTP exhibited large hypnotizability gains on all post-test hypnotizability dimensions, and always exhibited higher post-test hypnotizabilty scores than subjects administered the partial CSTP. The partial CSTP subjects exhibited small but significant hypnotizability gains, and on the three SHSS:C dimensions, partial CSTP subjects attained higher scores than no treatment controls. On the CURSS post-test dimensions, however, the hypnotizability scores of the partial CSTP subjects did not differ significantly from the corresponding scores of no treatment control subjects. These findings replicate those of Spanos *et al*. (1986a) in demonstrating that the full CSTP leads to consistently higher scores on behavioural and subjective dimensions of hypnotizability than does the partial CSTP.

Importantly, simulators administered the CSTP exhibited a different pattern of post-test responding than did non-simulators. The simulators in both the full and partial CSTP conditions performed the same way by demonstrating very high scores on all dimensions of both the CURSS and SHSS:C. The subjects in these two conditions did not differ from one another on any hypnotizability dimension and attained higher scores on all dimensions than did non-simulating CSTP and control subjects.

The similarity in the post-test performance of full and partial simulators indicates that these two treatment packages contain equivalently strong and consistent demands for heightened performance on hypnotizability post-tests. Consequently, the difference in the post-test performance of full and partial CSTP *non-simulators* is likely due to factors other than a difference in the strength of compliance demands between these two packages. More specifically, our findings are consistent with the hypothesis that non-simulating subjects given CSTP training are exposed to competing sets of demands: (1) demands to comply with implicit and explicit requests for heightened performance; and (2) demands to report honestly and accurately about experiences and to align behavioural responses to suggestions with the requisite subjective experiences. The full CSTP is designed to teach subjects how to generate behavioural responses to suggestion that are associated with the requisite subjective experiences (e.g., the experience that responses feel involuntary). Consequently, subjects administered the full CSTP can meet demands for heightened responsiveness while, to a substantial degree, also meeting demands to align behaviour and experience and to report honestly and accurately about their experiences.

The partial CSTP (like the full CSTP) is aimed at modifying subjects' misconceptions, attitudes and expectations about hypnosis, and enhancing their motivations to respond to suggestions. However, the partial CSTP provides little if any information about how to generate the combination of behavioural and subjective responding called for by test suggestions. Therefore, subjects adminstered the partial CSTP are much less able than those given the full CSTP to fulfill both demands for heightened

performance and demands for honesty. Because they are inhibited by implicit demands for honest and accurate performance and reporting, subjects administered the partial CSTP respond to strong demands for heightened performance to a much lesser extent than do those administered the full CSTP.

EXPERIMENT 2

Recently, Spanos, Burgess, Roncon, Wallace-Capretta and Cross (1993) tested the compliance hypothesis of CSTP gain using a surreptitious observation paradigm developed by Kirsch, Silva, Carone, Johnston and Simon (1989). Kirsch *et al.* (1989) compared natural high hypnotizables with low hypnotizable simulators. Subjects in both groups were tested on a tape recorded test of hypnotizability, first when they were alone and later with an experimenter in the room. During the alone condition subjects' responses were secretly videotaped with a hidden camera. Kirsch *et al.* (1989) reasoned that if hypnotic responding simply reflects compliance aimed at pleasing the experimenter, then both natural highs and simulators should stop responding to suggestions when they are alone and believe that they are unobserved. Contrary to the compliance hypothesis, the natural highs in the Kirsch *et al.* (1989) study continued to respond while alone whereas the simulators failed to respond when alone but exhibited high levels of responding in the experimenter's presence.

Spanos *et al.* (1993) used the surreptitious observation paradigm to compare natural highs, CSTP trained highs and simulators. The natural highs and the CSTP trained subjects responded in the same way when alone as in the presence of an experimenter. Simulators, on the other hand, responded to few if any suggestions when alone but exhibited high levels of response with the experimenter present. These findings argue against a compliance hypothesis. Instead, they indicate that CSTP trained subjects respond both subjectively and behaviourally to a wide range of suggestions in the same way as natural highs, and like natural highs continue responding in the absence of the demands created by the presence of an experimenter.

In the Spanos *et al.* (1993) experiment the simulators did not undergo CSTP training. Instead, they were simply instructed to fake their way through the hypnotizability post-tests while alone and then again when the experimenter was present. It is possible to argue, therefore, that CSTP training exposed subjects to information that sensitized them to the possibility that they would be observed while post-tested in the alone condition. Because they were not administered the CSTP, simulators would not have been privy to such sensitizing information. Thus, according to this hypothesis, CSTP subjects became suspicious concerning the possibility of surreptitious observation and, therefore, complied with post-test suggestions even in the alone condition. Simulators, on the other hand had no exposure to the sensitizing information supposedly contained in the CSTP and consequently stopped faking when they believed that they were alone.

In the Spanos *et al.* (1993) experiment the hidden camera recorded subjects in the alone condition as they listened to their pre-hypnotic instructions. During this period the CSTP subjects, to the same extent as subjects in the other groups, engaged in various propriety norm violations that would probably not have been carried out if subjects believed that they were under observation (e.g., nose picking). While these findings run counter to the hypothesis that CSTP training made subjects suspicious about being observed, it might still be argued that CSTP subjects became increasingly suspicious as the session progressed and, therefore responded to the suggestions just in case they were under observation.

The present study assessed the hypothesis that the CSTP contains information that sensitizes subjects to the possibility of surreptitious observation by comparing four groups: (1) low hypnotizable controls; (2) natural high hypnotizables; (3) low hypnotizables administered the CSTP; and (4) low hypnotizable simulators instructed to fake their way through the CSTP as well as through the post-test. Simulators are explicitly instructed to attend to cues that inform them about experimental demands. For this reason, they should be at least as likely, and probably more likely than non-simulators to become aware of information in the CSTP that creates suspicion about later surreptitious observation. Thus, this hypothesis predicts that both simulators and non-simulators administered the CSTP will exhibit high levels of post-test hypnotizability responding when alone. On the other hand, a finding that CSTP non-simulators maintain high levels of post-test response, while CSTP simulators stop responding when alone, would contradict this hypothesis.

Method

Subjects. Forty Carleton University undergraduate introductory psychology students who had been previously tested for hypnotizability with the CURSS volunteered to participate in an hypnosis experiment. Thirty of these subjects had attained low CURSS:O scores (0–2) and 10 had obtained high (5–7) CURSS:O scores. All subjects received course credit for their participation.

Procedure. The 30 low hypnotizable subjects were randomly assigned to three conditions with the restriction of 10 subjects in each condition. Those in one condition were individually administered the full CSTP (see Experiment 1) in one session and, 2–6 weeks later, were post-tested twice in succession for hypnotizability in the second session. The hypnotizability post-test was a five-item version of the six-item Hypnotic Aptitude Test (HAT: Botto, Osborne & Brett, 1980). In the first part of the post-test session subjects were tested on the HAT while alone (under surreptitious observation). In the second part of the session, they were readministered the HAT while a experimenter sat with them in the room.

Low hypnotizables in a second condition were administered instructions (similar to those in Experiment 1) to fake their way through the CSTP. Before their HAT post-tests (2–6 weeks after CSTP training) these subjects were readministered simulation instructions informing them to fake their way through the post-test by behaving like someone who had been transformed into a highly hypnotizable subjects following CSTP training.

Low hypnotizables in a third condition served as no-treatment controls and were administered the two HAT post-tests without being administered the CSTP, simulation instructions or other preliminaries. The fourth group consisted of high hypnotizable controls (natural highs) who also completed the two HAT post-tests without preliminaries.

Post-test session. Upon arrival at the laboratory all subjects were met by a technician who was aware of their group assignment. For simulators, the technician read instructions reminding them to once again fake behaving like a low hypnotizable subjects who had been transformed by CSTP training into an excellent hypnotic subject. She then led subjects to a different room and introduced them to the male experimenter

who conducted the HAT post-tests. For subjects in the remaining three groups the technician chatted with subjects for the same amount of time required to read simulation instructions and then escorted subjects to the experimenter. The experimenter who conducted the HAT session was blind to subjects' treatment group, and neither this experimenter nor the technician were the same person who had trained subjects on the CSTP.

The experimenter who conducted the HAT post-tests administered instructions taken verbatim from Kirsch *et al*. (1989), which informed subjects that the session was designed to compare how subjects responded to hypnosis when alone and when an observer was present. Subjects were informed that all procedures would be administered via tape-recording, first when they were alone in the room and then again with the experimenter present. They were also informed that the alone procedure would take about 25 minutes, and that the experimenter would knock before entering the room at the end of that time. Next, the experimenter explicitly instructed subjects not to open their response booklet until the end of the audiotape. He then started the audiotape, left the room and closed the door behind him. Unbeknown to subjects a hidden camera, concealed in the manner described by Spanos *et al*. (1993), videotaped their responses.

At the end of the audiotape the experimenter knocked on the door, re-entered the room and announced that the second part of the experiment would begin immediately. The experimenter then sat to one side of the subject and again played the HAT tape. Subjects were also surreptitiously videotaped during the second HAT administration. Following the HAT session subjects were thanked for their participation and dismissed. After all subjects had been tested, each subject was contacted and debriefed concerning the hidden camera. At this time subjects' permission to view their videotape and use their data was secured. All subjects granted permission.

HAT. The HAT provides a brief assessment of hypnotizability (Botto *et al*., 1980). Following Kirsch *et al*. (1989) we employed a five-item version of the HAT that omitted the final amnesia item. Behavioural response to each HAT item is rated on a 0–2 subscale, and item scores are summed to yield a single behavioural hypnotizability score that can range from 0 to 10. Subjects rate their own behavioural performance at the end of the test session in a standardized response booklet. Following Spanos *et al.* (1993), each subject received two HAT scores for each administration of the scale; a conventional self-rated HAT score and an observer-rated HAT score that was based on observation of subjects' surreptitiously videotaped responses. Two judges who were blind to subjects' treatment assignment, independently rated subjects' videotaped responses to both administrations of the HAT. The two raters agreed in every instance in both the alone and experimenter present conditions.

Results

HAT scores were analysed with a $4 \times 2 \times 2$ mixed Analysis of Variance (ANOVA) that included one between-subjects variable (four treatment groups) and two within-subjects variables (experimenter: absent/present × ratings: self/observer). The three-way interaction was significant, $F(3,36) = 4.58$, $P < 0.01$; and the relevant means are given in Table 3. The three-way interaction was examined further in terms of two group × rating simple interactions, one in the experimenter absent condition and the other in the experimenter present condition.

Table 3. Mean HAT scores for low control, CSTP, high control and simulating subjects in the experimenter absent and experimenter present conditions

	Experimenter absent				Experimenter present			
	S		O		S		O	
Group	M	S.D.	M	S.D.	M	S.D.	M	S.D.
Low	4.20	3.12	3.50	2.80	2.80	2.97	2.60	3.06
CSTP	7.70	2.11	7.00	2.83	8.00	2.11	7.80	1.87
High	7.80	2.25	7.80	1.75	7.20	2.53	7.60	1.96
Sims	8.70	1.418	4.10	4.10	8.60	1.43	8.60	0.88

n = 10/per group; S = self-ratings; O = observer ratings

The group × ratings interaction in the experimenter absent condition was significant $F(3,36) = 7.07$, $P < 0.01$; and examined further in terms of simple-simple main effects of observer and self-ratings at each level of group. As indicated in Table 3, simulators had significantly higher self-ratings than observer ratings, $F(1,36) = 34.16$, $P < 0.01$. In none of the remaining three groups did differences between observer and self-ratings approach significance.

The simple-simple main effects of group at each level of rating was also assessed in the experimenter absent condition. Observer ratings differed significantly across the four groups, $F(3,49) = 4.87$, $P < 0.01$. *Post hoc* comparisons (LSD) indicated that non-simulating CSTP subjects and natural highs failed to differ on observer rated HAT scores. However, subjects in both of these groups attained significantly higher observer HAT scores than did simulators or low controls. Subjects in the latter two groups failed to differ on observer HAT scores.

The simple-simple main effect of group for self-ratings was also significant, $F(3,49) = 4.28$, $P < 0.01$. *Post hoc* comparisons indicated that low controls attained significantly lower HAT self-ratings than subjects in the remaining three groups. No other differences were significant. In summary, while alone in the room the simulators responded to few suggestions but later lied by rating themselves as responding strongly to suggestions. Subjects in the remaining three groups showed no discrepancy between objective and self-ratings. Natural highs and CSTP non-simulators responded strongly to suggestions while alone and accurately reported having done so. Low controls exhibited low levels of HAT responding but also reported only low levels of responding.

In the experimenter present condition, the group × rating simple interaction failed to attain significance. The simple main effect for rating also failed to attain significance. In other words, when the experimenter was in the room neither the simulators nor subjects in any of the other groups exhibited discrepancies between observed and self-rated responses. However, the simple main effect for group was significant, $F(3,72) = 48.55$, $P < 0.01$. *Post hoc* comparisons indicated that low controls attained significantly lower HAT scores than subjects in the remaining three groups. No other differences attained significance.

Discussion

When they believed that they were alone and unobserved simulators frequently failed to respond to the HAT suggestions, but later incorrectly described their behaviour by rating themselves as having strongly responded. In the presence of an experimenter,

however, the simulators exhibited high levels of HAT responding. On the other hand, CSTP trained subjects and natural highs responded strongly to the HAT both when alone and when the experimenter was present, and the self-ratings of these subjects were consistent with observer ratings. These findings replicate those of Kirsch *et al.* (1989) and Spanos *et al.* (1993). In addition, the fact that the simulators in the present study stopped responding when alone despite their exposure to the CSTP, contradicts the hypothesis that the CSTP sensitizes subjects to the possibility of surreptitious observation. Taken together the present findings along with those of Kirsch *et al.* (1989) and Spanos *et al.* (l993) indicate that compliant responding aimed at pleasing (or not disappointing) the experimenter cannot serve as an adequate, sole explanation for high levels of hypnotic responding in either natural high hypnotizables or skill trained subjects. On the contrary, both the natural highs and (non-simulating) skill trained subjects in these studies adopted the hypnotic role and responded to suggestions even when they were unaware that their behaviour was under observation.

In order to understand these findings it is important to keep in mind that simulators are explicitly instructed to fool the hypnotist-experimenter, and discouraged from generating the subjective experiences called for by suggestions. When left alone in a room with no experimenter to fool, the idea of faking responses to tape-recorded suggestions becomes difficult to construe as a meaningful endeavour. Consequently, simulators tend to stop responding under these conditions.

Of course, non-simulating CSTP subjects and natural high hypnotizables may also be motivated, at least in part, to please the hypnotist. Nevertheless, the task assigned these subjects – to fulfill as best they can the behavioural and subjective requirements associated with the hypnotic role – is easily construed as meaningful and worthwhile in the absence of an observing experimenter. In contrast to the situation in which simulators are placed, the hypnotic performances of non-simulators lose a sense of legitimacy to the extent that they are self-defined as faked or cheating. Consequently, both natural highs and non-simulating CSTP subjects are likely to develop some vested interest in generating the subjective as well as the behavioural responses called for, and in enacting such 'genuine' responses regardless of whether an observing audience is present at the time of their performances.

GENERAL DISCUSSION

The present findings, along with those of numerous other modification studies (reviewed by Spanos, 1986, 1991) suggest that hypnotizability is a good deal more modifiable and more strongly related to situationally based demands and understandings, than indicated by some traditional approaches to hypnosis (e.g., Perry, 1977). These studies demonstrate that substantial proportions of people who initially attain low scores on tests of hypnotizability can learn relatively quickly to generate the combination of behavioural and subjective responsiveness to suggestions that constitutes hypnotic responding.

Taken together, the weight of the available evidence also indicates that the increases in hypnotizability consistently produced by the CSTP and by the modification procedures (e.g., Sachs, 1971), cannot be adequately explained in terms of behavioural compliance, or by motivations to please the experimenter. Obviously, these findings should not be construed to mean that compliance plays no role in hypnotic responding or in the gains attained with modification training. On the contrary, much evidence suggests that compliant responding plays an important but not exclusive role in hypnotic responding (see Wagstaff, 1981, 1991 for reviews). However,

several studies further indicate that CSTP trained subjects are no more likely than natural highs to exhibit or acknowledge compliant responding (e.g., Burgess, DuBreuil, Jones & Spanos, 1991; Spanos, Lush & Gwynn, 1989).

The present findings also should not be taken to mean that stable attribute variables play no role in hypnotizability. All modification studies show substantial variability in response to modification attempts, and some of the post-test variability may be related to individual differences on relatively stable cognitive skills or attributes. For instance, two studies (Cross & Spanos, 1988; Spanos, Cross, Menary, Brett & deGroh, 1987) found that the extent to which low hypnotizables showed post-test gains following CSTP training was related to individual differences in pre-training levels of imagery vividness. Low hypnotizables who reported relatively high scores on a pre-training questionnaire index of imagery vividness attained higher post CSTP hypnotizability scores than low hypnotizables with relatively low imagery scores. In summary, the available data suggest that hypnotizability is complex and multidetermined. It is greatly influenced by situationally based attitudes, interpretations and motivations, involves compliant responding to varying degrees and in different combinations with 'genuine' responding, and reflects complex interactions between attribute and situational variables. Future studies might be profitably aimed at further delineating such interactions.

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