body, then it continues to be an error that has been handed down to the present in many areas of medical practice.

Hypnosis affords the union between the mind, the activity of the brain, the soul, and the rest of the body. Indeed, any organ that has a nerve supply through the autonomic nervous system can be influenced by the activity of the brain. Imagery, suggestions, and all that is available from the hypnotic state, can bring about an effect on any and/or every organ of the body. This is the basis of our modern-day hypnotherapy and the use of hypnosis in research. I believe that a study of the ancient healers, as illustrated by Asclepius and Hippocrates, enriches our understanding of the art and science that we are studying together in this 11th Triennial Congress of Hypnosis and Psychosomatic Medicine at The Hague, The Netherlands.

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# RESPONSE EXPECTANCIES AND INTERPRETATIONAL SETS AS DETERMINANTS OF HYPNOTIC RESPONDING

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Before group hypnotisability testing, 220 subjects rated the extent to which they expected to respond to the forthcoming test suggestions. Following an hypnotic induction procedure, but before administration of the suggestions, subjects again rated their expectations (post-induction expectancies). Following administration of the test suggestions subjects rated the extent to which they adopted four different interpretations of test demands: (a) resisting suggestions, (b) passive waiting, (c) active generation, (d) behavioural compliance. Post-induction expectancies correlated more highly with hypnotisability than did pre-induction expectancies. The extent to which subjects adopted an active interpretation also correlated significantly with hypnotisability. Furthermore, among subjects with uniformly high expectations, those who adopted an active interpretation attained significantly higher hypnotisability than those who did not. These findings contradict the hypothesis that response expectancies are the direct determinant of hypnotic responding but are consistent with the notion that hypnotic responding reflects goal-directed action.

A substantial number of studies (e.g., Barber & Calverley, 1969; Shor, 1971) have reported positive correlations between the expectations held by naive subjects concerning their own hypnotic responding, and the levels of hypnotisability that these subjects actually attain. Despite their consistency, the magnitude of these significant correlations has typically been rather low. Spanos (1986a) suggested that subjects who anticipate high levels of hypnotic responding may, nonetheless, differ in how they construe hypnosis and what it involves. Hypnotic suggestions are worded in the passive voice and imply that hypnotic responses are occurrences that happen to people rather than enactments which must be carried out (e.g., "your arm is becoming stiff" as opposed to "stiffen your arm"; Spanos & Gorassini, 1984). Because of their passive wording, some subjects who hold positive expectations concerning

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hypnotic responding may construe suggestions as requests to wait passively for effects to "happen by themselves" (passive interpretation). Others, however, may interpret the same suggestions as tacit requests to generate the subjective and behavioural effects called for (i.e., active interpretation). Spanos (1986a) suggested that subjects who develop active interpretations of suggested demands are more likely than those who develop passive interpretations to respond behaviourally and subjectively to suggestions and, thereby, to attain relatively high hypnotisability scores. Despite high expectations, subjects who hold passive interpretations are relatively likely to fail suggestions and suffer disappointment. According to this hypothesis, low correlations between expectations and hypnotisability may reflect the different interpretations held by even those subjects with uniformly high expectations.

To examine these ideas Katsanis, Barnard, and Spanos (1988) gave subjects brief descriptions of the suggestions they would receive during hypnotisability testing and asked them to predict their forthcoming response to each suggestion. Following hypnotisability testing, subjects were given another description of each suggestion and were asked to choose which of four response alternatives best described the interpretation that they had adopted during the suggestion period. The first alternative described attempting to actively resist suggested effects (i.e., negative subject responding), the second alternative described a passive interpretation, the third described an active interpretation, and the fourth described compliance; carrying out the requisite behavioural response in the absence of the subjective experience called for. By summing each alternative chosen across suggestions, four interpretation scores were obtained for each subject (i.e., negative, passive, active, compliance).

Katsanis et al. (1988) found that subjects tended to overestimate their level of hypnotic responding (i.e., they predicted that they would "pass" significantly more suggestions than they actually "passed"). Nevertheless, expectations and hypnotisability were positively correlated to a significant and moderate degree. Importantly, interpretational set also contributed to the prediction of hypnotisability. Among the subset of subjects who held highly positive expectations toward hypnotic responding, the active interpretation index correlated positively and significantly with hypnotisability scores. Among these same subjects, however, the passive interpretation index correlated significantly and in a *negative* direction with hypnotisability. In other words, subjects with uniformly high expectations showed substantial variability in their hypnotisability scores, and this residual variability was related to the manner in which they interpreted suggestions. Those with high expectations plus an active interpretation attained significantly higher scores on both behavioural and subjective dimensions of hypnotisability than those with high expectations plus a passive interpretation.

Kirsch (1985) and Council, Kirsch, and Hafner (1986) developed an alternative account of the relationship between expectancy and hypnotic responding. According to these investigators response expectancy is a direct determinant of hypnotic responding. Other antecedent variables such as attitudes toward

hypnosis, fantasy ability, interpretations of test demands and the like, effect hypnotisability indirectly through their effects on expectation. To the extent that these variables enhance or diminish expectation they enhance or diminish hypnotisability. The direct determinant of hypnotisability is, however, expectation.

At first glance, the response expectancy hypothesis appears inconsistent with the repeated finding that correlations between expectancies and hypnotisability have been of only low to moderate magnitude. After all, if expectancies directly determine hypnotisability, then the zero-order correlation between these variables should be very substantial. Council, et al. (1986) dealt with this objection by pointing out that all earlier studies assessed expectancies for hypnotic responding *before* subjects were administered the hypnotic induction procedure that precedes the test suggestions of hypnotisability scales. These investigators argued that the administration of an induction procedure is likely to substantially alter subjects' expectations and, thereby, to reduce the correlation between pre-induction expectancies and hypnotisability. Council et al. (1986) assessed expectations for hypnotic responding immediately before administration of an hypnotic induction procedure and, once again, immediately after the induction (but before administration of the test suggestions). In line with their hypothesis, the correlation between post-induction expectancies and hypnotisability measures were signficantly higher than the corresponding correlations between pre-induction expectancies and hypnotisability.

When applied to the findings of Katsanis et al. (1988), the perspective of Council et al. (1986) suggests that interpretational set predicted variance in hypnotisability that was not accounted for by expectancy because Katsanis et al. (1988) assessed expectancy before rather than after the hypnotic induction procedure. On the other hand, the interpretational set hypothesis holds that expectations, while clearly important, are not the final or direct determinant of hypnotic responding. This view suggests that subjects' post-induction expectancies (like their pre-induction expectancies) are likely to be associated with different interpretations, and that interpretations will predict hypnotisability over and above the prediction achieved by post-induction expectancies. The present study tested these hypotheses.

## METHOD

### Subjects

A total of 87 male and 133 female Carleton University undergraduates (ages 18–33) volunteered to participate in a one-session hypnosis experiment. All subjects received course credit for their participation.

### Procedure

Subjects were tested in groups of three to seven individuals. They were briefly informed that they were about to be administered an hypnotic induction

procedure followed by a set of standardised test suggestions. They were further reassured that nothing would be done that would cause embarrassment. The remaining procedure involved four stages: (a) pre-induction assessment of attitudes toward hypnosis and of self-predictions (expectancies), (b) post-induction assessment of self-predictions, (c) administration and self-scoring of the suggestions on the Carleton University Responsiveness to Suggestion Scale (CURSS; Spanos, Radtke, Hodgins, Stam, & Bertrand, 1983), and (d) assessment of interpretational set.

*Pre-induction expectancies.* Subjects were first administered a questionnaire from Spanos, Brett, Menary, and Cross (1987) that assessed their attitudes toward hypnosis, and then a questionnaire from Katsanis et al. (1988) that assessed their self-predictions concerning each of the forthcoming CURSS test suggestions. This CURSS self-prediction (expectancy) questionnaire was organised in the same manner as the standardised post-CURSS questionnaire used by subjects to self-score their actual behavioural response to each suggestion. The CURSS expectancy questionnaire described each of the seven CURSS suggestions that were shortly to be administered. In the case of each suggestion, subjects were asked to indicate whether they believed that they would or would not respond. For example, the forthcoming arm levitation item on the CURSS was described as follows:

> You will be told repeatedly that your arm is becoming lighter and lighter and that it rises higher and higher. You will also be asked to imagine that your arm is like a balloon and to imagine that air is being pumped into it. The suggestion that your arm is becoming lighter and rising will continue for 50 seconds. At the end of the suggestion, do you believe that your arm will have risen *at least six inches*?
>
> Circle one: A. My arm will have risen at least six inches.
>
> B. My arm will have risen less than six inches.

For each of the seven suggestions the *A* alternative described a "pass" response and the *B* alternative described a "fail" response. A single CURSS pre-induction expectancy score was obtained for each subject by summing across the *A* alternatives. Thus, a score of zero indicated that subjects expected to fail every suggestion while a score of 7 indicated that they expected to pass all of them.

*Post-induction expectancies.* Following completion of the pre-induction expectancies questionnaire, subjects were asked to close their eyes and were administered the standard hypnotic induction procedure that normally precedes the CURSS test suggestions. The induction and all further suggestions were presented via audiotape. At the end of the hypnotic induction but *before* the administration of test suggestions, subjects were instructed to open their eyes while remaining hypnotised. They were then readministered the expectancy questionnaire (now called the *post*-induction expectancy questionnaire). Following completion of the questionnaire subjects again closed their eyes and were given a further 2 min of induction instructions in order to reintroduce a hypnotic set.

*CURSS assessment.* Following the post-induction questionnaire and added induction instructions, subjects were administered the CURSS test suggestions. Immediately after this subjects self-scored their responses to each of the seven suggestions. Two CURSS scores were obtained for each subject. A CURSS:*O* (objective) score reflected the number of suggestions to which subjects made the appropriate overt response, and ranged from 0 (no suggestions passed) to 7 (all suggestions passed). CURSS:*S* (subjective) scores reflected the degree of subjective response elicited by each suggestion and ranged from 0 (no subjective experience) to 21 (high subjective experience).

*Interpretations.* Following self-scoring of the CURSS subjects were administered a final questionnaire taken from Katsanis et al. (1988) that again briefly described each test suggestion and asked subjects to choose one of the four alternative interpretations associated with each suggestion. For example, the arm levitation suggestion and accompanying alternatives were described as follows:

> You were told repeatedly that your arm is becoming lighter and lighter and that it rises higher and higher like a balloon.
>
> Circle one:
> A. I prevented my arm from rising.
> B. I imagined my arm pumped up with air and I waited to see if it rose. I did not try to prevent it from rising and I did not help it rise. I just waited to see if it rose by itself.
> C. I raised my arm and I imagined air being pumped into it so as to make it feel like it was light and rising by itself.
> D. I raised by arm, but I did not imagine air being pumped into it making it rise by itself.

These four alternative interpretations were respectively labelled: A, Negative; B, Passive; C, Active; and D, Compliance. The number of A, B, C, and D alternatives chosen by each subject were summed to yield a single Negative, Passive, Active, and Compliance score for each subject.

## RESULTS

Table 1 shows the means for each variable assessed in the study. A comparison between pre-induction expectancy scores, post-induction expectancy scores, and CURSS:*O* scores was significant, $F\ (2,657) = 510.68$, $p < .01$. Post hoc analysis (Newman Keuls) indicated that before the induction and again after the induction, subjects overestimated the number of CURSS suggestions that they would pass. The difference between pre- and post-induction expectancies, however, was not significant. This table also indicates that the most common interpretation of suggested demands was to simply wait passively for suggested effects to happen.

**Table 1** Means and Intercorrelations Among All Variables

| Variable | Mean | *SD* | | Variable | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Attitudes | 70.62 | 11.67 | 1 | .22 | .19 | .26 | .20 | −.20 | .03 | .13 | −.08 |
| Pre-induction expectancies | 3.31 | 1.69 | 2 | – | .46 | .26 | .20 | −.06 | −.02 | .13 | −.08 |
| Post-induction expectancies | 2.99 | 2.07 | 3 | | – | .48 | .47 | −.07 | −.13 | .24 | −.03 |
| CURSS:*O* | 2.12 | 1.83 | 4 | | | – | .75 | −.09 | −.22 | .41 | −.10 |
| CURSS:*S* | 6.47 | 4.08 | 5 | | | | – | −.16 | −.12 | .41 | −.18 |
| Negative score | 0.47 | 1.16 | 6 | | | | | – | −.53 | −.28 | .14 |
| Passive score | 4.58 | 1.71 | 7 | | | | | | – | −.52 | −.47 |
| Active score | 1.39 | 1.35 | 8 | | | | | | | – | −.16 |
| Compliance score | 0.29 | 0.86 | 9 | | | | | | | | – |

*Note.* All absolute $r$ values $> .13$ are significant at $\alpha = .05$.

The intercorrelations among all of the variable are also given in Table 1. Although pre- and post-induction expectancies correlated significantly with one another, the correlation was only moderate in magnitude. Both pre-induction and post-induction expectancies correlated significantly with CURSS:*O* and CURSS:*S* scores. Importantly, however, the correlation between post-induction expectancies and CURSS:*O* scores was significantly higher than the correlation between pre-induction expectancies and CURSS:*O* scores, $t$ (217) = 3.45, $p < .05$. Similarly, post-induction expectancies and CURSS:*S* scores correlated more highly than did pre-induction expectancies and CURSS:*S* scores, $t$ (217) = 4.22, $p < .05$. In short, we replicated Council et al.'s (1986) finding that post-induction expectancies correlated more strongly with hypnotisability than did pre-induction expectancies.[1]

With regard to interpretations of test demands, our most important findings indicate that CURSS:*O* and CURSS:*S* scores correlated significantly and in a positive direction with the active interpretation index. On the other hand, the correlations between both CURSS dimensions and the passive interpretation index, although significant, were small and in a negative direction. Attitudes toward hypnosis also correlated significantly and positively with both CURSS dimensions.

Interestingly, both pre- and post-induction expectancies correlated significantly with attitudes toward hypnosis and with the active interpretation index. Moreover, the correlation between post-induction expectancies and the active interpretation index was twice as high as the correlation between pre-induction expectancies and the active interpretation index.

According to response expectancy theory (Kirsch, 1985), post-induction expectancies constitute the direct determinant of hypnotisability. Variables like attitudes toward hypnosis and interpretational set contribute to the prediction of hypnotisability *only* through their influence on subjects' expectations. Consequently, attitudes and active interpretations should not augment the prediction of hypnotisability beyond the level achieved by post-induction expectancies alone. Alternatively, the interpretational set hypothesis indicates that subjects with the same expectancies are likely to hold different interpretations of suggested demands. Active interpretations are likely to facilitate hypnotic responding while passive interpretations are not likely to do so. Consequently, knowledge of subjects' interpretations is likely to add significantly to the prediction of hypnotisability even after the effects of expectations have been taken into consideration.

We examined these rival hypotheses by conducting two multiple regression analyses. CURSS:*O* was the criterion variable in one case and CURSS:*S* was the criterion in the other. For both analyses post-induction expectancies were forced into the regression as the first predictor. The order in which attitudes and the active interpretation index were entered was determined in stepwise fashion by the regression program. The response expectancy hypothesis predicted that the latter two variables would not add significantly to the prediction of hypnotisability by post-induction expectancies. The interpretational set hypothesis held that the active interpretation index would predict variance in hypnotisability that was not accounted for by post-induction expectancies.

Table 2 shows the results of the regression analyses and indicates that both attitudes and the active interpretation index added significantly to the prediction of CURSS:*O* scores by post-induction expectancies. The active interpretation index also added significantly to the prediction of CURSS:*S* scores by post-induction expectancies. In this case, however, attitudes did not enhance prediction beyond the level attained by post-induction expectancies. In order to examine this issue further we selected only those subjects with post-induction expectancy scores above 4. These 31 high post-induction expectancy subjects were then divided into those who reported an active interpretation to one or more test suggestions ($N$ = 19), and those who did not report an active interpretation to any suggestion ($N$ = 12). These two groups failed to differ significantly in their level of post-induction expectancy, $t$ (29) = 0.93, $p > .10$. Nevertheless, those who reported active interpretations, $M$ = 4.53, $SD$ = 1.58, attained significantly higher CURSS:*O* scores than those who did not report such interpretations, $M$ = 2.42, $SD$ = 1.78, $t$ (29) = 3.45, $p < .01$. Relatedly, those who reported active interpretations, $M$ = 11.05, $SD$ = 3.31, also attained significantly higher CURSS:*S* scores than those who never reported such interpretations, $M$ = 8.33, $SD$ = 3.63, $t$ (29) = 2.15 $p < .05$.

**Table 2** Multiple Regression of Post-induction Expectancies, Active Score, and Attitudes on CURSS:*O* and CURSS:*S* Scales

| | Variables in Regression | Multiple $R$ | $F$ Value for Increase in $R^2$ |
|---|---|---|---|
| CURSS:*O* | 1 Post-induction Expectancies | .48 | $F$ (1,218) = 65.60, $p < .01$ |
| | 2 Post-induction Active Score | .57 | $F$ (1,217) = 28.72, $p < .01$ |
| | 3 Post-induction Attitudes | .58 | $F$ (1,216) = 4.88, $p < .05$ |
| CURSS:*S* | 1 Post-induction Expectancies | .47 | $F$ (1,218) = 62.85, $p < .01$ |
| | 2 Post-induction Active Score | .56 | $F$ (1,217) = 28.94, $p < .01$ |
| | 3 Post-induction Attitudes | .57 | $F$ (1,216) = 1.41, ns |

## DISCUSSION

Like most earlier studies (e.g., Barber & Calverley, 1969; Melei & Hilgard, 1964; Shor, 1971; Spanos et al., 1987) we found that pre-induction attitudes and expectations correlated significantly, but to only a low degree, with hypnotisability. We also replicated Council et al.'s (1986) finding that post-induction expectancies were more highly correlated with hypnotisability than were pre-induction expectancies. However, our most important findings indicated that subjects with uniformly high post-induction expectations often held different interpretations about hypnotic responding. Moreover, those who held active interpretations attained higher scores on behavioural and subjective indexes of hypnotisability than did those who approached hypnotic suggestions passively. Consequently the extent to which subjects held active interpretations correlated significantly with hypnotisability, even after the effects of post-induction expectations were statistically controlled.

These findings are inconsistent with the hypothesis that response expectations constitute the direct or final determinant of hypnotisability (Kirsch, 1985). Alternatively, these findings support the hypothesis that hypnotic responding involves strategic enactment (Spanos, 1986b). According to this notion responses to hypnotic suggestions are goal-directed actions. Hypnotic responding is viewed as a "doing" or achievement rather than as an automatic "happening" or occurrence (Coe & Sarbin, 1977). Subjects who develop active interpretations of suggested demands tacitly define suggestions as requests to generate the behaviours and experiences called for. As a result, they engage to the best of their abilities in the requisite cognitive, imaginal, and motoric activities.

Waiting passively was, by far, the most common interpretation reported by subjects. Moreover, many subjects who held passive interpretations responded poorly to test suggestions even when they held relatively positive

attitudes toward hypnosis and positive response expectations. According to the strategic enactment hypothesis these subjects lacked the appropriate interpretational set. If this was the case, then it should be possible to substantially enhance hypnotisability in such subjects by providing them with an active interpretational set towards the demands of test suggestions. A number of recent studies (e.g., Gorassini & Spanos, 1986; Spanos, Robertson, Menary, & Brett, 1986) obtained support for this hypothesis by exposing low hypnotisables to a single session training procedure that emphasised the development of positive attitudes and an active interpretation of suggestions. In all of these studies (reviewed by Spanos, 1986a), subjects given active interpretation information showed very large gains on behavioural and subjective dimensions of hypnotisability. Importantly, however, the inculcation of positive attitudes toward hypnosis, in the absence of active interpretation information, did not boost hypnotisability scores to any appreciable degree (Spanos et al., 1986).

Although subjects who consistently reported passive interpretations frequently failed suggestions, a few of these "passive reporters" attained relatively high hypnotisability scores. At least two hypotheses can be offered to account for this finding. First, it might be argued that behavioural responses to suggestions do, in fact, occur automatically in some subjects who simply imagine along with the suggestions (i.e., the ideo-motor hypothesis of suggested responding). A number of studies designed to test this hypothesis have consistently failed to support it (Kirsch, Council, & Mobayed, 1987; Lynn, Nash, Rhue, Frauman, & Sweeney, 1984; Lynn, Snodgrass, Rhue, & Hardway, 1987; Spanos, Cobb, & Gorassini, 1985; Spanos, Weekes, & de Groh, 1984). Even very highly hypnotisable subjects in these studies moderated their responses in terms of what they believed the hypnotist wanted rather than in terms of what they were imagining.

The second hypothesis suggests that some subjects responded in an active manner to suggestions but remained unaware of having done so (Spanos et al., 1985; Gorassini, 1987). This hypothesis is based on the more general proposition that people frequently do not have access to the psychological processes that determine their behaviour (Gilbert & Cooper, 1985; Nisbett & Wilson, 1977; Wilson, 1985). When applied to the hypnotic context, this notion holds that subjects given suggestions may frequently respond to these communications without, at the time, reflecting on the reasons or causes for their enactments. Later, when asked to reflect back on what previously occurred, these subjects are likely to make their causal inferences on the basis of the most salient information in the context (e.g., the passive wording of suggestions) and their tacit theories of hypnotic responding (e.g., hypnotic responding occurs automatically). Consequently, these subjects may actively generate their hypnotic enactments but later come to believe that these same responses "just happened automatically."

The finding that post-induction expectancies correlated more highly with hypnotisability than did pre-induction expectancies need not imply that post-induction expectancies were the direct determinant of hypnotisability. Instead, this finding may be related to the fact that subjects who are given an hypnotic induction serve as observers of their own responses to the induction. Hypnotic induction procedures consist largely of repeated and interrelated suggestions to slow down breathing, relax the limbs, feel one's head becoming heavy, and so on. Subjects undoubtedly gauge their level of responding to these induction suggestions and they probably use this information to revise their estimates concerning how they will respond to the forthcoming test suggestions. Response to induction suggestions and response to test suggestions are most probably correlated. Consequently, subjects' post-induction expectancies, based as they are on self-observed response to induction suggestions, are likely to correlate more highly with hypnotisability than do pre-induction expectancies.

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[1] Hotelling's $T^2$ was used to compare the means for males and females on each variable in Table 1, and indicated no significant sex differences. Relatedly, the correlations among all of the variables in Table 1 were computed separately for males and females. The corresponding correlations for the two sexes were always in the same direction and none of these correlations differed significantly from one another.

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# SKILL TRAINING AND TRAINER/SUBJECT RAPPORT IN HYPNOTISABILITY GAIN

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Low hypnotisable subjects in one condition were administered skill training aimed at enhancing hypnotisability under conditions of high trainer/subject rapport. Low hypnotisables in two other conditions were administered the same training by a trainer who behaved in a rude and disinterested manner in order to foster low rapport. High rapport subjects attained large increments on behavioural and subjective indexes of hypnotisability whereas low rapport subjects exhibited no significant changes in hypnotisability. Before their final hypnotisability post-test, subjects in one of the low rapport conditions were administered an apology for the rudeness of the trainer and an exhortation to use what they had been taught in training to enhance performance on the last post-test. These instructions failed to influence post-test hypnotisability. These findings demonstrate the important role of rapport in skill training and suggest that rapport operates by motivating subjects to attend to and acquire the information transmitted during skill training.

A large number of studies (reviewed by Spanos, 1989) now indicate that skill training procedures, aimed at enhancing subjects' attitudes toward hypnosis and teaching them to adopt an active interpretation of suggested demands, produces substantial increases on behavioural and subjective indexes of hypnotisability. Nevertheless, not all subjects who undergo skill training exhibit large hypnotisability gains. Instead, subjects exhibit wide variability in the extent to which they respond to hypnotisability post-tests following training. Although individual differences in hypnotisability gain are probably a function of several different factors (Spanos, 1986), one potentially important variable appears to be the degree of rapport that develops between trainer and subject. Gfeller, Lynn, and Pribble (1987) found that subjects' ratings of liking for their trainer predicted the degree of training-induced hypnotisability gain, and

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Cross and Spanos (1988) found that both subjects' ratings of rapport and trainer ratings of rapport predicted such gains.

Bates, Miller, Cross, and Brigham (1988) failed to attain large hypnotisability gains with skill training. However, they pointed out that their trainers attempted to minimise the degree of rapport developed with subjects and argued that high levels of rapport were likely to induce compliance. According to this hypothesis the high levels of hypnotisability gain reported in earlier studies (e.g., Gorassini & Spanos, 1986) reflected behavioural compliance produced by strong trainer/subject rapport rather than a training-induced ability to generate the subjective experiences called for by test suggestions.

In order to test the rapport hypothesis, Spanos, Flynn, and Niles (1990, experiment 1) administered skill training to low hypnotisables in one treatment and a relaxation-imagery training procedure that did not teach an active interpretation of suggestions to low hypnotisables in another treatment. Subjects in both treatments were informed that their respective training would enhance their hypnotisability. Moreover, subjects in both treatments assigned their respective trainers equivalent (and high) ratings on such dimensions as warmth, friendliness, interpersonal trust, etc. Nevertheless, only subjects administered the skill training exhibited significant post-training enhancements in hypnotisability. These findings clearly contradict the hypothesis that demands for enhanced hypnotisability coupled with high trainer/subject rapport are sufficient conditions for the attainment of high hypnotisability.

In a second study, Spanos et al. (1990, experiment 2) found that rapport, despite not being sufficient, was an important determinant of hypnotisability gain. In this study low hypnotisables in one treatment were administered skill training under conditions of high rapport while low hypnotisables in a second treatment received skill training under low rapport conditions. In order to achieve low rapport the trainer greeted subjects curtly and maintained a posture of irritated boredom and disinterest throughout the training procedure. Subjects administered the low rapport condition rated the trainer significantly less positively than those in the high rapport condition. Moreover, only those in the high rapport condition showed significant enhancements on hypnotisability post-tests.

The present study was designed to replicate and extend that of Spanos et al. (1990, experiment 2). Low hypnotisables in one treatment received skill training under high rapport conditions, whereas low hypnotisables in two other treatments received skill training under low rapport conditions. Following skill training all subjects were post-tested first on the Carleton University Responsiveness to Suggestion Scale (CURSS; Spanos, Radtke, Hodgins, Stam, & Bertrand, 1983) and later on a version of the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962) modified in our laboratory for group administration and for the self-scoring of subjective as well as objective responding (Spanos, Salas, Menary, & Brett, 1986).

Subjects trained under low rapport conditions might fail to achieve high post-test scores for at least two reasons. On the one hand, these subjects may have been unmotivated to attend to the training information and, as a result, have failed to learn how to enhance hypnotisability. On the other hand, subjects may have learned the relevant skills but, because of negative feelings toward the trainer, failed to translate what they learned into post-test increments. If this is the case, then procedures aimed at ameliorating subjects' negative feelings may lead to post-test performance increments, even in the absence of further training.

To examine these ideas, subjects in one low rapport treatment of the present study were administered an apology before their second post-test. These subjects were informed by the experimenter who administered the post-test that their trainer had had a "bad day" and wished to apologise for her rude behaviour during the training session. These subjects were asked to try their best to remember what they had been taught during training and to try to apply it in their upcoming session. Subjects in the other negative rapport condition did not receive an apology before their second post-test.

## METHOD

### Subjects

Subjects were 40 Carleton University undergraduate volunteers (17 males, 23 females) who, in previous testing, attained a score in the low range (0–2) on the objective (*O*) dimension of the CURSS. All subjects received course credit for their participation.

### Procedure

Subjects were randomly assigned to four conditions with the restriction of an equal number ($N = 10$) in each condition. Subjects assigned to the first condition (high rapport) received the Carleton University Skill Training Program (CSTP; Spanos, 1986) under standard, high rapport conditions. Subjects in the second (low rapport) and third (low rapport plus intervention) conditions received the CSTP under conditions designed to minimise rapport. Within two weeks of their CSTP session subjects were post-tested on the CURSS. Within two weeks of their CURSS post-test they were post-tested a second time on the SHSS:C. No treatment control subjects were administered the two post-tests without any intervening treatment. Subjects in the low rapport plus intervention condition were administered a brief apology for the behaviour of their trainer immediately before being post-tested on the SHSS:C. The female experimenter who post-tested subjects was unaware of their treatment assignment during the first post-test. She was, however, aware of the treatment assignment of those in the Negative Rapport plus intervention Condition during the second post-test. The CURSS and SHSS:C post-tests were administered via audiotape. The CURSS was administered to subjects in small groups of

two to five individuals. The SHSS:C was administered to subjects individually. Both the CURSS and modified SHSS:C scales yielded an objective (*O*), subjective (*S*), and objective-involuntariness (*OI*) score for each subject. *O* scores reflect the number of suggestions "passed" behaviourally, *S* scores reflect the intensity of subjective response to suggestions, and *OI* scores reflect the number of behavioural "pass" responses that were experienced as involuntary.

**The CSTP**

The CSTP was individually administered to each subject in a single session of approximately 75 min duration by a single female trainer. The CSTP is described in more detail elsewhere (Gorassini & Spanos, 1986; Spanos, 1986). Briefly, subjects were provided with information aimed at removing misconceptions about hypnosis and inculcating positive attitudes toward hypnosis. Subjects were also encouraged to become absorbed in the imaginary situations described in the test suggestions or to devise suggestion-related imaginings of their own. Finally, subjects were informed that responses to suggestions do not "just happen" but, instead, must be enacted. Emphasis was placed on the idea that enacted responses could be made to feel involuntary through absorption in suggestion-related imaginings. The training information was presented to subjects both by the trainer and a videotaped model. Subjects were also given several practice suggestions and following each suggestion were given appropriate reinforcement and corrective feedback.

**Rapport**

In the high rapport treatment the trainer behaved throughout administration of the CSTP so as to appear to the subject as a warm, friendly, considerate person within the bounds of an episodic, task-oriented trainer–trainee relationship. Thus the trainer greeted the subject warmly and exhibited interest both in what she was trying to teach and in the subject. She smiled frequently, maintained appropriate eye contact, and offered praise, encouragement, and reassurance. She did not criticise, use sarcasm, or appear bored by the procedure. She memorised all instructions, and presented them while maintaining eye contact rather than reading from a script. All of these rapport enhancing procedures are used in a standardised way when administering the CSTP in the Carleton Hypnosis laboratory, and the trainer made no attempt to introduce new rapport enhancing procedures.

The procedures used to minimise rapport in the low rapport treatment were taken from Spanos et al. (1990, experiment 2). The trainer greeted subjects coolly, minimised eye contact, and did not thank subjects for coming or engage in any verbal pleasantries. Throughout the CSTP administration the trainer attempted, by mannerisms and vocal inflection, to convey the impression of bored disinterest in both the subject and the proceedings. All instructions were read in a monotone while looking at the instructions rather than the

subject. When providing feedback the trainer's replies were curt and an attempt was made to convey an attitude of irritated disinterest.

At the termination of the CSTP the trainer left the room and subjects were administered two questionnaires designed to assess their rapport with the trainer. The questionnnaires were administered by an experimenter other than the trainer who informed subjects that their honest impressions of the trainer would be helpful and would enable the laboratory to refine its procedures and, thereby, benefit future subjects. Both questionnaires were taken from Jourard (1971). One questionnaire assessed subjects' trust in the trainer, and the other assessed subjects' degree of positive or negative feelings toward the trainer. On both questionnaires higher scores indicate relatively higher rapport with the trainer. Both scales were used by Spanos et al. (1990, experiment 2) who provide details concerning scoring.

### Low Rapport Intervention

Before subjects in the low rapport intervention group were administered their second (SHSS:C) post-test they were administered the following instruction:

> After seeing your scores on the last test I realized that something may be wrong because you didn't show improvement, so I talked to your trainer. She told me that it had been a very hard day for her and a good many things had gone wrong, and she thought that she was rude and inattentive and she'd like me to apologise to you for that. I'd like to ask you to please try to put aside the way she behaved. I know she shouldn't have behaved the way she did and there is no excuse for it, but I'd appreciate it if you could please try to accept my apologies for what happened and try to think back to what you were taught in that session in order to respond successfully to the suggestions in the upcoming session.

## RESULTS

A one-way ANOVA indicated significant differences between mean scores on the Trust in the Experimenter Scale for the Standard CSTP, Low Rapport, and Low Rapport with Intervention treatments groups, $F(2, 27) = 16.08$, $p < .001$. Post hoc analyses (Newman Keuls) indicated that subjects in the Standard CSTP treatment, $M = 84.30$, $SD = 7.17$; rated the trainer as significantly higher on trust than did those in the low rapport CSTP treatment, $M = 56.60$, $SD = 12.63$, or those in the low rapport condition with intervention, $M = 63.90$, $SD = 13.18$. The means of the latter two groups did not differ significantly.

A second ANOVA on the Positive feelings toward the experimenter variable was also significant, $F(2, 27) = 17.99$, $p < .001$. Post hoc analyses indicated that Standard CSTP subjects, $M = 168.4$, $SD = 15.05$, ascribed significantly higher positive feelings toward the trainer than did those in the Low Rapport CSTP treatment, $M = 115.30$, $SD = 23.65$, or those in the Low Rapport with

Intervention group, $M = 130.00$, $SD = 21.62$. Subjects in the latter two treatment groups did not differ significantly in their ratings of positive feelings for the trainer.

## Hypnotisability

*Treatment effects on CURSS dimensions.* Separate 4 × 2 (treatment × trials) mixed ANOVAs performed on the three CURSS dimensions indicated significant interactions for the CURSS:*O*, $F(3, 36) = 33.15$, $p < .001$; CURSS:*S*, $F(3, 36) = 13.53$, $p < .001$; and CURSS:*OI*, $F(3, 36) = 9.72$, $p < .001$. The relevant means are given in Table 1. Simple effects indicated no between treatment pre-test difference on any CURSS dimension. Within-subjects simple effects indicated that low rapport CSTP, low rapport CSTP with intervention and control subjects showed no pre-test to post-test differences on any CURSS dimensions. Subjects in the standard CSTP treatment group showed large and significant gains from pre-test to post-test on the CURSS:*O*, $F(1, 36) = 114.07$, $p < .001$; CURSS:*S*, $F(1, 36) = 57.61$, $p < .001$; and CURSS:*OI*, $F(1, 36) = 46.39$, $p < .001$. Lastly, at the post-test there were significant differences between the treatments on the CURSS:*O*, $F(3, 36) = 34.08$, $p < .001$; CURSS:*S*, $F(3, 36) = 26.48$, $p < .001$; and CURSS:*OI*, $F(3, 36) = 10.32$, $p < .001$. For each CURSS dimension follow-up post hoc tests (Newman Keuls) indicated that subjects given the standard CSTP attained significantly higher scores than those in the low rapport CSTP, low rapport CSTP with intervention or control conditions. Subjects in the last three groups failed to differ significantly on any CURSS dimension.

**Table 1** Pre-test and Post-test Mean on each CURSS Dimension for CSTP, Low Rapport CSTP, Low Rapport CSTP with Intervention, and Control Subjects

| | Hypnotisability dimension | Pre-test | | Post-test | |
|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* |
| | CURSS:*O* | | | | |
| CSTP | | .50 | .53 | 5.0 | 1.33 |
| Low Rapport | | .40 | .52 | .40 | .84 |
| Intervention | | .60 | .52 | 1.30 | 1.56 |
| Control | | .60 | .52 | .60 | .70 |
| | CURSS:*S* | | | | |
| CSTP | | 4.70 | 3.68 | 13.30 | 4.16 |
| Low Rapport | | 2.70 | 2.40 | 3.20 | 2.78 |
| Intervention | | 4.20 | 2.39 | 5.10 | 2.47 |
| Control | | 2.70 | 2.36 | 2.30 | 2.63 |
| | CURSS:*OI* | | | | |
| CSTP | | .20 | .42 | 2.70 | 2.05 |
| Low Rapport | | .20 | .42 | .20 | .42 |
| Intervention | | .10 | .32 | .70 | .95 |
| Control | | .00 | .00 | .20 | .42 |

**Table 2** Post-test Means on each SHSS:C Dimension for CSTP, Low Rapport CSTP with Intervention, and Control Subjects

| | SHSS:C/*O* | | SHSS:C/*S* | | SHSS:C/*OI* | |
|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| CSTP | 7.10 | 2.88 | 19.10 | 7.62 | 5.70 | 3.46 |
| Low Rapport | 1.30 | 1.90 | 5.10 | 4.61 | 1.30 | 2.11 |
| Intervention | 2.80 | 1.81 | 5.60 | 2.95 | .90 | 1.10 |
| Control | 1.30 | 1.57 | 2.80 | 2.94 | .40 | .84 |

*Treatment effects on SHSS:C dimensions.* The means on each post-test 2 SHSS:C dimension for subjects in the four treatments are displayed in Table 2. Separate one-way ANOVAs indicated significant treatment differences on the SHSS:C/*O*, $F(3, 36) = 16.85$, $p < .001$; the SHSS:C/*S*, $F(3, 36) = 22.67$, $p < .001$; and the SHSS:C/*OI*, $F(3, 36) = 13.00$, $p < .001$. For each SHSS:C dimension post hoc tests indicated that CSTP subjects attained significantly higher scores than subjects in the low rapport CSTP, low rapport CSTP with intervention or the control conditions. Subjects in the last three groups did not differ on any SHSS:C dimension.

## DISCUSSION

The major findings of the Spanos et al. (1990, experiment 2) study were replicated here. Once again, subjects who received skill training under low rapport conditions reported feeling less positively toward their trainer and reported less trust in their trainer than did those administered the CSTP under standard, high rapport conditions. As in the Spanos et al. (in press, Experiment 2) study the rapport variable also exerted a significant effect on post-tested hypnotisability. Subjects in the high rapport CSTP condition attained significantly and substantially higher scores on all post-test CURSS dimensions than did subjects trained under low rapport conditions. In short, the present findings, like those of several earlier studies (Cross & Spanos, 1988; Gfeller et al., 1987) support the hypothesis that subject/trainer rapport is an important determinant of the large hypnotisability gains associated with skill training.

The most important finding of the present study indicates that the intervention aimed at ameliorating the negative feelings of low rapport subjects toward their trainer exerted no significant effects on any of the post-test SHSS:C dimensions. Both the low rapport subjects who received the intervention and the low rapport subjects who did not receive it attained scores in the low range on the SHSS:C/*O*. Furthermore, subjects in both of these conditions attained significantly lower scores on all SHSS:C dimensions than did those who received skill training under high rapport conditions.

These findings tentatively support the hypothesis that high trainer/subject rapport facilitates the acquisition of skills and interpretations during training that enable subjects to exhibit enhanced post-test responding. Of course it

is always possible to argue that the low rapport subjects did, in fact, learn the requisite skills, but developed such strong negative attitudes toward the trainer that they refused to implement these skills even after the second experimenter behaved towards them warmly, apologised for the rudeness of the trainer, and encouraged them to try their best to use whatever skills they acquired during training. However, this interpretation seems somewhat forced, given the failure of low rapport subjects in the intervention condition to exhibit even a modicum of post-test hypnotisability gain. Nevertheless this hypothesis could be further tested by strengthening the intervention given between the two post-tests. Failure to find increments on the second post-test following even stronger intervention than the one employed here would strengthen the hypothesis that low rapport during training interferes with the acquisition, rather than simply with the implementation, of relevant skills and interpretations.

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# HYPNOTIC BLINDNESS: TESTING THE INFLUENCE OF MOTIVATION INSTRUCTIONS

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High hypnotisable subjects were given either strong or weak motivation instructions to experience hypnotic blindness. Hypnotically blind subjects judged the emotional feel of happy or sad faces that were presented visually. Strong and weak motivation subjects did not differ in their identification of the emotions associated with the faces. Post-experimental inquiry data highlighted the difficulties associated with manipulating the motivation of hypnotic subjects. The findings are discussed in terms of the issues they convey for testing the influence of motivation instructions on hypnotic blindness.

Sackeim, Nordlie, and Gur (1979) proposed a model of hypnotic and hysterical blindness that emphasised the interplay of motivation and cognition and highlighted the independent stages of blocking and denial. In the first stage, perceptual representations were considered to be blocked from awareness. In the second stage, subconscious sensory representations were considered to influence behaviour, and the degree of influence was said to be determined by subjects' motivation to maintain blindness. Under conditions of strong motivation subjects were likely to manifest below chance performance on visual tasks. whereas under conditions of weak motivation they were likely to show above chance performance.

This model has been subjected to relatively little empirical evaluation. Originally, Sackeim et al. (1979) suggested to two real, hypnotisable subjects and one simulating, unhypnotisable subject that they would not see anything in their visual field. One hypnotic subject was strongly motivated to be blind by being told that it was essential to the experiment for her to maintain blindness; the other hypnotic subject and the simulating subject were not told this. During blindness, the subjects were shown line drawings of happy or sad faces, and were asked whether the faces gave a feeling of happiness or sadness. The

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strongly motivated hypnotic subject responded below chance in identifying emotions associated with the faces, and the other hypnotic subject responded perfectly. The simulating subject responded below chance initially, and then responded at approximately chance.

The very small number of subjects used by Sackeim et al. (1979) limits the inferences that can be drawn from their work. Given this, the potential influence of motivation instructions on the experience and behaviour of hypnotic subjects who have been given a suggestion for blindness cannot be said to have been tested. Accordingly, in the present experiment we aimed to examine the responses of a larger number of carefully selected hypnotically blind subjects who received either strong or weak motivation instructions. The present experiment closely followed the basic procedure of Sackeim et al. (1979). Prior to hypnotic induction, subjects were given either strong or weak motivation instructions to experience hypnotic blindness. Then they were administered an hypnotic induction and a suggestion for hypnotic blindness, and asked to rate the emotional feelings that were conveyed by line drawings of happy or sad faces. On the basis of Sackeim et al.'s (1979) model, we expected that hypnotically blind subjects who received the strong motivation instructions would correctly identify a lower percentage of the faces than those subjects who received the weak motivation instructions.

## METHOD

### Subjects

Twenty-five (21 female and 4 male) high hypnotisable subjects of mean age 22.36 years ($SD$ = 7.37), who were undergraduate psychology students at Macquarie University, voluntarily participated in the experiment. They were selected on the basis of scores in the range 9–12 on the group-administered, 12-item Harvard Group Scale of Hypnotic Susceptibility (HGSHS:A, Shor & Orne, 1962; $M$ = 10.25, $SD$ = 0.87), the individually administered, 12-item Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C, Weitzenhoffer & Hilgard, 1962; $M$ = 11.14, $SD$ = 0.90), and their positive response to a suggestion for hypnotic blindness in a previous test (Bryant & McConkey, 1989a). Twelve and 13 subjects were tested in the strong and weak motivation conditions, respectively.

### Materials

The stimuli were 8 cm high, black line drawings of two "neutral," 15 "happy," and 15 "sad" faces. They were printed on 13 × 20 cm white cards that were bound in a black folder in the sequence of one neutral face, 30 randomly ordered happy and sad faces, and another neutral face.

**Procedure**

The experimenter initially gave subjects either the strong or the weak motivation instructions. The *strong motivation* instructions were that the experiment would require them to not see something that was in their field of vision. The experimenter told subjects he would help them experience blindness, and it was very important they respond to the suggestion. He told them that other subjects had responded successfully, and the experiment depended on their responding to the suggestion. In contrast, the *weak motivation* instructions were that the experiment would require subjects not to see something that was in their field of vision.

Following these instructions, the experimenter administered a standard hypnotic induction and tested subjects on an ideomotor item. Then the experimenter placed the black folder on a tilted table that was approximately 50 cm in front of subjects. He opened the folder at the first neutral face, and asked subjects to open their eyes and look at the page. The experimenter then administered the suggestion for blindness. He told subjects that the material on the page was fading, and they would soon be unable to see anything on the page. He then asked subjects to describe what they saw on the page. Subjects who reported seeing anything were administered an additional suggestion, and again asked what they saw. If subjects reported not seeing anything on the page, the experimenter told them they would not see anything on any page until he told them otherwise. Finally, he told subjects that if they began to see anything, they should raise their right forefinger. If subjects indicated they could see anything on a page, then the experimenter gave further suggestions for blindness.

While the subjects were experiencing hypnotic blindness, the experimenter presented the 30 happy and sad faces at the rate of one every 5 seconds. The subjects were instructed to indicate whether the feeling that was conveyed by each page was "definitely happy," "probably happy," "probably sad," or "definitely sad." Following this, the experimenter presented the other neutral face, cancelled the suggestion for blindness, and instructed subjects to close their eyes. He then asked subjects to tell him "everything that had been presented on the pages in the folder." Finally, the experimenter awakened subjects from hypnosis.

After hypnosis, the experimenter conducted a post-experimental inquiry during which he asked subjects to rate their motivation to experience blindness, and to rate how much they thought he expected that they would experience blindness; for both ratings, 0 = "not at all," and 100 = "extremely." Finally, the experimenter debriefed subjects, thanked them for their participation, and ended the session.

**Table 1** Mean Percentage of Correct Identifications

| Identification | Strong motivation | Weak motivation |
|---|---|---|
| Overall | 55.56 (12.89) | 68.33 (20.42) |
| Definite | 56.17 (30.52) | 71.67 (20.48) |
| probable | 57.00 (11.82) | 70.11 (22.78) |

*Note.* Standard deviations are in parentheses.

## RESULTS

Eighteen subjects (72%) reported complete blindness (could see nothing, and did not recall that faces had been presented), and 7 subjects (28%) reported incomplete blindness (could see in a partial or fluctuating way, and/or recalled that faces had been presented). Nine strong (75%) and 9 weak (69%) motivation subjects reported complete blindness; 3 strong (25%) and 4 weak (31%) motivation subjects reported incomplete blindness. Thus a similar number of subjects who received either strong or weak motivation instructions reported complete blindness.

Table 1 presents the mean percentage of correct identification of happy or sad faces for the 18 subjects who reported complete blindness. Comparisons of the responses of subjects who received either strong or weak motivation instructions indicated no significant differences in terms of either the faces identified overall, the faces identified with definite certainty, or the faces identified with probable certainty. Thus the performance of strong motivation subjects did not differ from those who received the weak motivation instructions.

Comparison of the mean ratings of motivation for strong ($M$ = 96.33, $SD$ = 4.75) and weak ($M$ = 90.42, $SD$ = 14.84) motivation subjects indicated no significant difference. Similarly, comparison of the mean ratings of expectations for strong ($M$ = 93.25, $SD$ = 11.69) and weak ($M$ = 81.92, $SD$ = 31.19) motivation subjects indicated no significant difference. Thus all subjects indicated they were highly motivated to experience blindness, and they thought that the experimenter strongly expected them to experience blindness.

## DISCUSSION

The subjects who received the strong motivation instructions did not identify a different number of faces than did the subjects who received the weak motivation instructions. Thus the present experiment does not support the prediction derived from the model of Sackeim et al. (1979). Although the relatively small number of subjects in the strong and weak motivation conditions could limit the degree to which a difference between these two conditions could be expected, the number of subjects we tested was substantially greater than that tested by Sackeim et al. (1979). Moreover the subjects in the present experiment were carefully selected on the basis of two standardised measures

of hypnotic susceptibility and an independent test of their ability to respond to a suggestion for hypnotic blindness.

The motivation and expectation ratings that subjects gave post-experimentally indicated that they were highly motivated to experience blindness. This finding suggests that the motivation manipulation that we used in the present experiment, which closely followed the one used by Sackeim et al. (1979), did not have its intended effect. The motivation and expectation ratings, in fact, underscore the degree of personal commitment that high hypnotisable subjects display in responding to the communications of the hypnotist. Hypnotic subjects are intrinsically motivated to perform in accord with their role responsibilities, and as evident in the present experiment, any attempt to manipulate their level of motivation may not succeed. Given this, the present finding raises a question about the adequacy of the motivation manipulation that was used by Sackeim et al. (1979). Unlike the present experiment, that study did not use an independent measure to assess the impact of the manipulation. Rather it seems that the investigators assumed that the motivation instruction was the critical variable that determined the differential performance of their two hypnotic subjects. The present finding raises the possibility that this was not the case, and highlights also that researchers should not assume that the instructions given to subjects automatically influence subjects in the intended manner.

We used high hypnotisable subjects in the present experiment because we were interested in testing the notion that hypnotically blind subjects would respond differently under strong and weak motivation conditions. Because we wanted to first establish whether the phenomenon occurred in hypnotic subjects, we were not concerned with differences between hypnotic and nonhypnotic subjects. It should be noted, however, that one interpretation of the overall performance of our hypnotic subjects is that they were simply doing what they were asked to do. That is, they were asked to report that they could see nothing on the pages, and that is what the majority of them did. Thus it should be acknowledged that an interpretation of the present data in terms of a compliance hypnothesis is possible (see Spanos, Flynn, & Gwynn, 1988). To examine this hypothesis in more detail, work is needed that on the one hand allows the comparison of hypnotic and nonhypnotic subjects (see also Bryant & McConkey, 1989a), and on the other hand indexes whether subjects' verbal reports of hypnotic blindness are associated with cognitive changes or are based on social demands that lead to simple compliance (see also Bryant & McConkey, 1989b).

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