

Comparative Efficacy of Behavioral Training, Training Plus Relaxation, and a Sleep/Trance Hypnotic Induction in Increasing Hypnotic Susceptibility

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A social-learning-based behavioral training procedure and the same procedure with the addition of progressive relaxation instructions were compared with a traditional sleep/trance eye-fixation hypnotic induction. As predicted, the hypothesis that a social-learning training procedure would be more effective than a sleep/trance induction was supported. The hypothesis that the addition of relaxation instructions would further potentiate the social-learning treatment was not supported. The results suggest that for subjects of low and medium hypnotic susceptibility, social-learning procedures are a more effective way of increasing suggestibility than a sleep/trance induction. Changes in subjects' conceptions of hypnosis, particularly in terms of moving toward a self-control viewpoint, were hypothesized to be an intervening variable.

A major problem in both clinical and research applications of hypnosis is the relatively low percentage of highly hypnotizable persons in the general population. The utility of employing hypnosis in relieving pain, providing symptomatic relief, and establishing new patterns of behavior would increase greatly if hypnotic suggestibility could be enhanced beyond the level provided by traditional procedures (Diamond, 1977; Hilgard & Hilgard, 1975; Katz, Note 1).

The enhancement of suggestibility in hypnosis has traditionally been done through highly indirect means. Hypnotists have typically attempted to create a trance in subjects by presenting a monologue of verbalizations that indirectly emphasize drowsiness, sleep, and loss of control (Adler &

Secunda, 1947; Erickson, Rossi, & Rossi, 1976; London, 1967; Teitelbaum, 1965). The subject was considered as passive, and consequently, minimal direct instruction was given. While classic papers in the history of hypnosis and most current theorists advocate the role active imaginal processes play in hypnotic response, the hypnotic inductions used in standard laboratory scales continue to emphasize indirect responses at the expense of direct training (Arnold, 1946; Spanos & Barber, 1974; White, 1941). Usually one "demonstration item" of waking suggestibility is used in these scales, followed by about 10 minutes of eye-fixation sleep/trance instructions (Weitzenhoffer & Hilgard, 1959a, 1959b, 1962, 1967). The long sleep/trance component contradicts the brief training component in these standardized procedures.

Hypnotizability was, until recently, conceived of as a personality trait that was relatively resistant to alteration and was maximized by the process of the sleep/trance induction (Hilgard, 1965). The whole induction exposes clients to a monologue that is a potpourri of oblique and indirect suggestions within a framework

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emphasizing drowsiness, sleep, and the altered state of awareness of the trance (Barber & DeMoor, 1972).

A number of studies have demonstrated that hypnotizability can be modified through the use of a variety of operant, modeling, and informational control techniques (e.g., Burns, 1977; Diamond, 1972, 1977; Klinger, 1970; Sachs & Anderson, 1967; Springer, Sachs, & Morrow, 1977). However, in most of these studies, subjects were being trained to respond to the hypnotic sleep/trance induction. The training was geared to prepare subjects for the later powerful influence of the sleep/trance induction. The question of whether direct training without induction would modify suggestibility was not broached. One study gave multiple training sessions without prior induction, but final suggestibility was assessed with a preceding hypnotic induction (Springer et al., 1977). Training subjects to respond directly to hypnotic suggestions, rather than training subjects to respond to an intermediary "hypnotic induction," would be practically and theoretically more parsimonious.

There exists substantial evidence that induction procedures work because they produce special motivational and cognitive processes in subjects (summarized by Barber, Spanos, & Chaves, 1974). Since the hypnotic state has no valid reliable physiological or psychological indices, a more productive approach than increasing trance depth should be maximizing those specific operational variables known to produce positive increments in suggestibility through empirical research (Barber, 1969a, 1969b, 1972).

It has long been accepted that waking suggestibility is highly correlated with hypnotic (i.e., postinduction) suggestibility (Barber, 1965; Hull, 1933). The traditional sleep/trance induction raises subjects' scores, on the average, about 1 point over pretest scores, and their rank order is usually preserved (Hilgard, 1965, 1973). Until recently, it was accepted that subjects could not improve their suggestibility, that is, they possessed a stable trait rather than a train-

able skill (Perry, 1977). No published studies to date have questioned whether the average 1-point postinduction increase could be raised if more powerful induction procedures were developed.

Relaxation and Hypnosis

Most traditional hypnotic inductions utilize the presence of relaxation instructions (Edmonston, 1977). The role that this kind of instruction plays in producing enhanced suggestibility is currently unclear. Barber (1969a) has argued that the primary function of such instructions is in defining the situation as "truly hypnosis" for subjects. Bandura (1971), on the other hand, has emphasized the facilitative role that relaxation can play in social-learning experiences, helping clients reduce fear levels, attend to instructions, and experience positive somatic sensations.

Since relaxation produces similar subjective experiences as sleep/trance instructions and produces changes in body feelings, detachment, and lightness, which are often taken as signs of trance development, relaxation could be a crucial aspect of any induction procedure (Bullard & DeCoster, 1972; Foulkes & Fleisher, 1975; Green, Green, & Walters, 1970).

Relaxation instructions would do so by (a) helping define the situation as truly hypnosis, (b) facilitating ideomotor responsiveness, (c) helping clients attend to instructions and refocus their attention, (d) helping produce cognitive distortion leading to reports of hallucination, and (e) helping clients reduce anxiety about being hypnotized. The above are all hypotheses that require empirical testing.

The experiment reported in this study directly compared three treatment groups who had independently been given a different hypnotic induction. The different inductions were (a) a social-learning skill training procedure, (b) this skill training procedure with the addition of progressive relaxation training, and (c) an eye-fixation sleep/trance induction. Specific predictions made were that (a) the social-learning

skill training group would have greater gains than the hypnosis/sleep trance group on both objective and subjective hypnotizability scores and that (b) the training-plus-relaxation group would have greater gains than the groups exposed to only skill training or sleep/trance induction.

Method

Subjects

The subjects were 45 adult volunteers, randomly assigned into groups of 15. The majority of the subjects were undergraduate students. They included 20 males with a mean age of 21.7 years and 25 females with a mean age of 20.3 years. All subjects were volunteers who received no credit or pay for participation.

Subjects who scored 9-12 on the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962) pretest were excused from the study. This was done since they had little room for improvement and were likely to be already employing the cognitive strategies taught in the skill training.

Measures

The main instrument for assessing suggestibility was the SHSS:C. It was chosen because it was designed to be administered with or without a preliminary hypnotic induction, and it contains 12 test items that cover a wide variety of hypnotic behaviors and is a relatively difficult scale.

Each of the 12 test suggestions was read verbatim from the instruction booklet by a trained research assistant who used the published criteria for evaluating the subjects' responses and who was naive to the experimental hypothesis. Extensive psychometric data is available on the SHSS:C demonstrating that it is a valid and reliable measure of hypnotic behaviors (Weitzenhoffer & Hilgard, 1962). The wording of the scale was slightly changed in the first part of the experiment, with the word *hypnosis* altered to read *imagination*. This change was made to make the wording congruent with instructions to subjects that they would not be hypnotized until the second part of the experiment.

Two SHSS:C measures were used. First, subjects were rated by the laboratory assistant on whether they passed or failed an item. Second, after completing the whole scale, subjects were requested to rate the experienced intensity of each item on a 5-point subjective scale.

A 5-question Likert-format attitude scale was used to gauge subjects' positive versus negative feelings toward hypnosis. Also, a scale in which subjects could indicate their view of the hypnotic

process was included. Both these scales were administered before and after the test.

Subjects were asked to complete the attitude and expectation questionnaire when first entering the laboratory. They were instructed that they would not be hypnotized in the first part of the experiment, but that their ability to use their imagination would be assessed. Subjects were then given the imagination version of the SHSS:C and were asked to complete a subjective rating of each of their experiences.

After a brief break (10 minutes), subjects were told that the hypnosis part of the experiment was beginning, and they were exposed to one of the three hypnotic inductions, followed immediately by a readministration of the hypnosis SHSS:C. Finally, subjects were asked to complete the subjective rating scale and the attitude and conception-of-hypnosis scales. All subjects were urged not to disclose the nature of the study until 1 month after the date of their participation.

Treatment Conditions

Hypnotic sleep/trance induction. Subjects were administered a traditional sleep/trance hypnotic induction used extensively in previous research (Barber, 1969b). As taped versus live presentation of such an induction does not affect hypnotic responsivity, the induction was presented on tape. This induction emphasizes feelings of drowsiness, sleep, and a "state of hypnosis" that the subject can enter using metaphors such as "go backward into the darkness" and "sleep, sleep, sleep." It included no direct instructions or waking suggestibility items, since this would confound treatment conditions.

Social-learning skill training. This treatment followed closely the instructions used in a study by Comins, Fullman, and Barber (1975). The experimenter presented facilitative information emphasizing the positive aspects of learning to be a good hypnotic subject, such as gaining a better ability to concentrate. The idea that hypnosis was a self-initiated process was then elaborated, and common misconceptions about hypnosis were countered with corrective information.

Instructions were then given to the subject on types of cognitive processes he or she could use to experience hypnotic suggestions, and the concept of goal-directed imagining was introduced. The idea that the subject created a personal imagination strategy was emphasized.

The experimenter then modeled the first suggestion from the SHSS:C (arm lowering) while sharing with the subject the thoughts and fantasies the subject experienced while attempting the suggestion. The procedure was thus one of both observational learning and cognitive imitation, as the subject learned how to structure internal thoughts and cognitions in response to a hypnotic suggestion. The subject was urged to try the suggestion and was coached on what imagination strategy to use.

Table 1
Means for Pretest, Posttest, and Change Scores on Objective and Subjective Stanford Hypnotic Susceptibility Scale, Form C, Measures

Treatment group	Pretest mean	Posttest mean	Mean change
Objective measure			
Sleep/trance	5.07	5.87	.80
Social learning	5.00	8.33	3.33
Social learning and relaxation	5.13	8.00	2.87
Subjective measure			
Sleep/trance	20.80	23.13	2.33
Social learning	23.93	33.60	9.67
Social learning and relaxation	23.40	30.47	7.07

Similar procedures were used to demonstrate three additional items, with the subject being given increasingly more responsibility for devising the cognitive strategy that would work best for each suggestion. Finally, each subject was urged to concentrate on the instructions, to follow and think and imagine in the way they had just been trained, and—as a result—to become hypnotized. Subjects were requested to close their eyes in order to help themselves imagine better.

Social-learning training plus relaxation. Following the administration of the social-learning procedure described above, subjects were administered progressive relaxation instructions based on Wolpe and Lazarus's (1966) motor exercises. These directions were given on tape.

Statistical Analysis

Random assignment of subjects to experimental conditions was verified by performing an analysis of variance (ANOVA) on preinduction SHSS:C scores. This analysis indicated that pretest levels of suggestibility did not differ across experimental treatments.

Change scores on all measures were computed by subtracting preinduction from postinduction totals and appropriate ANOVAs computed.

Results

Hypotheses

Hypothesis 1 predicted that both social-learning treatments would produce greater increments in hypnotic suggestibility than

the sleep/trance induction. As can be seen in Table 1, the mean change scores for the two social-learning groups are noticeably higher than the change for the sleep/trance group on both objective and subjective measures.

Analysis of variance indicated that objective scores were significantly enhanced, $F(2, 42) = 9.75$, $p < .001$; similarly, subjective scores were significantly enhanced, $F(2, 42) = 4.14$, $p < .05$. To compare treatment groups, a priori orthogonal comparisons were calculated (Winer, 1962) and indicated a highly significant difference between the combined social-learning groups and the sleep/trance group: For objective scores, $F(2, 42) = 18.96$, $p < .0001$; for subjective scores, $F(2, 42) = 7.28$, $p < .01$. Hypothesis 1 was thus strongly supported by both of the above measures.

The SHSS:C scale is known to have a standardization mean of 5.07 and a standard deviation of 3.15 for objective scores. The average gain produced by the social-learning treatments was thus about 1 standard deviation. In order to gain an appreciation for the pattern of improvement produced by each of the treatments, a scatterplot of initial treatment and posttreatment scores was constructed (see Figure 1) and illustrates the tendency of subjects exposed to

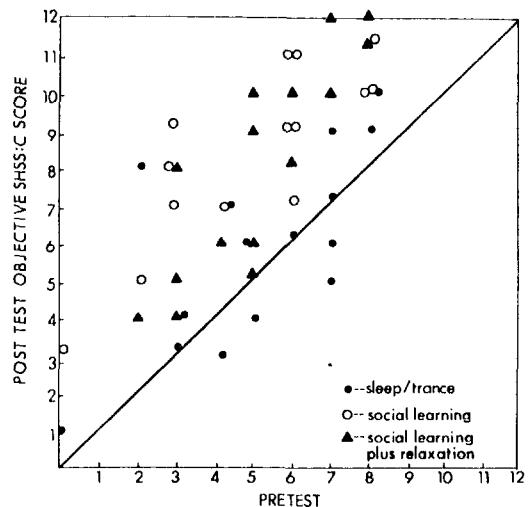


Figure 1. Scatterplot of individual objective hypnotizability scores. (SHSS:C = Stanford Hypnotic Susceptibility Scale, Form C.)

social-learning procedures to score very high compared to the sleep/trance subjects.

Also notable is the fact that two subjects, both in the social-learning-plus-relaxation group, were able to achieve perfect scores. It is interesting to note that four subjects in the sleep/trance condition actually decreased their objective SHSS:C scores, while this phenomenon did not occur in either of the social-learning conditions.

Hypothesis 2 predicted that the addition of relaxation to the social-learning treatment would result in gains over pretest scores significantly greater than when social learning alone was used. However, the mean gain scores on both objective and subjective measures were lower for the group exposed to relaxation plus training than for the group given training alone. For objective scores, the mean gains were 2.87 and 3.33 for the relaxation/training group and training-only group, respectively; subjective scores were 7.07 and 9.67, respectively. Clearly, Hypothesis 2 was not supported, and in fact, relaxation tended to detract from the power of the social-learning treatment, although the decrease was nonsignificant.

Generalization of Training

Hypnotic responsiveness increased as a result of the social-learning procedure even when measured on hypnotic items not specifically modeled or discussed with the subject. Analysis of variance performed on scores of demonstrated versus undemonstrated items for the combined social-learning groups yielded significant treatment effects for both the items modeled, $F(2, 42) = p < .005$, and for unmodeled items, $F(2, 42) = 6.32$, $p < .005$, on the objective scores. A similar pattern was present for subjective scores, where generalization occurred also: For modeled items, $F(2, 42) = 3.36$, $p < .05$; for unmodeled items, $F(2, 42) = 3.29$, $p < .05$.

A similar analysis performed for SHSS:C subjective gain scores produced a different pattern of results, however. While the social-learning-alone group was significantly

Table 2
Gain Score Correlation Matrix

Measure	1	2	3	4
1. Objective	1.000	.754**	.415**	.319*
2. Subjective		1.000	.224	.267
3. Attitude			1.000	.243
4. Misconceptions				1.000

* $p < .05$.

** $p < .01$.

different from the sleep/trance group ($p < .05$), the social-learning-plus-relaxation group did not significantly differ from the sleep/trance group for either modeled or unmodeled items. Thus, relaxation appeared to attenuate the subjective experience of the subjects over both demonstrated and undemonstrated items.

The social-learning treatments thus resulted in subjects having more favorable attitudes toward hypnosis than the sleep/trance treatment and also resulted in subjects having a more realistic and less distorted view of the process of hypnosis.¹

Further evidence of the importance of subjects' mediating attitudes and conceptions of hypnosis comes from correlations between gains on objective and subjective hypnotic scores and changes in attitudes and misconceptions. Table 2 presents these correlations. Both changes in attitudes and misconceptions are significantly correlated with changes in objective hypnotic behavior.

Finally, subjects had been asked to predict their future hypnotic performance on a 10-point scale (with 1 being un hypnotizable and 10 indicating very hypnotizable). Data from these predictions were subjected to a one-way analysis of variance and demonstrated a highly significant treatment effect, $F(2, 42) = 6.865$, $p < .005$. Post hoc comparisons revealed that the social-learning groups were significantly different ($p < .05$) from the sleep/trance group, but they were not different from each other, with both of the former groups indicating higher future hypnotizability.

¹ Complete data on subjects' attitudes and conceptions about hypnosis are available from the author.

Discussion

General Implications

The results of this study strongly confirm the hypothesis that a social-learning treatment is a more powerful method of enhancing hypnotic suggestibility than a sleep/trance hypnotic induction. Contrary to expectation, relaxation does not seem to augment the power of the social-learning procedure.

Comparison of the social-learning and sleep/trance instructions. On both objective and subjective measures of hypnotic responsiveness, the social-learning procedures were more effective than the sleep/trance induction in enhancing susceptibility to hypnosis. This result suggests that for subjects of low and medium hypnotic suggestibility who have never before been hypnotized, the most effective way to elicit hypnotic behaviors is to directly train them in the cognitive strategies involved in such responses. This conclusion is in accord with the views of a number of recent investigations (e.g., Barber et al., 1974; Chaves & Barber, 1974; Gibbons, 1976) and supports the growing body of literature indicating that social-learning procedures are an effective way to modify hypnotic responsiveness (DeStefano, 1977; Diamond, 1974, 1977; Wilson & Barber, 1976; Katz, Note 1, Note 2; Katz & Crawford, Note 3).

Fifty percent of the subjects in the social-learning conditions moved into the high range of susceptibility, as opposed to 20% of the sleep/trance subjects. Furthermore, exposure to the social-learning treatment prevents some subjects from actually decreasing in hypnotic suggestibility, which took place for a number of subjects exposed to the sleep/trance instructions in this study but did not take place for any of the social-learning subjects. Similarly, Wilson and Barber (1976) found that brief "think with" instructions urging the subject to cooperate and imagine eliminated all low sides on their Creative Imagination Scale.

Comparison of social learning and social learning plus relaxation. Hypothesis 2 stated that the addition of relaxation to the

social-learning procedure would produce a significant increment in hypnotic responsiveness compared to social learning presented without relaxation instructions. This hypothesis was not supported by the data. The addition of relaxation did not augment the power of the social-learning treatment and slightly (but nonsignificantly) detracted from subjective hypnotic responsiveness.

The finding that relaxation did not add to the effectiveness of the social-learning treatment is in accord with the views of Barber et al. (1974). They have argued that relaxation serves primarily as a facilitating and cuing device to allow subjects to define the situation as a "special" one in which they can experience unusual behaviors.

Creating a relaxed state in subjects may not be very helpful to them in experiencing suggestions that call for any motor activity or cognitive arousal. Since many of the suggestions on the SHSS:C scale do call for such responses, it is possible that having subjects become relaxed may have resulted in a slightly sluggish performance compared to subjects given only social-learning instructions. Informal evidence on this point was given by several subjects in the social-learning-plus-relaxation treatment, who verbalized that they were "so relaxed, it was a bother to carry out the instructions" in postexperimental interviews.

The results obtained in this study do not, of course, refute the evidence that relaxation in and by itself can enhance hypnotic suggestibility (Bullard & DeCoster, 1972; Jacobson, 1930; Starr & Tobin, 1970). Relaxation may be facilitative for some subjects (especially those most fearful), as the only two subjects to score perfectly on the SHSS:C scale were in the relaxation-plus-social-learning condition.

Role of Mediating Attitudes and Misconceptions About Hypnosis

The social-learning treatments were significantly more effective than the sleep/trance procedure in altering subjects' views of the process of hypnosis. On the pretest, most subjects felt that hypnotized subjects

were as much under the control of the hypnotist as their own control. After treatment, social-learning subjects indicated a more accurate understanding of the contractual nature of hypnosis. Subjects exposed to a sleep/trance induction still felt similar to the way they had on the pretest. In addition, subjects exposed to social-learning procedures believed, as compared to the sleep/trance subjects, that hypnosis was (a) more like being awake than asleep, (b) more controlled by the subject, (c) more the result of his or her own efforts rather than the hypnotist's, and (d) more terminated by the subject's decision to stop than the hypnotist's decision.

Most textbooks on clinical hypnosis and induction scales recommend that the above views be conveyed to the subject before beginning any type of induction (e.g., Kroger, 1963; Weitzenhoffer, 1957). However, the content of the sleep/trance induction directly contradicts any such information given to subjects by attempting to convey the idea they are going asleep. Use of the metaphors of sleeping, dreaming, and entering a trance does anything but counterpreconceived ideas subjects have that the hypnotists will have as much power over themselves as they do. The sleep/trance induction thus in some ways reinforces subjects' erroneous views of the nature of the hypnotic response.

The alternative social-learning approach directly counteracts subjects' misconceptions and provides them with direct training instead of a collage of hints, metaphors, and indirect suggestions as to what they should be thinking and doing in order to experience hypnotic behaviors. The legendary power of the hypnotist is given over to the subject and the "secrets" are shared, as discussed below.

Hypnosis construed as a self-control procedure. The rapidly growing literature on self-control (Thoreson & Mahoney, 1975) and on cognitive behavior modification (Meichenbaum, 1973, 1977) signals a renewed interest in allowing and teaching our clients to exert control over their own thoughts and actions.

The social-learning treatment used in this research can be conceptualized as a self-control procedure. First, the subject is given information correcting misconceptions about hypnosis, especially that it is something done to him or her rather than by him or her. Second, subjects are provided with a principle (the idea of ideomotor action and involvement in fantasy) and are told it is up to them to utilize this principle. Third, the responses are modeled for the subject by the hypnotist, and then the subject is urged to try them alone; nothing is done to the subject. The instructions urge subjects to take responsibility for the behavior on their own. The subject is alert and awake, possessing the knowledge of cognitive strategies. When subjects attempt the modeled behaviors, they are given the choice between various cognitive strategies they could use to achieve the desired result, thus insuring that they feel it is their own activities—and not the hypnotist's—that are of primary importance.

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