This is to certify that the

dissertation entitled

Negative Feedback on a Vigilance Task Embedded in a Hypnotic Induction and Its Effect on Intrapersonal and Interpersonal Processes

presented by

David L. Hayes

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Psychology

Joseph Reyher
Major professor

Date 10/21/81

NEGATIVE FEEDBACK ON A VILIGANCE TASK EMBEDDED IN A HYPNOTIC INDUCTION AND ITS EFFECT ON INTRAPERSONAL AND INTERPERSONAL PROCESSES

By

David L. Hayes

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1981

ABSTRACT

NEGATIVE FEEDBACK ON A VILIGANCE TASK
EMBEDDED IN A HYPNOTIC INDUCTION AND ITS EFFECT ON
INTRAPERSONAL AND INTERPERSONAL PROCESSES

By

David L. Hayes

A variety of researchers have attempted to increase responsiveness to hypnotic procedures. Most have had limited success and those more successful procedures have proved inefficient and time consuming. Gur (1973) has reported a quick and simple technique for increasing hypnotic susceptibility of previously unresponsive subjects. The present study is a replication and extension of the finding that Gur's procedure is only effective when a hypnotic operator is present with the subject. Differences have been noted between clinical and experimental applications of hypnosis. The thesis of this study is that the procedure developed by Gur is an experimental analog of clinical hypnosis, and that increased susceptibility is mediated by a transference to the experimenter. Thirty-seven subjects were selected from a larger group of undergraduate volunteers on the basis of low scores on two separate scales of hypnotizability. They were randomly assigned to one of three experimenters and to one of four conditions in which the Gur procedure or a standard hypnotic induction and the presence or absence of the hypnotic

operator were varied in a 3x2x2 factorial design. Subjects' anxiety was measured using the State-Trait Anxiety Inventory. Following the experimental procedure, they constructed a story about TAT card 12M, and were interviewed about their perception of their hypnotic experience. This material was rated for manifestations of transference. Surprisingly, this study did not increase the susceptibility of subjects, even when their scores were adjusted (ANCOVA) for differences in initial susceptibility. Gur's explanation of his results in terms of focusing of attention on the words of the hypnotist was not supported. An unexpected finding was a significant 3-way interaction between treatments and experimenters on anxiety scores, suggesting the importance of experimenter characteristics in the hypnotic situation. The transference-suggestibility link could not be directly tested, but is not inconsistent with these results. The appropriate conceptual explanation of these results may rely more on strategies of self-esteem management than on transference.

for Peggy and me

ACKNOWLEDGMENTS

I want to thank the many people who were directly involved in or directly or indirectly supported this work. Burt, Scott, Terry, Noel, Art, and Hayes, my fellow experimenters, were reliable, competent, and enthusiastic. My brother Chris and friend Dr. Mary Corcoran provided important help with the data analysis, often under considerable time constraints and on the spur of the moment. My wife, Peggy, helped me with the ratings, and did a good job.

The members of my committee, Drs. Albert Aniskiewicz, A. I. Rabin, Joseph Reyher, and Charles Hanley, merit individual mention. I am indebted to Dr. Hanley for his willingness to be flexible in his approach to this work. Al Aniskiewicz provided the quiet support, understanding, and interest which characterizes so much of what he does. It is difficult to single out one among the many things to acknowledge about Al Rabin; suffice it to say that Al has given me much in our friendly and collegial relationship, and has taught me much about being a clinician through his consistent exemplification of understanding, tact, and diplomacy. Joe has given freely of himself and his contagious enthusiasm for research in a way that has been encouraging, supportive, and enabling. His particular

blend of the skills of the clinician and the researcher has been a significant personal and professional influence on me.

Finally, Peggy knows well that without her, things would have been much different.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

A variety of researchers have attempted to increase responsiveness to hypnotic procedures, and most have had little success. As, Hilgard, and Weitzenhoffer (1963) tried to increase susceptibility by giving training in hypnosis and by using psychotherapeutic techniques. Their approach produced reliable changes which were disappointingly small, and trivial when considered in terms of the time and effort required. Similarly, Blum (1963) reported that he increased the responsiveness of two subjects only after a long, laborious period of intensive, individual work with them. An attempt by Cooper, Banford, Shubot, and Tart (1967) to replicate the As et al. study resulted in equally disappointing results, despite long training periods with subjects. Such findings have led to a conceptualization of susceptibility as a relatively stable and enduring personality characteristic which is not easily or quickly modified (Diamond, 1974; Hilgard, 1965; London, 1967; Morgan, Johnson & Hilgard, 1974; Sachs, 1971).

Although other researchers have reported success in modifying subjects' hypnotizability, even these results require such approaches as periods of sensory deprivation (Sanders & Reyher, 1969), psychotherapy, psychotherapy-like

experiences, or marathon group work (Shapiro & Diamond, 1972; Shor & Cobb, 1968; Tart, 1970), biofeedback (London, Cooper, & Engstrom, 1974; Wickramesekera, 1973), attempts to change attitudes and maximize conditions to enhance responsiveness (Kidder, 1972; Shor & Cobb, 1968), modeling by confederates (Diamond, 1972; Klinger, 1970), training on specific items (Kinney & Sachs, 1974; Sachs & Anderson, 1967), and drug placebos (Shor & Cobb, 1968). These procedures are relatively cumbersome, expensive, and time consuming, and Gur (1973) has correctly stated that they are consequently of little practical value for clinical application in medicine or psychology.

In 1973, Gur developed and reported a relatively quick and simple technique for enhancing hypnotic responsiveness. This procedure consisted of asking hypnotic subjects to press a button each time they heard the word "relax" in a hypnotic induction in order to avoid receiving a shock. When he applied this procedure to a group of college students who had been selected on the basis of low to moderate susceptibility scores on an earlier test of hypnotizability, he found that their susceptibility scores increased a substantial and statistically significant amount when compared to several other control groups. Gur's explanation of his results was that the subjects' wish to avoid receiving shocks caused them to focus their attention on the words of the hypnotic operator, and that

this attention paid to the hypnotic induction facilitated increased susceptibility by encouraging them to ignore external and internal cues except the voice of the hypnotist, thereby producing "deeper" hypnosis.

A surprising and anomalous additional finding of Gur's (1973) study was that his technique produced higher susceptibility scores only if there was an experimenter physically present during the procedure; when the study was arranged so that the induction and shock avoidance procedure were automated and no hypnotist was physically present, the expected increases in scores did not occur. This finding is not explained by the notion that shock causes subjects to focus their attention more closely on the words of the hypnotist. If focused attention is the mechanism underlying the increased scores, it should not matter if the hypnotic operator is present or not, only that the subjects need to listen closely to his words to avoid being shocked.

Smyth (1978) elaborated on Gur's procedure in order to monitor the attention of hypnotic subjects and to see if their attention could be manipulated. He was unsuccessful in manipulating his subjects' attention using either shock or verbal instructions. He found further that high susceptibility scores were associated with decreased attention to the words of the experimenter, rather than increased attention. He concluded that concentration of attention was not

the critical feature in enhancing responsiveness. An additional finding in Smyth's two studies was that he did not replicate the expected increase in susceptibility scores of low susceptible subjects. His procedure differed from that of Gur, however, in that in one study he did not use any shock, in the second study he used a less intense shock with the selection of the intensity under the control of the subject, and on each study there was an additional competing attention task.

In 1974, Gur performed a carefully designed, well controlled study aimed at replicating his earlier research. He found once again that his shock avoidance procedure (which he now called "an attention-controlled operant procedure for enhancing hypnotic susceptibility") effectively increased the susceptibility scores of students who had previously scored in the low susceptible range, although the lowest susceptible subjects did not increase. This second study did not include any conditions in which the experimenter was not actually present in the room with the subjects.

Consideration of the results of the two Gur studies (1973, 1974) and of the two Smyth studies (1978) suggests several statements, which can be made with varying degrees of certainty. First, it seems quite likely that Gur's procedure reliably increases susceptibility scores of people who under ordinary laboratory conditions are not particularly

responsive to hypnotic suggestion. Second, it is also likely, but less clearly demonstrated, that this procedure depends, in part, for its effectiveness on an unpleasant shock which is not under the control of the subject. Finally, it may be surmised, although this also has not been reliably shown, that the procedure is only effective when someone identified as an experimenter or hypnotist is physically present with the subject.

The fact that the presence or absence of an experimenter appears to be a critical variable in this procedure emphasizes the importance of the interpersonal relationship in a hypnotic setting. Further, the specific nature of the findings regarding this variable, effective with an experimenter, ineffective without, is in keeping with the results of a growing number of studies in which the presence of an experimenter or therapist has been systematically varied (e.g., Beiman, I., Israel, E., & Johnson, S.A., 1978; Borkovec, T.D., Grayson, J.B., & Cooper, K.M., 1978; Cassel, Johnson, & Burns, 1958; Johnson, L.S., & Wiese, K.S., 1979; Roach, 1981; Sacco, W.R., & Hokanson, J.E., 1978). It is also consistent with theories of hypnosis which utilize the psychyoanalytic concept of transference. This is most apparent if the results of the Gur and Smyth studies are considered from a slightly different perspective. In order to do so it is necessary to briefly consider the literature differentiating clinical and experimental hypnosis.

Clinical and experimental hypnosis are often conceived of as qualitatively different procedures, enough so that in 1967 a special issue of the American Journal of Clinical Hypnosis was published as a forum for consideration of the differences. In that issue Erickson (1967) noted that clinical and experimental hypnosis had what he called "different personal significance" for people, and were experienced in different ways. He also reported that some subjects respond differentially to the two situations, responding well to experimental hypnosis but not to clinical hypnosis, or vice versa. August (1967), in the same journal issue, contrasted "therapeutically" viewed and "academically" viewed hypnosis, a comparison which accords rather closely to the clinical vs. experimental comparison. He noted differences related to the hypnotic operator and his credentials, background, and purpose; differences in subjects or patients, particularly motivation, emotional involvement, and potential gain; differences in the setting in which hypnosis is to be performed; differences in the goals to be achieved by the researcher or by the therapist; and differences in selection of subjects or patients, time parameters, and attitudes of hypnotic operator and subject toward hypnosis. He concluded with his belief that differences do clearly exist between experimental and clinical hypnosis, but his analysis was primarily pragmatic and atheoretical. Pearson (1970) reported a case in which hypnosis was

experienced differently when it was used for purposes of a demonstration, as opposed to its being used clinically. Thompson (1970) speculated about differences, stating her belief that they exist, but suggested that we are unlikely to learn much about them without more sensitive experimental procedures.

Reyher (1977) suggested a theoretical framework to account for the differences. He contrasted the experimental and clinical hypnotic situations as follows:

> Suggestibility [increases] . . . under circumstances when people face a threat to their physical well-being or life, and they lack the skills to diagnose and treat their affliction. This insufficiency of the requisiste skills produces anxiety which in turn pressures the helpless individual into a passive-dependent relationship with the attending physician. . . . This dependency striving is the critical psychodynamic factor that is instrumental in producing the impressive results of suggestion in the clinical, particularly the medical, setting.

He summarized his argument this way:

> Medical patients are anxious about their physical plight and cannot help themselves. They are objectively dependent. For some of them, their objective dependency will develop into dependent strivings which are encouraged by the demeanor of the physician and his significance as a helping authority. These strivings are reinforced by the treatment connotations of the medical building per se and in a variety of other ways, including difficulty in getting an appointment, sitting in the waiting room with other patients, relating to the physician through intermediaries (nurses), being given prescriptive advice, and the patient's own ideas being dismissed or discounted.

> The volunteer subject for experimental investigations is likely to be motivated by curiosity, money or credit points, and is not objectively dependent. Anxiety if present at all, is associated with personal threat posed by the hypnotic induction procedure. Should dependency strivings be present, they are not encouraged by the demeanor of the hypnotist who generally uses a standard scale of hypnotic susceptibility. Neither are dependency strivings reinforced by the connotative significance of the hypnotist (who often is a graduate student) nor the setting (often an unimpressive laboratory room).

Clinicians take special note of the quality of the relationship which exists between hypnotic operator and subject in trying to explain hypnosis. The modal explanation, the most typical formulation of hypnotic phenomena in the clinical situation, employs the notion of transference as the central construct. For example, Gill (1972), and Gill and Brenman (1961) argue that hypnotic subjects surrender their autonomy to the hypnotic operator under the pressure of needs and demands to regress to a developmentally earlier mode of relating to an authority. Wolberg (1948) talks about the hypnotist becoming cloaked in a mantle of authority which instills faith in the hypnotist and induces feelings of closeness. There is also a substantial clinical anecdotal literature which focuses on transference (e.g., Fromm, 1965, 1968; Gruenwald, 1971; Watkins, 1971). Theoreticians who regard transference as of central importance include Ferenczi (1910), Gill (1972), Gill and Brenman (1961), J. Hilgard (1970, 1974), Kubie and Margolin (1944),

Reyher (1977), Schilder (1927), Shor (1962), and Wolberg (1948), to name a few. In regard to these theoretical formulations, Sheehan and Perry (1976) raise the important point that such theorists "nearly always highlight the clinical aspects of hypnotic response which are much less readily observed in the laboratory than in the therapeutic context" (p. 257). They go on to state that laboratory conditions routinely minimize such personal involvement of subject with experimenter. They seem to argue that the processes which occur in the laboratory and the consulting room are usually qualitatively different.

As an explanatory construct, the idea of transference is not without difficulty. Prominent among potential problems which its use presents is the fact that the term transference has come to be used rather loosely and is used in a variety of different contexts to mean different things. In speaking of the hypnotic setting, I will be using the term to mean specifically what Reyher (1979) termed a regressive transference, which he defined as "a state dependent reactivation of parental images (an imago)." In the same vein, he goes on to state, "Feeling helpless or anxious about one's personal, social, physical, or spiritual well-being constitute stimuli for the reactivation of percepts of parents or caretakers in early childhood who at the time appeared to be all powerful." This usage seems consistent with what most theorists in hypnosis mean

when they use this construct.

It has proved difficult in the past to produce the phenomena of clinical hypnosis in the laboratory because of the essential differences in the two settings. To convince subjects in experiments that they are in real danger seems to require either deception of a substantial and unacceptable magnitude or the even less desirable approach of actually placing them in danger or in pain. However, recently there have been several ingenious studies which have successfully avoided these problems while still addressing theoretically significant questions about the role of the quality of the hypnotist-subject relationship in facilitating hypnotic responsiveness.

Sheehan and Dolby have reported a series of studies in which competing demands are set for hypnotic subjects. They have found repeatedly that a subset of good hypnotic subjects who score high on dependency are acutely sensitive to even implicit wishes of the hypnotic operator, and that they are motivated to accede to those wishes in a way that unhypnotized people, subjects stimulating hypnosis, and poor hypnotic subjects are not (Dolby & Sheehan, 1977; Sheehan & Dolby, 1974). Their most recent study looked at dreams experienced during hypnosis and found evidence of what they called "transferencelike involvement of some hypnotic subjects" (Sheehan & Dolby, 1979).

LeBaron (1979) took the approach of carefully

developing a methodology which could be used in a clinical medical setting. He found that medical patients were most responsive to suggestion if they had objective reasons to be anxious, and if their physician related to them in a paternal and benignly authoritarin manner. This finding accords well with theory about the centrality of relationship variables. In fact, responsive subjects in his study also tended to describe the physician in ways which emphasized or exaggerated his skill, knowledge, and power, or their dependence on him. This is not a surprising finding, but it is noteworthy because it demonstrates that important parameters of the relationship between a hypnotic operator and a subject or patient can be operationalized and measured.

The central thesis of this research is that Gur, in seeking to increase susceptibility scores, inadvertently developed a procedure which is functionally an analog of the clinical hypnotic setting. This leads to the hypothesis that subjects undergoing Gur's so-called operant procedure respond to the experimenter as patients respond to a hypnotic operator in a clinical setting. If this is the case, it should be possible, using LeBaron's (1979) procedure for scoring spontaneous comments, to demonstrate that subjects have different feelings and attitudes toward a present or an absent experimenter, and when in a threat or no-threat situation.

The present study proceeded in the following manner;

(1) Used Gur's original so-called attention controlled operant procedure.

(2) Varied the presence of the experimenter.

(3) Assessed the anxiety of the subjects during the procedure.

(4) Used ratings of interview material, spontaneous comments, and responses to a projective stimulus to assess the nature of the hypnotist-subject relationship.

Further, the study was designed with regard to the principles for experimental design in hypnosis research stressed by Sheehan and Perry (1976). These included:

(1) A statistical correction in order to avoid the effects of regression to the mean.

(2) Appropriate control groups for evaluation of treatment effects.

(3) Experimenters unaware of specific hypotheses being tested.

This study was an attempt to replicate and extend Gur's (1973) findings; it focused on the interpersonal relationship in the hypnotic setting and tested the following hypotheses:

Hypothesis One: It is possible to increase the susceptibility scores of low susceptible subjects using Gur's procedure, but only when an experimenter is present.

Hypothesis Two: The increase in susceptibility scores is mediated by increased dependency striving and transference on the part of the subjects.

Hypothesis Three: Hypnotic susceptibility is negatively related to anxiety.

Hypothesis Four: Hypnotic susceptibility is negatively related to focused attention on the words of the hypnotist.

METHOD

Subjects

Subjects for this research were students at Michigan State University and Lansing Community College. Subjects were selected from a group of students who volunteered to participate in a study including "group hypnosis." Those students enrolled in introductory psychology classes at MSU received additional credits in their psychology course in return for their participation. Subjects were chosen from this group of volunteers on the basis of low scores on a standardized measure of hypnotic susceptibility. The Harvard Group Scale of Hypnotic Susceptibility (HGSHS; Shor & Orne, 1962) was administered to all volunteers in order to identify a group of relatively poor hypnotic responders. Those students who scored 4 or less on the HGSHS were re-contacted, and the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962) was individually administered to each of them. Those subjects scoring 4 or less on the HGSHS and who were willing to come for a third experimental session (following the SHSS:C) were included in the present study. A total of 37 students participated.

Conditions

Subjects were randomly assigned to one of the four following conditions:

1. Experimenter Present Feedback Group: This group was exposed to the experimental manipulation involving shock with the experimenter present in the room (a replication of Gur's operant controlled group). Nine subjects were assigned to this condition.

2. Experimenter Absent Feedback Group: This condition was the same as the first group except that the experimenter left the room before the experimental procedure began. (This parallels the initial group in Gur's dissertation which failed to produce the anticipated enhancement of susceptibility.) Seven subjects were assigned to this condition.

3. Experimenter Present No-Feedback Group: This group received a standard hypnotic susceptibility scale presented in the same format (tape recorded) as for the experimenter groups, but without the instructions about shock. The experimenter was present in the room. Eleven subjects were assigned to this condition.

4. Experimenter Absent No-Feedback Group: This group was the same as the previous control group, except that the experimenter gave the instructions, turned on the tape recorder, and left the room. Ten subjects were assigned to this condition.

Experimenters.

Four advanced undergraduate students, three men and one woman, were trained by the principal investigator to administer the SHSS:C. Three different advanced undergraduate psychology students, all men, were trained to administer the experimental procedure. Subject-experimenter pairings for the experimental procedure were random, and an

effort was made to have each experimenter run equal numbers of subjects from each condition.

Apparatus and Materials

To administer shock, a solid state electrical stimulator was used, which produced 150 millisecond pulses of approximately 160 volts. The electrical stimulator was designed specifically for this research paradigm and was the same one used by Gur (1974) and by Smyth (1978). The shocks were administered via silver electrodes connected to the stimulator and held in place on the back of the subject's left hand by an adjustable elastic band. The subjects' responses were indicated by pressing a footpedal. Pressing the footpedal activated a small light which could be seen by the experimenter but not by the subject.

The anxiety level of subjects during the experiment (state anxiety) and their level of anxiety in general (trait anxiety) were measured using the State-Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch, & Lushene; 1968).

The hypnotic induction and susceptibility scale used during the experimental procedure was a modification of the Stanford Hypnotic Susceptibility Scale, Form B (SHSS:B: Weitzenhoffer & Hilgard, 1959). The modifications were made to allow it to be administered by tape, without a hypnotic operator actually present in the room. The modifications were similar to those used by Shor and Orne in producing the

HGSHS from the Stanford Hypnotic Susceptibility Scale, Form A. This modified susceptibility scale is included in Appendix B.

The modified SHSS:B (SHSS:B') was recorded on a cassette tape. The SHSS:B' contained the words "relax," "relaxing," "relaxed," and "relaxation" a total of 56 times. The "relax words" were relatively evenly distributed throughout the tape, and no relax words occurred during the giving of the suggestions or during the time allotted for their execution.

The tape was played on a cassette tape recorder with the volume set so that the subjects heard the induction at a normal conversational level. A transcript of the tape highlighting the occurrence of the relax words allowed the experimenter to anticipate the signals, making it easier to monitor the subjects' responses to them (activation of the light).

Procedure

Each subject received a hypnotic induction on three different occasions: during the group administration of the HGSHS, during the individual administration of the SHSS:C, and during the experimental procedure with the SHSS:B'. Following each susceptibility scale, each subject was asked to complete the state form of the STAI. Following the group hypnosis, each subject was given an opportunity to write any

spontaneous comments which might have occurred to him or her on the back of the response booklet. After the two individual procedures, each subject was debriefed using an open ended sentence, semistructured interview format (see Appendix C). Also, an attempt was made to record all spontaneous comments made during the study.

The experimental procedure used is similar to that used by Gur (1973, 1974). All subjects had been exposed to the HGSHS and the SHSS:C before receiving the experimental procedure. This procedure began with the subjects entering a small room. They were seated in a large comfortable chair and received the following general instructions:

> This experiment is interested in the relationship between hypnosis and motor performance. In a few minutes you will be given some instructions which I think will be clear. [Also, this study involves the use of a strong electric shock, which is somewaht painful but not dangerous. This will be further explained to you when you are given your instructions about what to do.] A meeting will be held to explain the results and purposes of this research after all subjects have been run. If you are interested, you may attend this meeting which will be announced on the same bulletin board where you signed up for this research. One other thing, please do not discuss this session with other subjects until the completion of this study. At this point would you please read this description of your rights and responsibilities as a subject and sign at the bottom indicating that the research has been explained to you and that you understand in a general way what your participation will involve. (The bracketed portion was not included in the instructions given to those subjects assigned to the two control conditions.)

After the departmental consent form had been signed, the electrodes were attached to the left hands of those subjects in the two experimental conditions. Next the subjects listened to one of the following sets of instructions being read to them, depending on whether they had been assigned to an experimental or control, and experimenter present or experimenter absent condition:

> Experimenter Present Feedback Group: I am now going to administer to you a procedure for measuring hypnotic susceptibility. While listening to this tape recording you will be expected to perform a task. This task is to listen carefully, and when you hear the word "relax" mentioned, or any words containing "relax" such as "relaxed," "relaxing," or "relaxation," to quickly press the footpedal. Whenever you fail to do so, you may get a strong electric shock through the electrodes on the back of your hand. You are to quickly press the pedal whenever you hear the word "relax" or words containing "relax." Remember, if you fail to press the pedal after hearing "relax," you may receive a strong electric shock. I am going to turn on the tape recorder now. Listen carefully and follow the instructions which you have been given.
> Experimenter Absent Feedback Group: (same instructions as previous group with the following instructions in place of the last two sentences): I am going to turn on the tape recorder now and leave the room. I will return when the tape recording is over. Listen carefully and follow the instructions which you have been given.
> Experimenter Present No-Feedback Group: I am going to administer to you a procedure for measuring hypnotic susceptibility. Your task is let yourself be hypnotized by listening carefully to what the hypnotist says and doing those things he requests of you. I am going to turn on the tape recorder now. Listen carefully and follow the instructions which you have been given.

> Experimenter Absent No-Feedback Group: (same instructions as previous group with the following instructions in place of the last two sentences): I am going to turn on the tape recorder now and leave the room. I will return when the tape recording is over. Listen carefully and follow the instructions which you have been given.

The experimenter monitored the signals (pedal presses) made by each subject, and activated the electrical stimulator each time an experimental subject failed to signal the occurrence of a relax word. In addition, in the two conditions in which the experimenter was present in the room, he recorded the subjects' own self determined scores. After the tape recording was finished the experimenter returned to the room in those conditions in which he was not already present. Each subject was asked to describe specific responses to the hypnotic procedure. Subjects were then given card 12M of the TAT and asked to make up a story about what was pictured after looking at the card for 15 seconds. Finally, each subject was asked to complete the state portion of the STAI.

Ratings of Transference, TAT Outcome and TAT Rapport

Two independent raters produced three sets of ratings. Each subject's spontaneous comments and responses to the semi-structured debriefing interview were given a global rating ranging from -4 to +4 of the amount of regressive transference which they showed. The scale was a modification of

that used by LeBaron (1979), and, for example, would result in positive ratings for statements describing the authority, prestige, and competence of the experimenter and negative ratings for open criticism of the experiment or hostility directed toward the experimenter (see Appendix D). Subjects' TAT stories were rated as having positive, neutral, or negative outcomes ("the kid gets well," "can't tell what happens," "the guy dies") and as reflecting positive, neutral, or negative rapport between the two figures pictured in the card ("one person is looking after the other," "these people aren't really related, don't know one another," "the one guy is controlling the other guy's mind"). These scales were developed using the procedure which Sheehan and Dolby (1979) used for scoring hypnotic dreams (see Appendix E). Disagreement on initial independent ratings were resolved by discussion leading to a consensus rating.

RESULTS AND PRELIMINARY DISCUSSION

Interrater Reliability

Ratings of TAT story rapport correlated .97 and ratings of TAT story outcome correlated .94 using the Goodman-Kruskal gamma rank order correlation coefficient (1954, 1959, 1963, 1972). Ratings of transference correlated .95 using gamma.

Self-reported and Observed Susceptibility Scores

The experimenter-observed SHSS:B' scores correlated .84 (n=19, $p < .0001$) with the subject-reported SHSS:B' scores ($\bar{x}$ observed = 3.37, s.d. = 2.56; $\bar{x}$ reported = 3.26, s.d. = 2.00).

Manipulation Check

The first analyses of the data were to determine whether subjects' anxiety was increased by shock, and whether there was an accompanying increase in their transference scores. A 2 (shock-no shock) x2 (experimenter present-experimenter absent) x3 (3 experimenters) factorial design was used to evaluate separately the dependent variables. The ANOVA model was a mixed design with treatment conditions being fixed effects and subjects being a random effect. STAI state during the experimental procedure did not show a

reliable main effect. However, a 3-way interaction was significant (F = 3.86; df = 2.23; p <.04), and an inspection of the means shows that the pattern of anxiety scores in the four conditions is different for Experimenter 1 than for Experimenters 2 and 3. (For shock conditions, mean anxiety is higher for Experimenter 1 in the present than the absent condition; for Experimenters 2 and 3 mean anxiety is higher in absent than present conditions. Similarly, in no shock conditions, mean anxiety for present conditions is lower than for absent conditions for Experimenter 1 but for Experimenters 2 and 3 it is higher.)[1] Thus, although the shock did not produce the expected increase in anxiety, subjects' reaction to the experimental situation was a complex reaction which depended in part on which experimenter they had. The heterogeneity of variances with unequal numbers of subjects in the cells warrants a certain amount of caution in interpreting the results. (See Tables 1 and 2 for a summary of ANOVA and means.)

Transference scores showed a significant main effect for shock (F = 5.83; df = 1.23; p <.03), although the mean score for shock was lower than for no shock, contrary

---

[1]Experimenter 1 was an experimenter in a previous piece of research in which the data collected by him differed systematically from that collected by the other experimenters in that study. This suggests that subjects are responding to some feature of him which is relatively stable over time.

Table 1. 2x2x3 ANOVA of STAI State

Source	DF	SS	F	f
Experimenter Present	1	196.93	1.13	n.s.
Shock	1	21.63	0.13	n.s.
Experimenter	2	128.89	0.37	n.s.
Present x Shock	1	99.35	0.57	n.s.
Experimenter x Present	2	24.55	0.07	n.s.
Present x Shock x Experimenter	2	1347.13	3.86	.035

to prediction ($\bar{x}$ shock = -1.07, s.d. = 1.75, range -4 to +2, $\bar{x}$ no shock = 0.00, s.d. 97, range -2 to +2). This means that shock in this study did not result in the conditions of increased anxiety leading to transference which were hypothesized as necessary to increase suggestibility. The negative score in the shock condition indicates that those subjects in shock conditions were significantly more critical of the experimenter and experiment than those who were not shocked and who were on the average neutral about them. This analysis and the means are summarized in Tables 3 and 4.

Susceptibility Scores

SHSS:B' means were adjusted (ANCOVA) by using scores on the HGSHS and SHSS:C as covariates. No significant main effects or interactions were found. These findings are consistent with both of Smyth's studies, neither of which

Table 2. Adjusted Means and Standard Deviations of STAI State by Experimenter and Conditions

Experimenter 1

	Shock	No Shock	
Present	$\bar{x}$=39.00 s.d.=11.53 n= 3	$\bar{x}$=35.75 s.d.= 5.19 n= 4	37.14 s.d.= 7.80
Absent	$\bar{x}$=30.67 s.d.= 2.89 n= 3	$\bar{x}$=49.33 s.d.=10.12 n= 3	40.00 s.d.=12.20
	34.84 s.d.= 8.80	41.57 s.d.=10.01	38.46(n=13) s.d.= 9.73

Experimenter 2

	Shock	No Shock	
Present	$\bar{x}$=32.50 s.d.= 2.12 n= 2	$\bar{x}$=42.50 s.d.= 7.68 n= 4	39.17 s.d.= 7.94
Absent	$\bar{x}$=63.50 s.d.=45.97 n= 2	$\bar{x}$=32.50 s.d.= 9.19 n= 2	48.00 s.d.=32.44
	48.00 s.d.=32.03	39.17 s.d.= 8.89	42.70(n=10) s.d.=20.17

Experimenter 3

	Shock	No Shock	
Present	$\bar{x}$=40.33 s.d.=10.60 n= 3	$\bar{x}$=40.33 s.d.= 8.90 n= 3	40.33 s.d.= 8.78
Absent	$\bar{x}$=52.00 s.d.=11.31 n= 2	$\bar{x}$=40.00 s.d.=13.64 n= 4	44.00 s.d.=13.25
	44.00 s.d.=11.36	40.14 s.d.=10.95	42.16(n=12) s.d.=10.89

All Subjects

	Shock	No Shock	
Present	$\bar{x}$=32.00 s.d.= 9.00 n= 8	$\bar{x}$=39.45 s.d.= 7.16 n=11	36.31 s.d.= 7.81
Absent	$\bar{x}$=42.57 s.d.=24.65 n= 7	$\bar{x}$=41.44 s.d.=12.26 n= 9	41.93 s.d.=18.14
	36.93 s.d.=17.88	40.35 s.d.= 9.56	39.17(n=35) s.d.=13.53

Table 3. 2x2x3 ANOVA of Transference Scores

Source	DF	SS	F	P
Experimenter Present	1	.18	.10	n.s.
Shock	1	10.62	5.83	.023
Experimenter	2	6.20	1.70	n.s.
Present x Shock	1	.62	.34	n.s.
Experimenter x Shock	2	3.65	1.00	n.s.
Experimenter x Present	2	.56	.15	n.s.
Present x Shock x Experimenter	2	8.94	2.45	n.s.

Table 4. Adjusted Means and Standard Deviations for Transference Scores by Experimental Conditions

	Shock	No Shock	
Present	$\bar{x}$=3.12 s.d.=1.46 n=8	$\bar{x}$= 4.00 s.d.= 0.94 n=10	3.61 s.d.=1.24
Absent	$\bar{x}$=2.71 s.d.=2.13 n=7	$\bar{x}$= 4.00 s.d.= 1.20 n=10	3.47 s.d.=1.70
	2.93* s.d.=1.75	4.00* s.d.= 1.05	3.54 s.d.=1.46 (n=35)

*Difference significant $p < .03$

increased susceptibility, but are in contrast to Gur's results. Hypothesis One is not supported. Means and standard deviations are presented in Table 5.

Table 5. Adjusted Means and Standard Deviations on SHSS:B' by Experimental Conditions

	Shock	No Shock	
Present	$\bar{x}$=2.67 s.d.=1.80 n=9	$\bar{x}$=3.91 s.d.=1.87 n=11	3.35 s.d.=1.96
Absent	$\bar{x}$=3.71 s.d.=2.98 n=7	$\bar{x}$=5.40 s.d.=2.88 n=10	4.70 s.d.=2.95
	3.12 s.d.=2.41	4.62 s.d.=2.46	3.97 s.d.=2.55 (n=37)

Revised Manipulation Check

The significant 3-way interaction reported above (STAI) may have obscured other significant results. Therefore, despite the potential loss of generalizability which comes about by excluding some data in post hoc analyses, the data from the discrepant experimenter (Experimenter 1) were removed and the remaining data were reanalyzed. For the resulting 2x2x2 ANOVA on STAI there were no significant main effects or interactions. This indicates that the manipulation of shock failed to significantly increase anxiety, and that the interaction was not suppressing significant results. This analysis is summarized in Table 6.

Table 6. ANOVA of STAI State Scores Excluding Experimenter 1 Data

Source	DF	SS	F	p
Experimenter Present	1	200.09	0.81	n.s.
Shock	1	235.26	0.96	n.s.
Experimenter	1	1.55	0.01	n.s.
Present x Shock	1	796.64	3.23	n.s.
Experimenter x Shock	1	4.98	0.02	n.s.
Experimenter x Present	1	11.38	0.05	n.s.
Present x Shock x Experimenter	1	265.58	1.08	n.s.

Anxiety, Transference, and Susceptibility

Because the manipulation did not consistently increase subjects' anxiety, correlations were computed combining data from all four conditions. Because the anxiety scores of Experimenter 1's subjects varied systematically from those of the other subjects, correlations involving anxiety were also computed excluding those data. Correlations with one or both variables having 10 or fewer possible values were adjusted for the effects of restricted range (Walker & Lev, 1953). These correlations are summarized in Table 7. Anxiety scores (STAI state) did not correlate significantly with susceptibility (SHSS:B') (r = -.25, n = 34, p <.08, one-tailed test). The correlation was r = -.32 (n = 21, n.s.) excluding Experimenter 1's data, also not significant. The overall correlation (r = -.25), although

Table 7. Intercorrelations of SHSS:B', Anxiety (STAI), Transference, TAT Outcome, TAT Rapport, and Number of Shocks

	Anxiety[a]	Transference	Outcome	Rapport	Shocks[b]
SHSS:B'	-.25(-.32)	.48**	.12	-.05	.76*
Anxiety[a]		-.57**(-.67)***	.03(-.06)	.40*(.43)	-.20(-.03)
Transference			-.01	-.05	.41
Outcome				.03	.48
Rapport					.12

[a]Correlations in parentheses were calculated excluding data from Experimenter 1 (n=21).

[b]n=15 for correlations in the shock conditions.

*$p < .01$

**$p < .005$

***$p < .001$

not significant, is of the same sign as that reported by Smyth (1978). Transference scores correlated significantly with SHSS:B' susceptibility scores ($r = .48$, $n = 34$, $p < .005$), as predicted. Subjects who passed more items on the test of susceptibility also were more positive in their statements about the experimenter and experiment. The correlation between anxiety and transference scores was also highly significant ($r = -.57$, $n = 34$, $p < .005$; $r = -.67$, $n = 21$, $p < .001$, without Experimenter 1). This finding indicates that the more anxious subjects were, the more likely they were to make hostile, critical, or disparaging

comments about the experimenter or the experiment. Although it is not possible to know the direction of influence (from anxiety to negative transference or from negative transference to anxiety), the obtained relationship makes sense in psychodynamic terms. Negative transference scores in this instance reflect anger and irritation, and either anger leads to anxiety, perhaps about the feelings of anger, or the anger results from the feeling that one is being made uncomfortably anxious.

Partial correlations also were performed to elucidate further the relationships among these variables. The correlation between transference and susceptibility with anxiety partialed out falls slightly to r partial = .39, (n - 34, $p < .03$). The partial correlation of anxiety and susceptibility with transference partialed out does not reach significance (r partial = .10, n = 34). The multiple correlation of anxiety and transference with susceptibility is r mult. = .47 (n = 34, $p < .025$), no improvement over the correlation of transference and susceptibility alone. These correlations indicate that although transference and anxiety are significantly related, that relationship does not mediate the relationship of transference and susceptibility; transference and susceptibility are related independent of anxiety.

TAT Scores, Transference, and Susceptibility

TAT outcome scores did not correlate significantly with susceptibility (SHSS:B') scores (r = .12, n = 35). TAT rapport scores were also not significantly related to susceptibility (r = -.05, n = 35). Surprisingly, TAT outcome and TAT rapport were not related to each other (r = .03, n = 35), nor was either related to transference (r outcome = -.01, n = 35; r rapport = -.05, n = 35). These three scores thus appear to be measuring independent aspects of subjects' response to the experiment.

Number of Shocks and Susceptibility

Subjects in the shock conditions received an average of 8.47 shocks during the course of the experimental procedure (n = 15, s.d. = 12.48, range 0-51). The number of shocks received correlated .76 with SHSS:B' susceptibility score ($p < .007$). This correlation is consistent with Smyth's finding, but varies sharply from that reported by Gur, r = -.56, (1974). Response to the shock was varied. Most subjects were somewhat anxious, although not in the uniform and extreme manner apparently observed by Gur. Two subjects refused to continue with the study when informed of the possibility of receiving shock, and one subject stopped in the middle of the procedure after receiving several shocks.[2]

---

[2]The subject who dropped out was a competitive athlete who had in the past suffered from performance anxiety. He was treated for anxiety with a conditioning procedure in

Transference, Anxiety, and TAT Rapport

It is noteworthy that the correlation between anxiety and transference is significant and negative, yet the correlation between anxiety and rapport is significant and positive, a surprising and apparently contradictory finding. Understanding the meaning of these results may be aided by considering the context within which each score (transference, rapport) was collected. The rapport score was a rating of a story constructed in response to a projective stimulus, and immediately followed the experimental procedures. The transference score was to be primarily a rating of subjects' spontaneous comments, but so few such comments occurred that it is instead a rating of the answers elicited by open ended questioning in the debriefing interview at the very end of the experiment. One might speculate that the projective task tapped more unconsciously motivated processes, in which case the finding that subjects who were more anxious told stories with positive relationships between the story characters might represent their unconscious attempt to provide the positive, gratifying relationship in their fantasy that they had just been deprived of in the

---

which "relax" was a conditioned cue to decrease his anxiety. He reported that he became increasingly anxious as the experiment progressed because the relax word in the study called for competing, conflicting responses from him (relax or press the pedal) as a result of his conditioning. See Meier (1949) and Wilcoxon (1952) for animal studies of "experimental neuroses" which are similar.

reality of the experimental situation. The transference scale, on the other hand, despite its intent, does not seem to be tapping unconscious intrapsychic processes, but rather conscious interpersonal ones. The responses elicited by questioning were in the service of salvaging subjects' self esteem lowered by repeated reminders (shocks) that they were failing to adequately monitor the relax words.

Moderator Variable Analysis

There is the possibility that anxiety or transference individually or together might have been functioning as moderator variables mediating or obscuring significant effects on the SHSS:B' susceptibility. To examine this possibility, subjects were partitioned into high and low anxious and high and low transference groups on the basis of median splits. Analyses of simple effects on the SHSS:B' were computed for each potential moderator variable, first each separately, then considered concurrently (i.e., high anxiety - high transference, high anxiety - low transference, etc.). No significant effects were found.

FURTHER DISCUSSION

The experimental procedure did not result in the expected increases in hypnotic responsiveness, whether or not an experimenter was present. Thus, this study does not provide support for Hypothesis One. The failure to replicate Gur's findings, with not even a trend in the anticipated direction, is surprising, and requires some explanation.

Hypothesis Two is concerned with explaining what underlies increased susceptibility. As susceptibility was not increased in this study no direct test of Hypothesis Two is possible.

Hypothesis Three states that anxiety and hypnotic responsiveness vary inversely. The present data lead to a correlation of appropriate sign, but which fails to reach standard levels of significance. Thus, it is not inconsistent with the results of Smyth (1978) and Reyher (1977), but cannot be said to provide clear support either.

Hypothesis Four, that diffuse attention accompanies increased susceptibility, is clearly supported by the significant correlation between number of shocks received and SHSS:B' scores. This is consistent with Smyth's findings

but conflicts with that reported by Gur (r = -.56)[1].

In surprising contrast to expectation in both the Smyth studies and in the present study, three separate attempts to replicate the results of Gur's two studies have failed. To begin with, the significant correlation between susceptibility scores and number of shocks received (r = .76) corroborates the findings of both of Smyth's studies. This correlation indicates that higher susceptibility scores were not produced by causing subjects to pay closer attention to the words of the hypnotic operator. On the contrary, higher susceptibility scores were accompanied by decreased attention to the specific task of monitoring the hypnotists's words. This study thus adds support to Smyth's contention that Gur's original explanation of the increased susceptibility is incorrect.

However, whether or not Gur appropriately explained his results, he nonetheless demonstrated a procedure which produced increases in susceptibility. If the mechanism underlying the increases is in fact that subjects grow

---

[1]The reason for this discrepancy is not clear. One possible explanation involves a malfunction of equipment. The shock generator was equipped with a counter which was supposed to record the number of shocks, but this counter was unreliable as it only worked intermittently. This apparatus was used by Gur, by Smyth, and in the present study. However, in the Smyth studies and in the present study, the shocks were administered and counted by an experimenter; Gur relied upon the apparatus to automatically administer and count the number of shocks, opening the door to the possibility of error in that regard.

anxious, feel dependent and helpless, and then invest the hypnotist with authority and power in a regressive transference relationship, then the present findings can be accounted for. Susceptibility scores did not increase because the procedure did not produce the high level of anxiety reported in the Gur studies. This situation was not sufficiently anxiety arousing to activate dependency strivings, and the transference-suggestibility link was not directly tested. Thus, the present study is not a particularly troublesome challenge to the hypothesis that increased suggestibility can be mediated by a regressive transference. The findings are not inconsistent with such an explanation, but do not clearly demonstrate it either.

The positive correlation between susceptibility scores and transference ratings deserves comment. Although it is significant and in the predicted direction, it does not necessarily provide support for the transference-suggestibility link. As the manipulation checks clearly showed, the conditions of increased anxiety which might have led to the development of transference phenomena did not occur. There is no causal sequence which can be demonstrated in which increased anxiety led to increased dependency striving and feelings of helplessness, which led in turn to transference manifestations, finally resulting in increased susceptibility. All that can be reliably stated is that susceptibility and transference were positively related, that is, occurred together in these data. Given the

relatively low anxiety in the present study, it seems mistaken to employ the construct of transference as a central part of any explanatory formulation about these results.

Although the rating scale used to rate transference was intended primarily to rate incidental, spontaneous comments, very few such comments occurred, and the ratings were almost exclusively ratings of the content of the debriefing interview following the experiment. The scale has some face validity as a means of recognizing transference phenomena, but statements which are elicited by questioning and are in the service of managing self esteem rather than expressing regressive wishes would be scored as transference manifestations nonetheless. If positive statements about the hypnotist arise not from overvaluation of him under the sway of a regressive transference but instead out of a wish to placate, or to not appear foolish, for example, they would be scored as high transference statements but would not be so.

The explanation of increased suggestibility in terms of transference relies primarily on viewing the shock as painful, evoking a sense of some danger and anxiety about a feeling of helplessness and passivity. In fact, there is another pain also associated with the shock, which is the self esteem lowering experience of being reminded in the presence of another that one has failed on a task. The wish to present and preserve a picture of oneself as competent is

probably a more salient feature of this experimental situation than the wish to regress and be cared for. The procedure quickly activated strategies for managing self esteem, but did not produce the interpersonal manifestations of intrapsychic phenomena that clinicians regularly report. Indeed, recent research has focused on styles of self esteem and impression management (Reyher & Gavriledes, 1981); and has related such differing styles to responsiveness to hypnosis (Pottinger, 1981; Reyher, 1980; Smyth & Reyher, 1981). Thus, the appropriate conceptual framework for considering these results is more interpersonal and less intrapsychic than was hypothesized.

An unexpected and interesting finding of this study was that subjects' anxiety did not depend only on whether they were going to be shocked, but was instead mediated by something about the experimenters themselves. This finding highlights the potential impact of experimenters' personal characteristics on subjects despite attempts to reduce such effects by training experimenters and by providing an objective, clearly specified procedure. Barber (1964), Remmers, Cutler, and Jones (1940), and Stukat (1958) report studies in which personality characteristics of experimenters significantly affected susceptibility of subjects. In some ambiguous or projective situations, such as figure drawings (e.g., Pekala, 1978; Roach, 1981), gender of experimenter is a salient factor in producing highly significant

interactions with experimental treatments. Perhaps one effect of projective situations is to potentiate interpersonal variables. This finding underscores the importance of specifying as much information as is possible about describable experimenter characteristics. (See Branson & Matthews (1981) for a recent study in which interpersonal variables were important yet experimenter characteristics were not clearly specified.)

To sum up, this study plainly illustrates the difficulty of observing ineffable clinical phenomena in the setting of the laboratory, especially in analog studies. However, it suggests that even if intrapsychic processes are either not activated or not observable, the laboratory study of clinical or quasi-clinical phenomena activates a complex array of psychodynamic processes susceptible of study, processes which may shed theoretical light on clinical issues.

REFERENCES

REFERENCES

As, A., Hilgard, E.R., & Weitzenhoffer, A. An attempt at experimental modification of hypnotizability, through repeated, individualized hypnotic experiences. Scandinavian Journal of Psychology, 1963, 4, 81-89.

August, R.V. Hypnosis: Viewed academically and therapeutically. American Journal of Clinical Hypnosis, 1967, 9, 171-180.

Barber, T.X. Hypnotizability, suggestibility, and personality: V. A critical review of research findings. Psychological Reports, 1964, 14, 299-320.

Beiman, I., Israel, E., & Johnson, S.A. During training and posttraining effects of live and taped extended progressive relaxation, self-relaxation, and electromyogram biofeedback. Journal of Consulting and Clinical Psychology, 1978, 46, 314-321.

Blum, G. Programming people to simulate machines. In S. Tomkins & S. Messich (Eds.), Computer simulation of personality. New York: Wiley, 1963.

Borkovec, T.D., Grayson, J.B., & Cooper, K.M. Treatment of general tension: Subjective and physiological effects of progressive relaxation. Journal of Consulting and Clinical Psychology, 1978, 46, 518-528.

Branson, B., & Matthews, K. The type A coronary-prone behavior pattern and reactions to uncontrollable stress: An analysis of performance strategies, affect, and attributions during failure. Journal of Personality and Social Psychology, 1981, 40, 906-918.

Cassel, R.H., Johnson, A., & Barns, W.H. Examiner ego-defense and the H-T-P test. Journal of Clinical Psychology, 1958, 19, 157-160.

Cooper, L., Benford, S., Schubot, E., & Tart, C. A further attempt to modify hypnotic susceptibility through repeated, individualized experience. International Journal of Clinical and Experimental Hypnosis, 1967, 15, 118-124.

Diamond, M.J. Use of observationally presented information to modify hypnotic susceptibility. Journal of Abnormal Psychology, 1972.

Diamond, M.J. Modification of hypnotizability: A review. Psychological Bulletin, 1974, 81, 180-198.

Dolby, R.M., & Sheehan, P.W. Cognitive processing and expectancy behavior in hypnosis. Journal of Abnormal Psychology, 1977, 86, 334-345.

Erickson, M.H. Laboratory and clinical hypnosis: The same or different phenomena? American Journal of Clinical Hypnosis, 1967, 9 166-170.

Ferenczi, S. Introjection and Übertragung. Eine Psychoanalytische Studie. Wein: Deuticke, 1910.

Fromm, E. Hypnoanalysis: Theory and two case excerpts. Psychotherapy: Theory, Research, and Practice, 1965, 2, 127-133.

Fromm, E. Transference and countertransference in hypnosis. International Journal of Clinical and Experimental Hypnosis, 1968, 10, 174-177.

Gill, M.M. Hypnosis as an altered and regressed state. International Journal of Clinical and Experimental Hypnosis, 1972, 20, 224-237.

Gill, M.M., & Brenman, M. Hypnosis and related states. New York: International Universities Press, 1961.

Goodman, L.A., & Kruskal, W.H. Measures of association for cross classifications. Journal of the American Statistical Association, 1954, 49, 732-764.

Goodman, L.A., & Kruskal, W.H. Measures of association for cross classifications, II: Further discussion and references. American Statistical Association Journal, 1959, 54, 123-163.

Goodman, L.A., & Kruskal, W.H. Measures of association for cross classifications, III: Approximate sampling theory. American Statistical Association Journal, 1963, 58, 310-364.

Goodman, L.A., & Kruskal, W.H. Measures of association for cross classifications, IV: Simplification of asymptotic variances. American Statistical Association Journal, 1972, 67, 415-421.

Gruenwald, D. Transference and countertransference in hypnosis. International Journal of Clinical and Experimental Hypnosis, 1971, 19, 71-82.

Gur, R.C. An experimental investigation of a new procedure for enhancing hypnotic susceptibility. Unpublished doctoral dissertation, Michigan State University, 1973.

Gur, R.C. An attention-controlled operant procedure for enhancing hypnotic susceptibility. Journal of Abnormal Psychology, 1974, 83, 644-650.

Hilgard, E.R. Hypnotic susceptibility. New York: Harcourt, Brace & World, 1965.

Hilgard, J.R. Personality and hypnosis: A study of imaginative involvement. Chicago: University of Chicago Press, 1970.

Hilgard, J.R. Imaginative involvement: Some characteristics of the highly hypnotizable and nonhypnotizable. International Journal of Clinical and Experimental Hypnosis, 1974, 22, 138-156.

Johnson, L.S., & Wiese, K.S. Live versus tape recorded assessments of hypnotic responsiveness in pain-control patients. International Journal of Clinical and Experimental Hypnosis, 1979, 27, 74-84.

Kidder, L.A. On becoming hypnotized: How skeptics become convinced: A case study of attitude change? Journal of Abnormal Psychology, 1972, 80, 317-322.

Kinney, J.M., & Sachs, L.B. Increasing hypnotic susceptibility. Journal of Abnormal Psychology, 1974, 83, 145-150.

Klinger, B.I. Effect of peer model responsiveness and length of induction procedure on hypnotic responsiveness. Journal of Abnormal Psychology, 1970, 75, 1578.

Kubie, L.S., & Margolin, S. The process of hypnotism and the nature of the hypnotic state. American Journal of Psychiatry, 1944, 100, 611-622.

LeBaron, S. Suggestibility and type of physician-patient relationship. Unpublished doctoral dissertation, Michigan State University, 1979.

London, P., Cooper, L.M., & Engstrom, D.R. Increasing hypnotic susceptibility by brain wave feedback. Journal of Abnormal Psychology, 1974, 83, 554-560.

Maier, N.R.F. Frustration, the study of behavior without a goal. New York: McGraw Hill, 1949.

Morgan, A.H., Johnson, D.L., & Hilgard, E.R. The stability of hypnotic susceptibility: A longitudinal study. International Journal of Clinical and Experimental Hypnosis, 1974, 22, 249-257.

Pearson, R.E. Clinical and experimental trance: What's the difference? A symposium. American Journal of Clinical Hypnosis, 1970, 13, 1-3, 4-16.

Pekala, R. Spontaneous visual imagery and free association in relation to drive activation, anxiety, affects, and the S's conjugate lateral eye movements. Unpublished master's thesis, Michigan State University, 1978.

Pottinger, J. The effect of posthypnotic suggestion on dream recall: Special implications for responsive and unresponsive persons. Unpublished doctoral dissertation, Michigan State University, 1981.

Remmers, H.H., Cutter, M., & Jones, P. Waking suggestibility in children: General or specific? Journal of Genetic Psychology, 1940, 56, 87-93.

Reyher, J. Clinical and experimental hypnosis: Implications for theory and methodology. In W.E. Edmonston (Ed.), Conceptual and investigative approaches to hypnosis and hypnotic phenomena, Annals of the New York Academy of Sciences. New York: New York Academy of Sciences, 1977.

Reyher, J. Treatment outcome in relation to visual imagery, suggestibility, transference, and creativity. Paper presented at first Annual Conference on Imagery of the American Association for the Study of Mental Imagery, Los Angeles, California, 1979.

Reyher, J., & Gavriledges, G. Risk-taking and nonrisktaking in interpersonal relationships: Two divergent modes of personal strivings. Unpublished manuscript, Michigan State University, 1981.

Roach, J. The effect of an experimenter's presence or absence during administration of the draw a person test. Unpublished Master's thesis, Michigan State University, 1981.

Sacco, W.P., & Hokanson, J.E. Expectations of success and anagram performance of depressives in a public and private setting. Journal of Abnormal Psychology, 1978, 87, 122-130.

Sachs, L.B., & Anderson, W.L. Modification of hypnotic susceptibility. International Journal of Clinical and Experimental Hypnosis, 1967, 15, 172-180.

Sanders, R., & Reyher, J. Sensory deprivation and the enhancement of hypnotic susceptibility. Journal of Abnormal Psychology, 1968, 74, 375-379.

Schilder, P. Hypnosis. (Translated by Simon Rothenberg.) New York: Nervous and Mental Disease Publishing Co., 1927.

Shapiro, J.L., & Diamond, M.J. Increases in hypnotizability as a function of encounter group training: Some confirming evidence. Journal of Abnormal Psychology, 1972, 79, 112-115.

Sheehan, P.W., & Dolby, R.M. Motivated involvement in hypnosis: The illustration of clinical rapport through hypnotic dreams. Journal of Abnormal Psychology, 1979, 88, 573-583.

Sheehan, P.W., & Perry, C.W. Methodologies of hypnosis: A critical appraisal of contemporary paradigms of hypnosis. Hillsdale, N.J.: Erlbaum, 1976.

Shor, R.E. Three dimensions of hypnotic depth. International Journal of Clinical and Experimental Hypnosis, 1962, 10, 23-38.

Shor, R.E., & Cobb, J. An exploratory study of hypnotic training using the concept of plateau responsiveness as a reference. American Journal of Clinical and Experimental Hypnosis, 1968, 10, 178-193.

Shor, R.E., & Orne, E.C. The Harvard group scale of hypnotic susceptibility, Form A. Palo Alto, California: Consulting Psychologists Press, 1962.

Smyth, L. The relationship between attention and hypnosis with implications for the roles of anxiety and brain asymmetry. Unpublished doctoral dissertation, Michigan State University, 1978.

Smyth, L., & Reyher, J. Attention and suggestibility: The special implications for personality differences between high and low responsive persons. Unpublished manuscript, Michigan State University, 1981.

Spielberger, C., Gorsuch, R., & Lushene, R. The State - Trait Anxiety Inventory. Palo Alto, California: Consulting Psychologists Press, 1968.

Stukat, K.G. Suggestibility: A factorial and experimental analysis. Stockholm: Almquist & Wiksell, 1958.

Tart, C.T. Increases in hypnotizability resulting from a prolonged program for enhancing personal growth. Journal of Abnormal Psychology, 1970, 75, 260-266.

Thompson, K.F. Clinical and experimental trance: Yes, there is a difference. American Journal of Clinical Hypnosis, 1970, 13, 3-5.

Walker, H.M., & Lev, J. Statistical inference. New York: Henry Holt and Company, 1953.

Watkins, J.G. The affect bridge: A hypnoanalytic technique. International Journal of Clinical and Experimental Hypnosis, 1971, 19, 21-27.

Weitzenhoffer, A.M., & Hilgard, E.R. Stanford Hypnotic Susceptibility Scale, Forms A and B. Palo Alto, California: Consulting Psychologists Press, 1959.

Weitzenhoffer, A.M., & Hilgard, E.R. Stanford Hypnotic Susceptibility Scale, Form C. Palo Alto, California: Consulting Psychologists Press, 1962.

Wickramesekera, I. Effects of electromyographic feedback on hypnotic susceptibility: More preliminary data. Journal of Abnormal Psychology, 74-77.

Wilcoxon, H.C. "Abnormal fixation" and learning. Journal of Experimental Psychology, 1952, 44, 324-333.

Wolberg, L.R. Medical hypnosis (Vol. 1). The principles of hypnotherapy. New York: Grune & Stratton, 1948.

APPENDIX A

A Review of Correlates of Hypnotic Susceptibility

APPENDIX A

A Review of Correlates of Hypnotic Susceptibility

A. Introduction

To propose to review the literature on correlates of hypnotizability implies that there can be some agreement regarding what susceptibility is. The diversity of opinion on this topic led one pair of reviewers (Deckert & West, 1963) to avoid the question altogether.[1] Yet there is little question that people differ in the degree to which they respond to hypnotic suggestions, and this responsiveness is now considered by most researchers to be quite stable over time (e.g., see Bowers, 1976; Hilgard, 1965; Morgan, Johnson, & Hilgard, 1974). Diamond (1974) states that the question for researchers in hypnosis is no longer "whether hypnosis is," but rather "what hypnosis is." He goes on to describe his own understanding of hypnosis, but also proposes the convention, one well accepted in the field, that the term

---

[1] They wrote: "When Alice, in Lewis Carroll's Through the Looking Glass complains that Humpty Dumpty is misusing a word, Humpty Dumpty rather scornfully replies, 'When I use a word, it means just what I choose it to mean--neither more nor less.' He later elaborates, 'When I make a word do a lot of work like that--I always pay it extra.' One wonders what meaning Humpty Dumpty would assign to hypnotizability, and whether after reviewing the literature, he might pay it extra." (p. 205) They decided to accept the definitions of susceptibility advanced in each of the reports which they reviewed.

hypnotic susceptibility be used to refer to "hypnotic behavior operationally defined and measured by standard hypnotic test scales and self-ratings following attempted hypnotic inductions" (p. 180).[2] This is the definition of susceptibility which will be used for this review.[3]

Early explanatory formulations of hypnosis and hypnotic phenomena focused on the "animal magnetism" of the hypnotic operator, and viewed it as something which the hypnotist did to the subject or patient, rather than, at least in part, an ability of the subject or patient. This way of thinking about hypnosis led initially to a minimization of subject variables. Yet it was quickly discovered by early hypnotists that some people were more easily hypnotized than others, a fact which the animal magnetism theory did not adequately account for. With this discovery began the search for subject variables related to people's differential responsiveness to hypnosis. The development of early personality inventories brought with it attempts to relate hypnotic susceptibility to various personality attributes.

---

[2]Although this is an adequate definition for relatively recent research, many studies done before the development of reliable, well standardized susceptibility scales in the late 1950's and early 1960's used unsophisticated measures of susceptibility or measures of nonhypnotic suggestibility which reduces the generalizability of those findings.

[3]Studies not using such standard instruments will be included in this review, but specific mention of the possibly inadequate measure of susceptibility will be made. See footnote 2.

These early studies were rarely methodologically sound, and just as rarely produced replicable results. The methodology of hypnosis research remained simple, but at least became more reliable with the development of standardized scales of hypnotizability, psychometrically better paper and pencil personality tests, and computers to perform increasingly complicated statistical procedures. The correlational study attempting to relate any number of personality attributes to hypnotic susceptibility became the standard approach for researching hypnotizability, yet the results from this approach were also disappointing until fairly recently. (There are a variety of reasons why this approach has not led to positive findings. These are presented below, following consideration of the results themselves.) Recently, subjects' ability to become absorbed in activities, and to become imaginatively involved in non-hypnotic experiences has been clearly related to hypnotizability. Hypnotic susceptibility has also been successfully related to physiological variables such as brain lateralization, hemispheric dominance, EEG patterns, and eye roll. Finally, recent work has begun to tentatively identify differential personality styles in high, medium, and low susceptible people, and divergent interpersonal styles of self-esteem management in high and low responsive subjects.

This appendix will be a review of correlates of hypnotizability which are subject variables. It will begin

with a review of the early studies, leading into a consideration of the correlational studies of personality characteristics. Following a consideration of the factors that militate against finding positive results using simple correlational design, the absorption and imaginative involvement research will be reviewed. A review of the physical and physiological correlates is next, followed by the personality formulations which have recently been advanced regarding hypnotizability.

B. Early Studies and Correlational Studies: Attempts to relate personality variables to hypnotizability; attempts to predict hypnotizability with test-related measures.

Hysteria. A venerable hypothesis in hypnosis theory, advanced by such pioneer investigators as Charcot and Janet, holds that hysterics are highly suggestible and far more hypnotizable than non-hysterics. Barber (1964) has pointed out several factors which may make this hypothesis difficult to test, his main point being that the term hysteric is used by different people to mean different things, and very likely no longer means what early investigators intended by it. Nevertheless, there have been several attempts to determine whether "hysterics" are more hypnotizable than "non-hysterics."

Eysenck (1943) compared 30 patients diagnosed as "conversion hysterics" by senior psychiatrists and 30 non-hysteric neurotics selected by the same psychiatrists on

tests of suggestibility. The hysterics did not differ significantly from the non-hysterics on any of the suggestibility tests. In a second study, Eysenck (1947) compared 231 "relatively pure hysterics" with 309 "comparatively pure cases of dysthymia" on a suggestibility test. (Dysthymia is defined by Eysenck as the syndrome characterized by anxiety, depression, and obsessional tendencies.) The two groups did not differ significantly on suggestibility. In both of these studies the tests of suggestibility were non-hypnotic tests, such as the postural sway test, suggestions of arm lowering, and suggestions of arm levitation, all administered without a hypnotic induction. This measure of suggestibility limits the conclusions which can be drawn about the hypnotic susceptibility of hysterics and non-hysterics.

Ehrenreich (1949) compared the hypnotizability of hysterics with groups of schizophrenics, neurotics, character disorders and normals. He found that hysterics were not more hypnotizable than normals (college students and hospital employees), that the majority of the hysterics were not hypnotizable, and that hysterics were somewhat more hypnotizable than the other groups.

Stukat (1958) compared 75 patients classified by psychiatrists as "hysterical personalities" and 47 patients who were not hysterics on two non-hypnotic tests of suggestibility. Hysterics and non-hysterics did not differ in

measured suggestibility.

Sarbin (1950) divided a group of hypnotizable students who had taken the MMPI into somnambulistic and light trance subjects. The somnambulistic subjects had significantly higher scores on the Hy scale of the MMPI. He concluded that there was a relationship between hysteria and hypnotic aptitude when motivation was controlled.

Faw and Wilcox (1958) found inconsistent relationships between hypnotizability and Hy on the MMPI. They found that the poorest adjusted group of subjects (based on MMPI, Rorschach, and clinical evaluation of diaries) was highly susceptible with elevated Hy scores. However, in the well adjusted group, the Hy scale was not related to susceptibility. They concluded that better adjusted subjects were more hypnotizable, but did not account for the high susceptible subjects of the poorest adjusted group with elevated Hy scores.

Secter (1961a) attempted to relate a four-fold classification of trance depth to MMPI scales. Mean Hy scores increased for the first three depth categories, but scores for the deep hypnosis category were less than those for subjects who were not hypnotizable.

Neuroticism. Weitzenhoffer (1953) summed up the research to that time on neuroticism by saying that the evidence strongly favored the conclusion that neurotics are more suggestible than normals if neuroticism is defined in

terms of the results of the standard psychiatric examination. However, if neuroticism is defined in terms of the results obtained from personality inventories, neuroticism is defined in terms of the results obtained from personality inventories, neurotics seem to be no more nor less suggestible than normals. Subsequent research has failed to confirm that conclusion.

Heilizer (1960) measured neuroticism in 62 female college students by using a battery of personality inventories, and then tested their suggestibility using non-hypnotic tests. Subjects high and low on neuroticism did not differ in suggestibility.

In the Ehrenreich (1949) study cited above, neurotics were identified on the basis of clinical records, and either did not differ in hypnotizability or were less hypnotizable than normals.

In similar studies using the Maudsley Personality Inventory, Furneaux and Gibson (1961) found a significant negative correlation between neuroticism and hypnotizability, but Thorn (1961), Lang and Lazovik (1962), and Hilgard and Bentler (1963) failed to replicate this finding. Bartlett (1936), Davis and Husband (1931), Messer, Hinckley, and Mosier (1938) all obtained non-significant correlations between neuroticism as measured by personality inventories and scores on hypnotizability or suggestibility scales.

In a large study (900 males and 330 females), Eysenck (1947) reported that neurotic patients were significantly more suggestible than a comparison group of normals. Barber (1964) has criticized the methodology of this study, particularly the criterion of suggestibility which was used (postural sway) and the failure to control for differences between neurotic and normal subjects on static ataxis (which differentiates normal and neurotic subjects and which affects postural sway). In two subsequent studies, Ingham (1954, 1955) compared neurotics and normals on non-hypnotic suggestibility using both the postural sway task and an arm movement task. When scores for neurotics and normals were adjusted to account for movement prior to suggestion, the neurotics were no more suggestible than the normals. A number of other workers have also failed to confirm Eysenck's results (e.g., Clarke, 1950; Doland, 1953; Gravely, 1950; Stukat, 1958).

No reliable relationship between neuroticism and hypnotizability has been found.

The Triadic Hypothesis. Rosenzweig and Sarason (1942) hypothesized that hypnotizability is related to impunitiveness (blaming neither oneself or others, instead blaming no one) as a characteristic reaction to frustration, and to repression as a preferred defense mechanism. They tested this hypothesis using the Rosenzweig picture frustration test to assess impunitiveness and a memory task to

assess repression, and found that hypnotizability was significantly related to impunitiveness and also to repression.

The results relating hypnotizability and impunitiveness have not been confirmed. Willey (1951) found no relationship between hypnotizability and impunitiveness as measured by the Rosenzweig picture frustration test. Doland (1953) found no relationship between non-hypnotic suggestibility and impunitiveness. Barber (1961) found no differences between high and low suggestible subjects on any of the variables measured by the Rosenzweig picture frustration test.

The measure of repression used in the Rosenzweig and Sarason study was to allow subjects to succeed in working six jigsaw puzzles and to fail to complete six other jigsaw puzzles. Subjects who later remembered fewer failed puzzles than successful puzzles were said to have repressed. Petrie (1948) attempted to replicate the Rosenzweig and Sarason findings with regard to susceptibility and repression. Petrie's method of measuring "repression" was to give two batteries of short tests, one in the morning, one in the afternoon. On half of the tests the patients were told they had done well and on the other half they were told they had done poorly. They were then asked to list as many of the tests as they could remember. The "repression" score consisted of the number of "discouraged" tests minus the number of "encouraged" tests remembered. Repression as measured in

this fashion bears little relation to what is commonly meant by the term, and it was found not to be consistent over time. This repression score was not significantly related to suggestibility.

Extroversion. Contradictory and primarily negative results have characterized attempts to relate hypnotizability and extroversion. In 1930, M.M. White found a significant relationship between extroversion as measured by the Neyman-Kohlsted extroversion-introversion inventory and hypnotizability. Barry, MacKinnon, and Murray (1931) found no such relationship using the same instruments. Using judges' ratings or self-report inventories to assess extroversion, Davis and Husband (1931), Dahms and Jenness (1937), and Roach (1947) all reported that extroversion was unrelated to hypnotizability or suggestibility. Subsequent investigators (Cooper & Dana, 1964; Furneaux & Gibson, 1961; Hilgard & Bentler, 1963; Lang & Lazovik, 1962; Thorn, 1961) tried to relate hypnotizability or suggestibility to extroversion as measured by the Maudsley Personality Inventory. Hilgard and Bentler report a small but significant positive relationship; the other investigators reported non-significant correlations.

Rorschach Indicators of Hypnotizability. Sarbin and Madow (1942) administered the Rorschach to 16 high susceptible and 8 low susceptible subjects. They found that one of 12 Rorschach factors (W/D ratio) differentiated between the

two groups. Brenman and Reichard (1943) found no relationship between hypnotizability and W/D ratio, but a measure of "free-floating anxiety" was significant. In a study of non-hypnotic suggestibility, Steisel (1952) performed 72 correlations between the Rorschach and three tests of suggestibility. Three of the 72 correlations were significant, no better than chance, and neither the W/D ratio nor the index of "free-floating anxiety" was significantly related to suggestibility. Schafer (1947) selected 19 "good" and 19 "poor" hypnotic subjects, and administered the Rorschach to each group. No Rorschach factors in his study differentiated high and low susceptible subjects. Doland (1953) and Stukat (1958) also failed to distinguish subjects who were high and low in their responsiveness to non-hypnotic suggestibility on the basis of Rorschach variables.

TAT Indicators of Susceptibility or Suggestibility. Several investigators have attempted to predict subjects' hypnotic susceptibility or non-hypnotic suggestibility on the basis of stories told to TAT card 12M. R.W. White (1937) used an early version of this card to elicit attitudes toward hypnotizability, and found significant correlations between susceptibility and positive attitudes toward hypnosis expressed in the TAT stories. Rosenzweig and Sarason (1942; Sarason & Rosenzweig, 1942), also reported a significant positive relationship between positive attitudes toward hypnosis as reflected in the TAT stories and hypnotic

susceptibility and non-hypnotic suggestibility. Subsequent studies have been unable to replicate the results of these two early studies. Secter (1961b) did not find a relationship between hypnotic susceptibility and card 12M in a group of volunteer subjects from hypnosis seminars and in a group of psychology students. Dana and Cooper (1964) found no relationship between hypnotic susceptibility in male college students and TAT stories to card 12M. Levitt, Lubin, and Brady (1962) found no significant relationship between hypnotic susceptibility and TAT stories in student nurses, and volunteers were indistinguishable from non-volunteers on the basis of affective tone or mention of hypnosis in TAT stories (Levitt, Lubin, & Zuckerman, 1959). Thus, the only positive results obtained to date have been obtained with male subjects (Sarason & Rosenzweig, 1942; R.W. White, 1937), and the results were obtained using an early version of TAT card 12M which is no longer in use.

MMPI Studies. Several investigators have attempted to identify a constellation of personality correlates as reflected on the MMPI which are associated with hypnotic susceptibility. As previously mentioned, Sarbin (1950) found that "somnambulists" obtained higher scores on MMPI scale Hy than did persons who were capable only of lighter trance. Faw and Wilcox (1958) studied the relationship between MMPI scores and observed hypnotic susceptibility in 80 college students. Susceptible and non-susceptible subjects differed significantly on the Hy, Mf, and Sc scales

of the MMPI when observers' ratings of susceptibility were used. When subjects' self-ratings of susceptibility were used, the two groups differed on the D and Mf scales. Faw and Wilcox interpreted these results as showing that susceptible subjects were "better adjusted" than non-susceptible subjects, because they showed less tendency toward depression, less dissatisfaction with their sex status, and fewer schizoid tendencies on the MMPI. The higher hysteria scores of the susceptible subjects did not seem to be congruent with his overall "well adjusted" pattern. Schulman and London (1963) and Secter (1961a) were unable to replicate the above findings. Schulman and London found that susceptible and insusceptible subjects differed on the Pd scale, but that they did not differ significantly on the D, Mf, Sc, or Hy scales. Secter found that MMPI scores of dentists, psychologists, and physicians were unrelated to their scores on a hypnotic scale. In another recent study, Zuckerman, Persky, and Link (1967) failed to find significant relationships between any MMPI scales and hypnotizability.

Other Personality Inventories. Zuckerman and Grosz (1958) used the Edwards Personal Preference Schedule (EPPS), and reported that non-hypnotic suggestibility in student nurses was related to low scores on the Autonomy scale of the EPPS. Lang and Lazovik (1962) reported a significant correlation between hypnotizability and Affiliation on the EPPS. Levitt, Brady, and Lubin (1963) found hypnotizability

significantly related to dependency in nursing students, as indicated by lower scores on the Combined Autonomy, Dominance, and Aggression scales of the EPPS. Barber and Calverley (1964a) failed to relate hypnotizability to any personality variables measured by the EPPS, including Autonomy, Affiliation, Dominance, Aggression, Deference, Abasement, or Nurturance, in a sample of 514 college students. They also found no relationship between hypnotizability and self-disclosure as measured by the Jourard Self-Disclosure scale (Jourard & Lasakow, 1958), and no relationship between hypnotic susceptibility and social desirability as measured by the Marlowe-Crowne Social Desirability scale (Crowne & Marlowe, 1960).

Barber (1956) found significant positive correlations in a small sample of 18 college students between hypnotizability and Ascendence, Sociability, Emotional Stability, and Objectivity as measured by the Guilford-Zimmerman Temperament Survey. Levitt, Brady, and Lubin (1963), also using a small sample, found a significant relationship between Emotional Stability and hypnotizability. Weitzenhoffer and Weitzenhoffer (1958) attempted to replicate these findings using a sample of 200 college students, and failed to find any significant relationships between hypnotizability and factors measured by the Guilford-Zimmerman (also the Cattell 16 PF). In a subsequent small study, Barber (1960) attempted to measure "basic trust toward oneself and others"

using items from the Guilford-Zimmerman Temperament Survey. While results from this preliminary study were suggestive, a study with a larger sample (Barber & Glass, 1982) obtained non-significant correlations between the "basic trust" measure and scores on the Barber Suggestibility Scale.

Using the Leary Interpersonal Checklist (ICL), Bentler (1963) found significant correlations for women between hypnotizability and the Cooperative-Overconventional dimension of the ICL and also between hypnotizability and a Positive Interpersonal Orientation factor that has been extracted from the ICL. The correlations for the males were in the same direction, but none of them were significant. In a replication study, Barber and Calverley (1964b) found fewer significant correlations between ICL factors and hypnotizability scores than could be expected on the basis of chance. However, their finding of a small but significant positive relationship between hypnotizability scores and scores on the Cooperative-Overconventional dimension of the ICL is consistent with Bentler's findings. Barber (1964) concludes that "subjects high and low on hypnotizability or suggestibility do not differ to any important extent on responses to the ICL even though there seems to be a slight tendency in some female samples for hypnotizability to be positively related to the 'cooperativeness' scale of this inventory" (p. 310).

Moore (1964) gave the California Personality Inventory (CPI) to 79 male subjects whose hypnotizability was assessed with the Stanford Hypnotic Susceptibility Scale. Hypnotizability was unrelated to any of the scales on the CPI. Similarly, Hilgard and Lauer (1962) failed to obtain any reliable correlations between hypnotizability and CPI scales or individual CPI items in a sample of over 200 college students. A recent study by McKnight (1975) found that a weighted combination of the Responsibility scale score and the Psychological Mindedness scale score of the CPI was significantly related to hypnotizability, although the relationship accounts for only 18% of the variance.

Discussion. As the foregoing review of the literature demonstrates, the search for reliable correlates of hypnotic susceptibility has been discouraging at best. This state of affairs prompted Schulman and London (1963) to state, "There may indeed be personality traits which distinguish persons of relatively different degrees of hypnotic susceptibility, and these traits may be well worth discovering; but it seems quite clear that they are not going to be discovered by any of our existing gross personality inventories. . . . It is time to stop doing studies [of this sort] and to seek a fresh approach" (p. 159). Several investigators have proposed explanations to account for the surprising lack of positive results. "One way to account for these consistent negative findings is to hold that hypnotizability is isolated from the rest of the personality"

(Kihlstrom, Diaz, McClellan, Ruskin, Pistole, & Shor, 1980; pp. 225-226). However, a variety of other explanations has been offered as well which stop short of this extreme. Barber (1964) and Kihlstrom, et al. (1980) mentioned the relative crudeness of available methods for describing and measuring personality attributes, to which I would add the inadequacy of early scales of hypnotizability as well. As a second idea, Barber (1964) mentions the initially non-comparable methods used to draw samples. Bowers (1976) elaborates this idea in an interesting way. He distinguishes between scores of subjects on hypnotizability scales and their actual hypnotic ability, which he suggests may differ since, in his words, "A particular hypnotic performance may reflect less a person's hypnotic susceptibility than his or her apprehension, concern for autonomy, lack of familiarity with hypnosis, and so on" (pp. 112-113). Thus he touches on the importance of subjects' previous experience with hypnosis, previously highlighted in Shor, Orne, and O'Connell's (1966) "plateau" theory of hypnotic responsiveness,[4] as well as what Barber has called motivational and attitudinal variables. Bowers also cites what he considers to be a

---

[4]Briefly, their theory is that people require repeated hypnotic experiences before they reach their ultimate capacity to experience hypnotic phenomena (plateau); therefore, measurements of hypnotizability must follow sufficient experience with hypnosis if the capacity is not to be underestimated.

common but inaccurate assumption regarding personality traits, that is, that these traits should express themselves across a wide spectrum of behavior, an assumption not supported by research on personality functioning. Such traits may be more limited and situation specific than was expected. Hence, traits such as acquiescence and deference may have little to do with hypnotic susceptibility. Yet another reason offered by Bowers to account for the inconsistent results is that it may be that hypnotic susceptibility correlates with other personality characteristics only in people preselected for certain other personality characteristics. For instance, Rosenhan (1969) found that warmth correlated with susceptibility in low anxious people but not in high anxious people, and that combining the groups of low and high anxious people almost completely washed out the effect. Similarly, Didio (1976) found that high dependent subjects scored higher when given an authoritarian version of the Stanford Hypnotic Susceptibility Scale (SHSS) than they did on the normal SHSS, but that low dependent subjects did not differ on the two scales. This emphasis on moderator variable analysis is consistent with Kihlstrom, et al.'s argument that a methodological shortcoming of much of the research described so far has been its reliance on simple bivariate statistics, ignoring more complex prediction models employing multiple regression and moderator or suppressor variables. Finally, there is ample evidence that

there are subtle complexities of hypnosis and hypnotic phenomena which, if ignored, can impede understanding and positive findings. For example, White (1937) identified two forms of hypnosis, active and passive. Shor (1959, 1962, 1970) has argued for three dimensions of hypnotic depth, which he labels hypnotic role-taking involvement, trance depth, and archaic involvement. Reyher (1977) has suggested that there are different levels of hypersuggestibility which are activated in patients or subjects under varying circumstances. Bowers (1971, 1974), Hilgard, Weitzenhoffer, Landes, and Moore (1961), and Shor, Orne, and O'Connell (1962) have all commented on the bimodal distribution of hypnotic susceptibility in the general population. Hilgard (1965) has suggested that hypnotic susceptibility is "factorially complex." The implications of these diverse theoretical and empirical notions is that, for example, to ignore the active-passive dimension, or to ignore the various levels of suggestibility, or to ignore some aspect of hypnotic behavior contributing to hypnotic depth, is to confound and potentially obscure significant findings. These methodological and theoretical points have been taken to heart by researchers, and have resulted in a number of positive findings which will be reviewed next.

C. Experiential Correlates of Hypnotic Susceptibility

Hypnotic-Like Experiences. Several recent studies have tested the hypothesis that hypnotic susceptibility is correlated with the spontaneous occurrence of periodic, intense hypnotic-like experiences in ordinary waking life. Shor (1960) and As, O'Hara, and Munger (1962) developed inventories to measure the occurrence of such experiences.[5] Many college students reported having had experiences of this sort, and factor analysis of one of the inventories extracted two main clusters of items (As and Lauer, 1962). One factor reflected an ability to become totally absorbed in something, and the second factor involved a tolerance for unusual trance-like experiences in which dissociation or illogicality were not troublesome. Attempts to relate scores on these experience inventories to hypnotic susceptibility were only partially successful. As (1962, 1963), Shor, Orne, and O'Connell (1962, 1966), Lee-Teng (1965), and Van Nuys (1973) all reported reliable but small positive correlations. However, Barber and Calverley (1965) and London, Cooper, and Johnson (1962) failed to replicate these results, and Bowers (1971) replicated them for women

---

[5]Shor's (1960) inventory included such questions as: "Have you ever experienced a part of your body move and had the feeling it was moving without your volition?," "Have you ever been unsure whether you did something or just thought about having to do it?," "Have you ever had the mystical experience of oneness with the universe, a melting into the universe, or a sinking into eternity?"

only. Also, the study by Shor, et al. (1962) did not find a relationship between susceptibility and frequency of hypnotic-like experiences, only with the intensity of these experiences. When correlations are computed only for subjects who are in the higher "hump" of the bimodal distribution of hypnotic susceptibility, the correlations increase. This is the opposite of what one would expect on purely statistical grounds, as a restriction of range ought to lead to a decrease in the size of the correlations. Thus, although it may be important to consider the level of suggestibility and the gender of subjects as moderator variables in this instance, there appears to be some meaningful relationship between hypnotic-like experiences and the capacity to be hypnotized.

Absorption. Tellegen and Atkinson (1974) developed a questionnaire to measure the extent to which people become absorbed in activities, using items taken from experience inventories and hoping to develop the absorption factor extracted through factor analysis into a reliable instrument.[6]

---

[6]Sample items from their absorption scale are: "The sound of a voice can be so fascinating to me that I can just go on listening to it," "If I wish, I can imagine (or daydream) some things so vividly that they hold my attention in the way a good movie or story does," "I can sometimes recollect certain past experiences in my life with such clarity and vividness that it is like living them again, or almost so," and " I am sometimes able to forget about my present life and get absorbed in a fantasy that I am someone else."

They found a strong positive relationship between the capacity to become absorbed as measured by their absorption scale and hypnotizability in a large sample of college women. Subsequent research by Spanos and McPeake (1975), Finke and Macdonald (1978), Coe (1974), Swanson (1978), and P.G. Bowers (1978) has replicated these findings using both the Tellegen and Atkinson scale and a variety of other scales of absorption.

Imaginative Involvement. The most extensive line of research on experiences of absorption is the elegant work of Josephine Hilgard (1965, 1970, 1974, 1979; Hilgard & Hilgard, 1962). This work began in 1958 and 1959 with a study in which extensive interviews were conducted with potential hypnosis subjects before they were hypnotized, in an effort to discover personality or developmental factors which are related to hypnotic susceptibility. The significance for hypnotizability of what Hilgard called sensory-affective and imaginative involvements gradually became more clear as this work continued, and was first reported by her in 1965 (J.R. Hilgard, 1965). She found that:

> The hypnotizable person was capable of a deep involvement in one or more imaginative-feeling areas of experience--reading a novel, listening to music, having an aesthetic experience of nature, or engaging in absorbing adventures of mind or body. (Hilgard, 1970; pp. 4-5)

She reports (1979) that imaginative involvements can take a variety of forms. As examples of affective arousal through

sensory stimulation, she cites "the savored experiences of direct sensory stimulation (such as) . . . a soft breeze on the skin, warm sand under bare feet, the smell of fresh air after a rainstorm, the warmth of the sun on the body, the touch of fabrics and textiles, the sensation of gliding through or floating upon water, or weightlessness in riding, flying, or skiing" (p. 484). She says that subjects do not approach these experiences with a critical, rational detachment or striving, but that instead the experience is inherently satisfying and that subjects become immersed and affectively involved in it. A second type of involvement she describes as involvement in reading imaginative literature. She says that the characteristics of the involved reader is as follows:

> 1) This reader is greatly influenced by the power of words and the author has used words to manipulate ideas and emotions.
> 2) This reader is actively receptive and open, not really passive. The involved reader savors the subject matter.
> 3) Imagery is vivid. For many involved readers the imagery has a hallucinatory quality. Often it is carried visually but this is not always the case; some people feel the texture and the heat, smell the flowers and taste the dry dust.
> 4) Critical, reality-resting processes are temporarily suspended. The author is temporarily the reader's guide to experience, and the author's values temporarily become his or her own. (p. 485)

Hilgard goes on to say that people who are interested in the theatre and who may enjoy the role of either spectator or

actor may become immersed and involved in a way which has much in common with the reader of a book. Similarly, she states that fantasy and creative imagination are kinds of experiences of involvement which are also related to hypnosis. Finally, she relates adventuresomeness to the ability to become hypnotized. Earlier (Hilgard, 1970), she had characterized some high susceptible subjects as "mental space travelers" and others as "physical space travelers," referring to people "who experience their adventures while sitting in chairs reading science fiction or Eastern philosophies or probing the limits of mental space through drug-related experiences" versus those who became involved in "adventurous physical activity such as mountain climbing, skiing, skindiving, airplane flying, or spelunking" (Hilgard, 1979; p. 487).

She (1979) goes on to characterize some types of involvement which she calls non-imaginative involvements and which are not related to the capacity to experience hypnosis. Among these she lists competitive team sports, competitive individual skill sports, a strong commitment to science with an attendant cognitive, analytic, and critical attitude, and an alertness to environmental details.

An interesting additional finding which emerged from the interview studies is that a much higher proportion of highly hypnotizable subjects received severe punishment

during their childhood than is true of medium or low hypnotizable subjects (Hilgard, 1974). She explained this finding in terms of the needs of severely punished children to develop fantasy outlets as an escape from the actual punishment situation or the pain of the punishment, and suggested that their later capacity for substantial imaginative involvement may have gotten its initial impetus from these early experiences. Although this is a plausible explanation, her data are not completely explained by this formulation, and the possibility that it leads to certain relationship paradigm predispositions (for instance behaving compliantly or obsequiously in the face of authority) is equally plausible.

Most of the research in the area of imaginative involvement has been done by J.R. Hilgard, but a recent study by Davis, Dawson, and Seay (1978) found that a high imaginative involvement group had significantly higher hypnotic susceptibility scores than a low imaginative involvement group. Hilgard (1979) concludes her review of the literature on imaginative involvement by saying that although the role of such involvements appears important, we must bear in mind that the relationship is "far from perfect [and that] we need studies now on the type of factors that diminish hypnotic responsiveness in cases where imaginative involvement appears to be present in greater degree than the hypnotic score indicates" (pp. 494-495).

Vividness of Imagery. The ability to have vivid self-directed imagery has been related to hypnotic susceptibility. Sutcliffe, Perry, and Sheehan (1970) found that vividness and hypnotizability were highly correlated in men but less so in women. They also found that poor imagers tended to be insusceptible but that some vivid imagers were high and some low in susceptibility. Comparing high and low susceptible subjects showed significantly more vivid imagery for highs. Thus, high susceptible subjects usually are good imagers (although a good imager is not necessarily highly hypnotizable) and an inability to have vivid images implies low susceptibility (and vice versa). These findings regarding vividness or intensity thus accord well with Hilgard's work, as vividness and involvement can plausibly be considered as experientially similar.

D. Physical and Physiological Correlates of Hypnotizability

Lateralization of Cerebral Function. Research on the neuropsychological strata which underlie hypnotizability has produced several significant findings regarding brain organization and hypnotizability. The study of lateralization of brain functioning (that is, the idea that the two hemispheres of the brain do different things) has resulted in the finding that for most people, the left (or dominant) hemisphere of the brain serves verbal, logical, and analytic functions, and the right (or non-dominant) hemisphere is

involved in spatial, imaginative, and synthetic functions (see Galin, 1974 and Ornstein, 1972 for a review of this literature). An additional finding in the area is that people differ in the extent to which their right or left hemisphere is the dominant hemisphere of their brain, and that there are a variety of personality-related differences which correspond to right or left hemisphere dominance. Day (1964, 1967) discovered a procedure which easily allows people to be classified into groups of right or left cerebral dominance. He observed that when people are asked a question which requires some reflection, they characteristically and consistently look either to the right or to the left, indicating the activation of the contralateral cerebral hemisphere. This procedure allows people to be fairly quickly and easily divided into "right lookers" and "left lookers."[7] Bakan (1969, 1971) proposed that hypnosis is a right hemisphere function. He demonstrated (Bakan, 1969) that a high proportion of high susceptible subjects were left lookers (right hemisphere dominant) and a high percentage of low susceptible subjects were right lookers

---

[7]Since Day's studies there has been some controversy about the reliability of his procedure, and Kinsbourne (1972) failed to completely replicate Day's findings. However, Gur (1975), and Gur, Gur and Harris (1975) demonstrated that the direction of deviation of the eyes depended on whether the experimenter sat in front of or behind the subject, and they were able to replicate the previously discrepant findings by manipulating this variable.

(left hemisphere dominant). Morgan, McDonald, and Macdonald (1971) replicated this finding. In another test of the right hemisphere dominance hypothesis, Crawford (1977) showed that highly hypnotizable subjects are superior to less hypnotizable subjects on several Gestalt closure tests which presumably require right hemisphere activation. This finding is consistent with the Bakan and Morgan, et al. studies. In yet another study exploring the hemispheric dominance or functional brain asymmetry hypothesis, Gur and Reyher (1973) constructed two parallel hypnotic inductions, tailored to right hemisphere and left hemisphere styles of thinking. They did not replicate Bakan's (1969) findings of a significant difference in hypnotizability of left and right lookers. They did find, however, that the scale tailored for left lookers mildly enhanced the performance of left lookers but reduced the performance of right lookers, and that the right looker scale was similar in having little effect on the right lookers but in reducing the responsiveness of left lookers. Spiegel and Lipman (1978) have reported another indication of hemispheric preference. They asked subjects to clasp their hands together, interlocking fingers while holding their hands in front of their chests. When people are asked to do this they have a characteristic choice of which thumb they place on top, and clasping their hands with the opposite thumb on top feels awkward. They reported that they found a statistically

significant correlation between the tendency to clasp hands with the non-dominant thumb on top (for example, left thumb on top in right-handed people) and hypnotizability. Gur and Gur (1974) once again tested the hypothesis that hypnotizability is related to right hemisphere dominance. They employed an elegant design in which handedness, sex, and eyedness were examined as moderating variables which might affect the relationship between hypnotic susceptibility and cerebral dominance. They found no relationship between susceptibility and brain asymmetry when all subjects were considered as a whole, but by including the moderating variables mentioned above they discovered that there is a strong negative relationship between number of eye movements to the right and hypnotic susceptibility in right-handed males, and a strong positive relationship between eye movements to the right in left-handed females. They concluded that "the ability to become hypnotized is subserved in the non-veral, wholistic, synthetic, or 'apositional' hemisphere" (p. 640). The complicating factor which they recognized and convincingly demonstrated was that these functions are located in different hemispheres, depending on the sex, handedness, and eyedness of the person, and that lateralization is not always complete.

EEG Studies. Another approach to testing the hypothesis about right hemisphere dominance and its relationship to hypnotizability has been to measure the production of

alpha waves by the brain. London, Hart, and Leibovitz (1968), London, Cooper, and Engstrom (1974), and Nowlis and Rhead (1968) have all reported a significant correlation between hypnotic susceptibility and alpha production. Bakan and Svorad (1969) extended these findings, reporting a significant positive correlation between susceptibility and percentage of alpha, and a significant negative correlation between susceptibility and percentage of eye movements to the right. (They also found that right looking was negatively correlated with percentage of alpha. Thus, by implication, left looking is positively associated with resting alpha.) Bakan and Svorad recorded alpha only in the right hemisphere. When the alpha activity of each hemisphere is recorded separately but simultaneously, the right hemisphere produces more alpha than the left hemisphere, regardless of whether persons are high or low in susceptibility (Morgan et al., 1971; Morgan, Macdonald, & Hilgard, 1974). The hypothesis that the proportion of right hemisphere alpha to the total amount recorded from both sides should be larger in high susceptible than in low susceptible subjects was not supported in the Morgan et al. (1971, 1974) studies. However, the total amount of alpha is greater in high susceptible than in low susceptible subjects.

Eye Roll Studies. Spiegel (1972) has reported a significant positive relationship in a normal, psychologically

healthy population between the capacity to become hypnotized and the capacity to look up while closing one's eyes (the eye roll). Spiegel and Spiegel (1978) hypothesized that this eye roll sign is an indication of the biological capacity to experience hypnosis, and they relate it to some of the cerebral lateralization research in which subjects respond to some questions with downward or upward eye movements (Galin & Ornstein, 1974; Erlichman, Weiner, & Baker, 1974).

Age. It was noted at the outset of this review that hypnotic susceptibility in adults is a relatively stable trait. However, the development of hypnotic susceptibility has been studied in children, with the finding that it tends to increase gradually until about age 9 to 12, when susceptibility appears to be at its highest point, and gradually decreases thereafter (London & Cooper, 1971; Cooper & London, 1971; Morgan & Hilgard, 1973; Bernheim, 1964; and Gordon, 1972).

Heritability of Hypnotic Susceptibility. Morgan (1973) compared the hypnotic susceptibility of identical twins, fraternal twins, and non-twin sibling pairs. There was a significant correlation in hypnotic susceptibility of identical twins, but the correlations of fraternal twins and non-twin sibling pairs were substantially smaller. This study suggests that there is a genetic aspect to hypnotizability, but is not conclusive because of the confounding

effects of the similar experiences which many identical twins have.

Sex. Bowers (1976) suggests that the sex of subjects is a salient factor to consider in hypnosis research design, as it often functions as a moderator variable. To support this contention, he cites the differential patterns of correlates of susceptibility reported by Gur and Gur (1974), Bowers (1971), Tellegen and Atkinson (1974), Bowers and van der Meulen (1970), and Perry, Wilder, and Appignanesi (1973). Women have been described as more susceptible than men by many writers (Barry et al., 1931; Davis & Husband, 1931; Friedlander & Sarbin, 1938; Weitzenhoffer & Weitzenhoffer, 1958; Hilgard, Weitzenhoffer, Landis, & Moore, 1961; Hull, 1933; and Pattie, 1956) but the difference is quite small, and has not been demonstrated consistently. A recent study by Kihlstrom et al. (1980) reported a non-significant tendency for women to be slightly more hypnotizable than men. Bowers (1976) suggests that part of the difficulty may be that women are in fact more hypnotizable than men but that scale items are not sufficiently difficult to discriminate genuine sex-related differences in the upper range of hypnotic susceptibility. In support of this contention, he cites two studies where scale limitations were not a problem and in which women did indeed prove to be more hypnotizable than men (Shor, et al., 1966; Bowers, 1971).

E. Recent Formulations of Personality Functioning of Highly Hypnotizable Subjects

Spiegel (1974) and Spiegel and Spiegel (1978) have related high, medium, and low hypnotizability to three distinctive styles of personality functioning which they label Apollonian, Odyssean, and Dionysian. Spiegel and Spiegel describe Dionysian people as follows:

> They adopted a naive posture of trust in relation to many if not all people in their environment; were prone to suspend critical judgment; had a tendency to affiliate easily with new events (one patient would become nauseated every time her friend's sick dog was nauseated); and demonstrated a telescoping of their sense of time so that their focus was almost exclusively on the present rather than in the past or the future. They further demonstrated a tendency to employ extreme trance logic in that they were relatively comfortable with logical incongruity, and had excellent memories and an unusually good capacity for intense and focused concentration. In addition [they] showed a fixed personality core of beliefs which was relatively non-negotiable even though these individuals were in other ways very compliant. Especially troubling was their role confusion and fixed sense of inferiority: these two characteristics often served as a rationalization for a naive posture of trust and uncritical acceptance of environmental cues. These patients tended to say to themselves: 'who am I to know anything about this, compared to the person who is directing me?' As one might expect, they were very prone to spontaneous trance experience and uncritical acceptance of casual comments as post-hypnotic signals. (p. 82)

Spiegel and Spiegel relate this cluster of personality characteristics to extremely high responsiveness to hypnosis. They next describe the Apollonian personality, which they

associate with low and non-hypnotizable patients who are considered to be still within a normal or healthy psychological range. Of Apollonians they state:

> We expected to find these people more cognitive, organized, critical, and aware of the periphery in their style of concentration. . . .the ongoing theme of Apollonian individuals is control and reason over passion. . . .they put tremendous emphasis on reason and understanding and were very much prone to planning for the future and to employing their critical faculties to the utmost. . . .they were steady, unemotional, organized individuals. They were not devoid of passion, but were far more prone to value reason than passion. (pp. 82-83)

Between the Apollians and the Dionysians, Spiegel and Spiegel describe a group which they call the Odysseans. This group of people is composed of "the vast mid-range" of hypnotic susceptibility. They describe Odysseans in the following manner:

> This third group is . . . composed of mixtures of . . . opposing qualities. . . . for these individuals the tension between reason and feeling is in some ways more troublesome than for Apollonians and Dionysians. Odysseans are less settled and are more compelled to find a formula for integrating their conflicting pressures . . . and yet these individuals are often productive, normal people who have the kinds of life crises that we have learned to identify as part of normal growth and development. In the structuralist sense, all phenomena are best understood not merely as things in themselves but rather in the context of alternative possibilities. Thus, even those people who comprise the majority of the normal population are best understood in terms of the possible, extreme personality

> characteristics of which they represent the kind of integration. We have broadly characterized Odyssean style in terms of action/despair. Such individuals fluctuate between periods of absorption and involvement in life, and periods of a more critical and at times despairing review of - or response to - this activity. (p. 84)

Spiegel and Spiegel clearly state that the existence of these personality types is a hypothesis based on their clinical observation and experience. They offer little hard data in support of this hypothesis, and in view of the past difficulties in relating hypnotizability to personality characteristics which have been detailed in this review, it seems advisable to await more compelling evidence than unsystematized clinical observations before deciding on the merits of this formulation. In particular, although the personality descriptions seem plausible, they are quite general and nonspecific, and to argue that the world is filled with people who have mostly one or mostly another trait or some combination of the two seems a vast oversimplification.

Reyher (1980) has taken a different approach to differentiating high and low suggestible people. His descriptions of them are in terms of their characteristic interpersonal methods of maintaining self-esteem and saving face (security operations). He describes them as follows:

> Among those persons who score high on scales of suggestibility are those who seek approval from others, particularly authoritative persons, and who anticipate rejection because of their self-conceptions of personal insufficiency.

> Accordingly, they react with intense anxiety and anger which they must suppress or repress when they objectively are made to feel insufficient through failure or when they perceive signs of disapproval, real or imagined. . . . Sheehan (1971) has reported that about 50% of high suggestible subjects are oriented to behave in accordance to the expectations of the hypnotist-experimenter rather than to the overt demand characteristics of the research design. They also score high on submissiveness. . . . On the other hand, among those individuals who score low on hypnotic susceptibility scales are those individuals who are more concerned with strivings of mastery and autonomy rather than generalized approval seeking. Accordingly, they are more disposed to confer approval upon themselves for behaving and performing in accordance with their own standards rather than those of others. Approval from others meaningful only when it is deserved. Since they are less dependent on the approval of others, they are more apt to be competitive, defiant and moved to anger; consequently, they are likely to respond with poorer performance to task-motivating instructions than to hypnotic suggestions (Dhanens & Lundy, 1975). They also have been characterized as possessing a generalized unwillingness to cooperate (Spanos & Bodorik, 1977). Unlike those high susceptible individuals who seek approval indiscriminately to reduce anxiety about personal unacceptance, . . . they are characterized by a different coherent set of strivings and security operations. The pursuit of security most aptly characterizes a subset of high suggestible subjects, . . . whereas autonomy and self-actualization most aptly characterizes a sizeable proportion of low suggestible subjects. . . . High and low suggestible subjects . . . show opposed configurations of safety needs and antagonistic esteem. . . . These two configurations . . . [also] reflect risk - and non-risk - taking orientations in interpersonal relationships. Both orientations are distinctively different ways of maintaining self-esteem when the individual is faced with the possibility of failure. (Reyher, 1980, pp. 77-79)

Recent studies by Pottinger (1981) and Reyher, Allen, and Sills (1980) support these descriptions of the divergent interpersonal styles of high and low suggestible subjects. Reyher (1980) makes the point that there has been recently a tendency to stereotype high hypnotizable subjects as better adjusted (this was for a time a popular hypothesis[8]), but this particular formulation of the interpersonal styles of high and low suggestible subjects is somewhat inconsistent with such a view. In view of the observable and objectifiable data cited by Reyher in support of his position, his findings may perhaps be taken more seriously than earlier studies in which a trait theory of personality has been suscribed to and paper and pencil measures of personality traits often been used.

The research findings reviewed suggest that much progress has been made in understanding the matrix of physical and psychological attributes which are related to hypnotizability. The advances over previous unsuccessful research appear in large part due to more sophisticated methodology, an appreciation of the complexities of research on hypnotic phenomena, and increasingly more refined conceptual models

---

[8]Baumgartner (1931), Friedlander and Sarbin (1938), Faw and Wilcox (1958), and Barber (1956) have all at one point or another championed a "good adjustment" theory of hypnotizability. Subsequent research (Weitzenhoffer & Weitzenhoffer, 1958) has not supported this formulation.

to guide research. The work on experiential correlates of hypnotizability, physiological correlates of hypnotizability, and divergent personality styles of high and low hypnotizable people seem among the most promising findings to date. Although complex, the findings regarding correlates of hypnotizability appear robust enough to allow confident rejection of former characterizations of the field as chaotic, inconsistent, and essentially negative.

REFERENCES

REFERENCES

As, A. Non-hypnotic experiences related to hypnotizability in male and female college students. Scandinavian Journal of Psychology, 1962, 3, 112-121.

As, A. Hypnotizability as a function of non-hypnotic experiences. Journal of Abnormal and Social Psychology, 1963, 66, 142-150.

As, A., & Lauer, L.W. A factor analytic study of hypnotizability and related personal experiences. International Journal of Clinical and Experimental Hypnosis, 1962, 10, 169-181.

As, A., O'Hara, J.W. & Munger, M.P. The measurement of subjective experiences presumably related to hypnotic susceptibility. Scandinavian Journal of Psychology, 162, 3, 47-64.

Bakan, P. Hypnotizability, laterality of eye movement and functional brain asymmetry. Perceptual and Motor Skills, 1969, 28, 927-932.

Bakan, P. The eyes have it. Psychology Today, 1971, 4, 64.

Bakan, P., & Svorad, D. Resting EEG alpha and asymmetry of reflective lateral eye movements. Nature, 1969, 223, 975-976.

Barber, T.X. A note on "hypnotizability" and personality traits. Journal of Clinical and Experimental Hypnosis, 1956, 4,109-114.

Barber, T.X. The necessary and sufficient conditions for hypnotic behavior. American Journal of Clinical Hypnosis, 1960, 3, 31-42.

Barber, T.X. Failure of the Rosenzweig Picture-Frustration Test to relate to primary suggestibility. Harding, Mass.: Medfield FD., 1961.

Barber, T.X. Hypnotizability, suggestibility, and personality: V. A critical review of research findings. Psychological Reports, 1964, 14, 299-320.

Barber, T.X., & Calverley, D.S. Hypnotizability, suggestibility, and personality: IV. A study with the Leary Interpersonal Checklist. British Journal of Social and Clinical Psychology, 1964, 3, 149-150. (b)

Barber, T.X., & Calverley, D.S. Hypnotizability, suggestibility, and personality: III. A study using teachers' ratings of children's characteristics. Journal of Psychology, 1964, 57, 275-280. (a)

Barber, T.X., & Calverley, D.S. Hypnotizability, suggestibility, and personality: II. Assessment of previous imaginative-fantasy experiences by the As, Barber, Glass, and Shor questionnaires. Journal of Clinical Psychology, 1965, 21, 57-58.

Barber, T.X., & Glass, L.B. Significant factors in hypnotic behavior. Journal of Abnormal Psychology, 1962, 64, 222-228.

Barry, H., MacKinnon, D.W., & Murray, H.A. Studies in personality: A. Hypnotizability as a personality trait and its typological relations. Human Biology, 1931, 3, 1-36.

Bartlett, M.R. Relation of suggestibility to other personality traits. Journal of Genetic Psychology, 1936, 15, 191-196.

Baumgartner, M. The correlation of direct suggestibility with certain character traits. Journal of Applied Psychology, 1931, 15, 1-15.

Bentler, P.M. Trust and hypnosis. Paper presented at Western Psychological Association, Santa Monica, April, 1963.

Bernheim, H. Hypnosis and suggestion in psychotherapy: The nature and uses of hypnotism. New York: University Books, 1964. Originally published in English in 1888 under the title Suggestive Therapeutics.

Bowers, K.S. Sex and susceptibility as moderator variables in the relationship of creativity and hypnotic susceptibility. Journal of Abnormal Psychology, 1971, 78, 93-100.

Bowers, K.S. Hypnosis for the seriously curious. Monterey, California: Brooks/Cole, 1976.

Bowers, K.S., & van der Meulen, S.J. Effect of hypnotic susceptibility on creativity test performance. Journal of Personality and Social Psychology, 1970, 14, 247-256.

Bowers, P.G. Hypnotizability, creativity and the role of effortless experiencing. International Journal of Clinical and Experimental Hypnosis, 1978, 26, 184-202.

Brenman, M., & Reichard, S. Use of the Rorschach test and the prediction of hypnotizability. Bulletin of the Menninger Clinic, 1943, 7, 183-187.

Clarke, A.D.B. The measurement of emotional instability by means of objective tests. Unpublished doctoral dissertation, University of London, 1950.

Coe, W.C. Personality correlates of hypnotic susceptibility. A validation study of Josephine Hilgard's hypothesis. Paper presented at the meeting of the Society for Clinical and Experimental Hypnosis, Montreal, October 13, 1974.

Cooper, G.W., & Dana, R.H. Hypnotizability and the Maudsley Personality Inventory. International Journal of Clinical and Experimental Hypnosis, 1964, 12, 28-33.

Cooper, L.M., & London, P. The development of hypnotic susceptibility: A longitudinal (convergence) study. Child Development, 1971, 42, 487-503.

Crawford, H.J. Hypnotic susceptibility and "right hemisphere" functioning: Gestalt closure ability correlates. Paper presented at the annual convention of the American Psychological Association, San Francisco, August, 1977.

Crowne, D.P., & Marlowe, D. A new scale of social desirability independent of psychopathology. Journal of Consulting Psychology, 1960, 24, 349-354.

Dahms, H., & Jenness, A. A study of direct suggestibility and social introversion as related to auditory threshold and to reaction time during reverie. Journal of Social Psychology, 1937, 8, 251-267.

Dana, R.H., & Cooper, G.W. Susceptibility to hypnosis and TAT card 12M. American Journal of Clinical Hypnosis, 1964, 6, 208-211.

Davis, S., Dawson, J.G., & Seay, B. Prediction of hypnotic susceptibility from imaginative involvement. American Journal of Clinical Hypnosis, 1978, 20, 194-198.

Davis, L.W., & Husband , R.W. A study of hypnotic susceptibility in relation to personality traits. Journal of Abnormal and Social Psychology, 1931, 26, 175-182.

Day, M.E. An eye movement phenomenon relating to attention, thought, and anxiety. Perceptual and Motor Skills, 1964, 19, 443-446.

Day, M.E. An eye movement indicator of individual differences in the physiological organization of attentional processes and anxiety. Journal of Psychology, 1967, 66, 51-62.

Deckert, G.H., & West, L.J. The problem of hypnotizability: A review. International Journal of Clinical and Experimental Hypnosis, 1963, 11, 205-235.

Dhanens, T.P., & Lundy, R.M. Hypnotic and waking suggestions and recall. Journal of Clinical and Experimental Hypnosis, 1975, 23, 68-79.

Diamond, M.J. Modification of hypnotizability: A review. Psychological Bulletin, 1974, 81, 180-198.

Didio, D.P. A study of the relationship between hypnotic susceptibility and fantasy. Unpublished doctoral dissertation, St. John's University, New York, 1976.

Doland, D.J. A study of the relationship between primary suggestibility and certain measures of ego strength. Unpublished doctoral dissertation, Syracuse University, 1953.

Ehrenreich, G.A. The relationship of certain descriptive factors to hypnotizability. Transactions of the Kansas Academy of Science, 1949, 52, 24-27.

Erlichman, H., Weiner, S.L., & Baker, A.H. Effects of verbal and spatial questions in initial gaze shifts. Neuropsychologia, 1974, 12, 265-277.

Eysenck, H.J. Suggestibility and hysteria. Journal of Neurological Psychiatry, 1943, 6, 22-31.

Eysenck, H.J. Dimensions of personality. London: Routledge and Kegan Paul, 1947.

Faw, V., & Wilcox, W.W. Personality characteristics of susceptible and unsusceptible hypnotic subjects. Journal of Clinical and Experimental Hypnosis, 1958, 6, 83-94.

Finke, R.A., & Macdonald, H. Two personality measures relating hypnotic susceptibility to absorption. International Journal of Clinical and Experimental Hypnosis, 1978, 26, 178-183.

Furneaux, W.D., & Gibson, H.B. The Maudsley Personality Inventory and a predictor of susceptibility to hypnosis. International Journal of Clinical and Experimental Hypnosis, 1961, 9, 167-176.

Galin, D. Implications for psychiatry of left and right cerebral specialization. Archives of General Psychiatry, 1974, 31, 572-583.

Galin, D., & Ornstein, R. Lateral specialization of cognitive mode: An EEG study. Psychophysiology, 1972, 9, 412-418.

Gordon, M.C. Age and performance differences of male patients on modified SHSS. International Journal of Clinical and Experimental Hypnosis, 1972, 20, 152-155.

Gravely, A.M. An investigation of perceptual tests as measures of temperament. Unpublished doctoral dissertation, University of London, 1950.

Gur, R.C., & Gur, R.E. Handedness, sex and eyedness as moderating variables in the relation between hypnotic susceptibility and functional brain asymmetry. Journal of Abnormal Psychology, 1974, 83, 635-643.

Gur, R.C., Gur, R.E., & Harris, L.J. Cerebral activation as measured by subjects' lateral eye movements, its influence by experimenter location. Neuropsychologia, 1975, 13, 35-44.

Gur, R.E. Conjugate lateral eye movements as an index of hemispheric activation. Journal of Personality and Social Psychology, 1975, 31, 751-757.

Gur, R.E., & Reyher, J. Relationship between style of hypnotic induction and direction of lateral eye movements. Journal of Abnormal Psychology, 1973, 82, 499-505.

Heilizer, R. An exploration of the relationship between hypnotizability and anxiety and/or neuroticism. Journal of Consulting Psychology, 1960, 24, 432-436.

Hilgard, E.R. Hypnotic susceptibility. New York: Harcout, Brace and World, 1965.

Hilgard, E.R., & Bentler, P.M. Predicting hypnotizability from the Maudsley Personality Inventory. British Journal of Psychology, 1963, 54, 63-69.

Hilgard, E.R., & Lauer, L.W. Lack of correlation between the California Psychological Inventory and hypnotic susceptibility. Journal of Consulting Psychology, 1962, 26, 331-335.

Hilgard, E.R., Weitzenhoffer, A.N., Landes, J., & Moore, R.K. Psychological Monographs, 1961, 75, Whole No. 8.

Hilgard, J.R. Personality and hypnotizability: Inferences from case studies. In E.R. Hilgard, Hypnotic susceptibility, New York: Harcourt, Brace and World, 1965, 343-374.

Hilgard, J.R. Personality and hypnosis: A study of imaginative involvement. Chicago: University of Chicago Press, 1970.

Hilgard, J.R. Imaginative involvement: Some characteristics of the highly hypnotizable and non-hypnotizable. International Journal of Clinical and Experimental Hypnosis, 1974, 22, 138-156.

Hilgard, J.R. Imaginative and sensory-affective involvements: In everyday life and in hypnosis. In E. Fromm and R.E. Shor (Eds.), Hypnosis: Developments in research and new perspectives. New York: Aldiene Publishing Company, 1979-483-517.

Hilgard, J.R., & Hilgard, E.R. Developmental-interactive aspects of hypnosis: Some illustrative cases. Genetic Psychology Monographs, 1962, 66, 143-178.

Hull, C.L. Hypnosis and suggestibility: An experimental approach. New York: Appleton-Century-Crofts, 1933.

Ingham, J.G. Body-sway suggestibility and neurosis. Journal of Mental Science, 1954, 100, 432-441.

Ingham, J.G. Psychoneurosis and suggestibility. Journal of Abnormal and Social Psychology, 1955, 51, 600-603.

Jourard, S.M., & Lasakow, P. Some factors in self-disclosure. Journal of Abnormal and Social Psychology, 1958, 56, 91-98.

Kihlstrom, J.F., Diaz, W.A., McClellan, G.E., Ruskin, P.M., Pistole, D.D., & Shor, R.E. Personality correlates of hypnotic susceptibility: Needs for achievement and autonomy, self-monitoring, and masculinity, femininity. American Journal of Clinical Hypnosis, 1980, 22, 225-230.

Kinsbourne, M. Eye and head turning indicate cerebral lateralization. Science, 1972, 176, 539-541.

Lang, P.G., & Lasovik, A.D. Personality and hypnotic susceptibility. Journal of Consulting Psychology, 1962, 26, 317-322.

Lee-Teng, E. Trance depth susceptibility, induction susceptibility, and acquiescence as factors in hypnotic performance. Journal of Abnormal Psychology, 1965, 70, 383-389.

Levitt, E.E., Lubin, B., & Brady, J.P. On the use of TAT card 12M as an indicator of attitude toward hypnosis. International Journal of Clinical and Experimental Hypnosis, 1962, 10, 145-150.

Levitt, E.E., Lubin, B., & Zuckerman, M. Note on the attitude toward hypnosis of volunteers and non-volunteers for a hypnosis experiment. Psychological Reports, 1959, 5, 712.

London, P., & Cooper, L.M. Norms of hypnotic susceptibility in children. Developmental Psychology, 1969, 1, 113-124.

London, P., Cooper, L.M., & Engstrom, D.R. Increasing hypnotic susceptibility by brain wave feedback. Journal of Abnormal Psychology, 1974, 83, 554-560.

London, P., Cooper, L.M., & Johnson, H.G. Subject characteristics in hypnosis research. International Journal of Clinical and Experimental Hypnosis, 1962, 10, 13-21.

London, P., Hart, J., & Leibovitz, M. EEG alpha rhythms and hypnotic susceptibility. Nature, 1968, 219, 71-72.

McKnight, R.T. Related personality factors in hypnotic susceptibility. Unpublished doctoral dissertation, Mississippi State University, 1975.

Messer, A.L., Hickley, E.D., & Mosier, C.I. Suggestibility and neurotic symptoms in normal subjects. Journal of Genetic Psychology, 1938, 19, 391-399.

Moore, R.K. Susceptibility to hypnosis and susceptibility to social influence. Journal of Abnormal and Social Psychology, 1964, 68, 282-294.

Morgan, A.H. The heritability of hypnotic susceptibility in twins. Journal of Abnormal Psychology, 1973, 82, 55-61.

Morgan, A.H., & Hilgard, E.R. Age differences in susceptibility to hypnosis. International Journal of Clinical and Experimental Hypnosis, 1973, 21, 78-85.

Morgan, A.H., Johnson, D.L., & Hilgard, E.R. Stability of hypnotic susceptibility; a longitudinal study. International Journal of Clinical and Experimental Hypnosis, 1974, 22, 249-257.

Morgan, A.H., Macdonald, H., & Hilgard, E.R. EEG alpha: Lateral asymmetry related to task and hypnotizability. Psychophysiology, 1974, 11, 275-282.

Morgan, A.H., McDonald, P.J., & Macdonald, H. Differences in bilateral alpha activity as a function of experimental task, with a note on lateral eye movements and hypnotizability. Neuropsychologia, 1971, 9, 451-469.

Nowlis, D.P., & Rhead, J.C. Relation of eye-closed resting EEG alpha activity to hypnotic susceptibility. Perceptual and Motor Skills, 1968, 27, 1047-1050.

Ornstein, R.E. The psychology of consciousness. San Francisco: W.H. Freeman, 1972.

Pattie, F.A. Methods of induction, susceptibility of subjects, and criteria of hypnosis. In R.M. Dorcus (Ed.), Hypnosis and its therapeutic applications. New York: McGraw-Hill, 1956. Ch. 2.

Petrie, A. Repression and suggestibility as related to temperament. Journal of Personality, 1948, 16, 445-458.

Perry, C., Wilder, S., & Appignanesi, A. Hypnotic susceptibility and performance in a battery of creative measures. American Journal of Clinical Hypnosis, 1973, 15, 170-180.

Pottinger, J. The effect of post-hypnotic suggestion on dream recall: Special implications for responsive and unresponsive persons. Unpublished doctoral dissertation, Michigan State University, 1981.

Reyher, J. Clinical and experimental hypnosis: Implications for theory and methodology. In W.E. Edmonston (Ed.), Conceptual and investigative approaches to hypnosis and hypnotic phenomena. Annals of the New York Academy of Sciences. New York: New York Academy of Sciences, 1977.

Reyher, J. Treatment outcome in relation to visual imagery, suggestibility, transference, and creativity. In J.E. Shorr, G.E. Sobel, P. Robin, & J.A. Connella (Eds.), Imagery: Its many dimensions and applications. New York: Plenum Press, 1980.

Reyher, J., & Gavriledes, G. Risk taking and non-risk taking in interpersonal relationships: Two divergent modes of personal strivings. Unpublished manuscript, Michigan State University, 1981.

Reyher, J., Allen, B., & Sills, L. Pain and patient suggestibility in relation to osteopathic manipulative therapy and Jacobsonean relaxation technique. Paper presented at the Biomedical Student Research Forum, Michigan State University, East Lansing, Michigan, 1980.

Roach, J.H.L. Autosuggestion in extroverts and introverts. Journal of Personality, 1947, 15, 215-221.

Rosenhan, D.L. Hypnosis and personality: A moderator variable analysis. In L. Chertok (Ed.), Psychophysiological Mechanisms of Hypnosis. New York: Springer-Verlag, 1969, 193-198.

Rosenzweig, S., & Sarason, S. An experimental study of the triadic hypothesis: Reaction to frustration, ego-defense, and hypnotizability: I. Correlational approach. Character and Personality, 1942, 11, 1-14.

Sarason, S., & Rosenzweig, S. An experimental study of the triadic hypothesis: Reaction to frustration, ego-defense, and hypnotizability: II. Thematic and perception approach. Character and Personality, 1942, 11, 150-165.

Sarbin, T.R. Contributions to role-taking theory: I. Hypnotic behavior. Psychological Review, 1950, 57, 225-270.

Sarbin, T.R., & Madow, L.W. Predicting the depth of hypnosis by means of the Rorschach test. American Journal of Orthopsychiatry, 1942, 12, 268-271.

Schafer, R. A study of personality characteristics related to hypnotizability. Unpublished Masters thesis, University of Kansas, 1947.

Schulman, R.E., & London, P. Hypnotic sysceptibility and MMPI profiles. Journal of Consulting Psychology, 1963, 27, 157-160.

Secter, I.I. Personality factors of the MMPI and hypnotizability. American Journal of Clinical Hypnosis, 1961, 3, 185-188. (a)

Secter, I.I. TAT card 12M as a predictor of hypnotizability. American Journal of Clinical Hypnosis, 1961, 3, 179-184. (b)

Sheehan, P. Countering preconceptions about hypnosis: An objective index of involvement with the hypnotist. Journal of Abnormal Psychology Monograph, 1971, 78, 299-322.

Shor, R.E. The frequency of naturally occurring "hypnotic-like" experiences in the normal college population. International Journal of Clinical and Experimental Hypnosis, 1960, 8, 151-163.

Shor, R.E. Hypnosis and the concept of the generalized reality-orientation. American Journal of Psychotherapy, 1959, 13, 582-602.

Shor, R.E. Three dimensions of hypnotic depth. International Journal of Clinical and Experimental Hypnosis, 1962, 10, 23-38.

Shor, R.E. The three-factor theory of hypnosis as applied to the book-reading fantasy and to the concept of suggestion. International Journal of Clinical and Experimental Hypnosis, 1970, 18, 89-98.

Shor, R.E., Orne, M.T., & O'Connell, D.N. Validation and cross validation of a scale of self-reported personal experiences which predicts hypnotizability. Journal of Psychology, 1962, 53, 55-75.

Shor, R.E., Orne, M.T., & O'Connell, D.N. Psychological correlates of plateau hypnotizability in a special volunteer sample. Journal of Personality and Social Psychology, 1966, 3, 80-95.

Spanos, M.P., & McPeake, J.D. Involvement in everyday imaginative activities, attitudes toward hypnosis, and hypnotic suggestibility. Journal of Personality and Social Psychology, 1975, 31, 594-598.

Spanos, M.P., & Bodorik, H.L. Suggested amnesia and disorganized recall in hypnotic and task-motivated subjects. Journal of Abnormal Psychology, 1977, 86, 295-305.

Spiegel, H. An eye-roll test for hypnotizability. American Journal of Clinical Hypnosis, 1972, 15, 25-28.

Spiegel, H. The grade 5 syndrome: The highly hypnotizable person. International Journal of Clinical and Experimental Hypnosis, 1974, 22, 303-319.

Spiegel, H., & Lipman, L. Hypnotizability and the hand clasp sign. Manuscript submitted for publication, 1978. In H. Spiegel & D. Spiegel, Trance and treatment: Clinical uses of hypnosis. New York: Basic Books, Inc., Publishers, 1978.

Spiegel, H., & Spiegel, D. Trance and treatment: Clinical uses of hypnosis. New York: Basic Books, Inc., Publishers, 1978.

Steisel, I.M. The Rorschach test and suggestibility. Journal of Abnormal and Social Psychology, 1952, 47, 608-614.

Stukat, K.G. Suggestibility: A factorial and experimental analysis. Stockholm: Almqvist and Wiksell, 1958.

Sutcliffe, J.P., Perry, C.W., & Sheehan, P.W. Relation of some aspects of imagery and fantasy to hypnotic susceptibility. Journal of Abnormal Psychology, 1970, 76, 279-287.

Swanson, G.G. Travels through inner space: Family structure and openness to absorbing experiences. American Journal of Sociology, 1978, 83, 890-919.

Tellegen, A., & Atkinson, G. Openness to absorbing and self-altering experiences ("absorption"), a trait related to hypnotic susceptibility. Journal of Abnormal Psychology, 1974, 83, 268-277.

Thorn, W.A.F. A study of the correlates of dissociation as measured by hypnotic amnesia. Paper presented at 18th Annual Conference of the British Psychological Society, Australia and Overseas Branch, August, 1961.

Van Nuys, D. Meditation, attention, and hypnotic susceptibility: A correlation study. International Journal of Clinical and Experimental Hypnosis, 1973, 21, 59-69.

Weitzenhoffer, A.M. Hypnotism: An objective study in suggestibility. New York: John Wiley and Sons, 1953.

Weitzenhoffer, A.M., & Weitzenhoffer, G.B. Personality and hypnotic susceptibility. American Journal of Clinical Hypnosis, 1958, 1, 79-82.

White, M.M. Physical and mental traits of individuals susceptible to hypnosis. Journal of Abnormal and Social Psychology, 1930, 25, 293-298.

White, R.W. Two types of hypnotic trance and their personality correlates. Journal of Psychology, 1937, 3, 279-289.

Willey, R.R. An experimental investigation of the attributes of hypnotizability. Unpublished Ph.D. dissertation, University of Chicago, 1951.

Zuckerman, M., & Grosz, H.Z. Suggestibility and dependency. Journal of Consulting Psychology, 1958, 22, 328.

Zuckerman, M., Persky, H., Link, K.E., & Basu, G.K. Experimental and subject factors determining responses to sensory deprivation, social isolation, and confinement. Journal of Abnormal Psychology, 1968, 73, 183-194.

APPENDIX B

Modified SHSS:B (SHSS:B')

APPENDIX B

Modified SHSS:B (SHSS:B')

Main Procedure

1a. HEADFALLING (3'30")

First, I want you to experience again how it feels to respond to suggestion before you are hypnotized. If you will now please sit up straight in your chair. . . . Close your eyes and RELAX (1); continue, however, to sit up straight. That's right. Eyes closed and sit up straight. Please stay in that position with your eyes closed, while at the same time letting yourself RELAX (2). (Allow 30") Now just remain in the same position and keep your eyes closed . . . sitting up straight in your chair . . . with your eyes closed.

In a moment I shall ask you to think of your head falling forward. As you know already, thinking of a movement and making a movement are closely related. Soon after you think of your head falling forward you will experience a tendency to make the movement. You will find your head actually falling forward, more and more forward, until your head will fall so far forward that it will hang limply on your neck.

Listen carefully to what I say and think of your head falling forward, drooping forward. Think of your head falling forward, falling forward, more and more forward. Your head is falling forward, falling forward. More and more forward. Your head is falling more and more forward, falling more and more forward. Your head is going forward, drooping down, down, limp and RELAXED (3). Your head is drooping, swaying, falling forward, falling forward, falling forward, falling, swaying, drooping, limp, RELAXED (4), forward, forward, falling, falling, falling. . . . Now!

That's fine. Now please sit up and open your eyes. That's right. Sit up and open your eyes. Now you are reminded again how thinking about a movement produces a tendency to make the movement. It will help you to learn to become hypnotized as you bring yourself to give expression to your action tendencies. But at this point you have the idea of what it means to accept and act upon suggestions.

2a. EYE CLOSURE (Total time: 15')

Now I want you to seat yourself comfortably and rest your hands in your lap. That's right. Rest your hands in your lap. Now look at your hands and find a spot on either hand and just focus on it. It doesn't matter what spot you choose: just select some spot to focus on. I shall refer to the spot which you have chosen as the target. That's

right . . . hands RELAXED (5) . . . look directly at the target. I am about to help you to RELAX (6), and meanhile I shall give you some instructions that will help you gradually to enter a state of hypnosis. Just RELAX (7) and make yourself comfortable. Please look steadily at the target and while staring at it keep listening to my words. You can become hypnotized if you are willing to do what I tell you to, and if you concentrate on the target and on what I say. You have already shown your willingness by coming here again today, and so I am assuming that your presence here means that you want to experience all that you can. You can be hypnotized only if you want to be. There would be no point in participating if you were resisting being hypnotized. Just do your best to concentrate on the target, to pay close attention to my words, and let happen whatever you feel is going to take place. Just let yourself go. Pay close attention to what I tell you to think about; if your mind wanders bring your thoughts back to the target and my words, and you can easily experience more of what it is like to be hypnotized. Hypnosis is not something supernatural or frightening. It is perfectly normal and natural, and follows from the conditions of attention and suggestion we are using together. It is chiefly a matter of focusing sharply on some particular thing. Sometimes you experience something very much like hypnosis when driving along a straight highway and you are oblivious to the landmarks along the road. The RELAXATION (8) in hypnosis is very much like the first stages of falling asleep, but you will not really be asleep in the ordinary sense because you will continue to hear my voice and will be able to direct your thoughts to the topics I suggest. Hypnosis is a little like sleepwalking, because the person is not quite awake, and can still do many of the things that people do when they are wide awake. What I want from you is merely your willingness to go along and to let happen whatever is about to happen. Nothing will be done to embarass you. Most people find hypnosis more interesting as they have more experiences with it.

Now take it easy and just let yourself RELAX (9). Keep looking at the target as steadily as you can, thinking only of it and my words. If your eyes drift away, don't let that bother you . . . just focus again on the target. Pay attention to how the target changes, how the shadows play around it, how it is sometimes fuzzy, sometimes clear. Whatever you see is all right. Just give way to whatever comes into your mind, but keep staring at the target a little longer. After a while, however, you will have stared long enough, and your eyes will feel very tired, and you will wish strongly that they were closed. Then they will close, as if by themselves. When this happens, just let it happen.

As I continue to talk, you will find that you will become more and more drowsy, but not all people respond at the same rate to what I have to say. Some people's eyes will close before others. When the time comes that your eyes have closed, just let them remain closed. You may find that I shall still give suggestions for your eyes to close. These suggestions will not bother you. They will be for other people. Giving these suggestions to other people will not disturb you but will simply allow you to RELAX (10) more and more.

RELAX (11) more and more. As you think of RELAXING (12), your muscles will RELAX (13). Starting with your right foot, RELAX (14) the muscle of your right leg. . . . Now the muscles of the left leg. . . . Just RELAX (15) all over. RELAX (16) your right hand, your forearm, upper arm and shoulder. . . . That's it. . . . Now your left hand . . . and forearm . . . and upper arm . . . and shoulder . . . RELAX (17) your neck, and chest . . . more and more RELAXED (18) . . . completely RELAXED (19) . . . completely RELAXED (20).

As you become RELAXED (21) your body will feel sort of heavy or perhaps numb. You will begin to have this feeling of numbness or heaviness in your legs and feet . . . in your hands and arms . . . throughout your body . . . as though you were settling deep into the chair. The chair is strong; it will hold your heavy body as it feels heavier and heavier. Your eyelids feel heavy too, heavy and tired. You are beginning to feel drowsy and sleepy. You are breathing freely and deeply, freely and deeply. You are getting more and more sleepy and drowsy. Your eyelids are becoming heavier, more and more tired and heavy.

Staring at the target so long has made your eyes very tired. Your eyes hurt and your eyelids feel very heavy. Soon you will no longer be able to keep your eyes open. You will have stood the discomfort long enough; your eyes are tired from staring, and your eyelids will feel too tired to remain open. Your eyes are becoming moist from the strain. You are becoming more and more drowsy and sleepy. The strain in your eyes is getting greater and greater. It would be a relief to just let your eyes close and to RELAX (22) completely, to RELAX (23) completely. You will soon have strained long enough; the strain will be so great that you will welcome your eyes closing of themselves, of themselves.

Your eyes are tired and your eyelids feel very heavy. Your whole body feels heavy and RELAXED (24). You feel a pleasant warm tingling throughout your body as you get more and more tired and sleepy. Keep your thoughts on what I am saying; listen to my voice. Your eyes are getting blurred from straining. You can hardly see the target, your eyes are so strained. The strain is getting greater, greater and greater, greater and greater.

Your eyelids are heavy. Very heavy. Getting heavier and heavier, heavier and heavier. They are pushing down, down, down. Your eyelids seem weighted and heavy, pulled down by the weight . . . so heavy. . . . Your eyes are blinking, blinking . . . closing, closing. . . .

Your eyes may have closed by now, and if they have not, they would soon close of themselves. But there is no need to strain them more. Even if your eyes have not closed fully as yet, you have concentrated well upon the target, and have become very RELAXED (25). Now we have come to the time when you may just let your eyes close. That's it, eyes completely closed. Close your eyes now.

You now feel very RELAXED (26), but you are going to become even more RELAXED (27). It is easier to RELAX (28) now that your eyes are closed. You will keep them closed until I tell you to open them or until I tell you to wake up. . . . You feel pleasantly drowsy and sleepy as you continue to listen to my voice. Just keep your thoughts on what I am saying. You are going to get much more drowsy and sleepy. Soon you will be deep asleep but you will have no trouble hearing me. You will not wake up until I tell you to. . . . Soon I shall begin to count from one to twenty. As I count you will feel yourself going down further and further into a deep restful sleep, but you will be able to do all sorts of things I ask you to do without waking up. . . . One - you are going to go more deeply asleep. . . . Two - down, down into a deep, sound sleep. . . . Three - four - more and more asleep. . . . Five - six - seven - you are sinking into a deep, deep sleep. Nothing will disturb you. I would like you to hold your thoughts on my voice and those things I tell you to think of. You are finding it easy just to listen to the things I tell you. . . . Eight - nine, ten - half-way there - always deeper asleep. . . . Eleven - twelve - thirteen - fourteen - fifteen - although deep asleep you can hear me clearly. You will always hear me distinctly no matter how deeply asleep you feel you are. Sixteen - seventeen - eighteen - deep asleep, fast asleep. Nothing will distrub you. You are going to experience many things that I will tell you to experience. . . . Nineteen - twenty. Deep asleep! You will not wake up until I tell you to. You will wish to sleep comfortably and to have the experiences I describe to you.

HAND LOWERING (RIGHT HAND)

You are very RELAXED (29) and sleepy. While you remain comfortably listening to my words, I am going to help you to learn more about how what you think affects what you experience. We will try things similar to those things that we did before, but with some differences. People are not all alike, and all people do not experience the same things. Perhaps you will not experience everything that I tell you

about. That will be alright. You will have enough of the experiences to satisfy your curiosity. Just experience whatever you can. Pay close attention to what I tell you and think about the things I tell you to think about. Then let happen whatever you find is happening, even if it surprises you a little.

Now hold your right arm out at shoulder height, with the palm of your hand up. There, that's right. . . . Attend carefully to this hand, how it feels, what is going on in it. Notice whether or not it is a little numb, or tingling; the slight effort it takes to keep from bending your wrist; any breeze blowing on it. Pay close attention to your hand now. Imagine that you are holding something heavy in your hand . . . maybe a heavy baseball, or a billiard ball . . . something heavy. Shape your fingers around as though you were holding this heavy object that you imagine is in your hand. That's it. . . . Now the hand and arm feel heavy, as if the weight were pressing down . . . and as it feels heavier and heavier the hand and arm begin to move down . . . as if forced down . . . moving . . . moving . . . down . . . down . . . more and more down . . . heavier . . . heavier . . . the arm is more and more tired and strained . . . down . . . slowly but surely . . . down, down . . . more and more down . . . the weight is so great, the hand is so heavy. . . . You feel the weight more and more . . . the arm is too heavy to hold back . . . it goes down, down, down . . . more and more down . . . (10 seconds). That's good . . . now let your hand go back to its original resting position and RELAX (30). Your hand back to its original resting position and RELAX (31). You probably experienced much more heaviness and tiredness in your arm than you would have if you had not concentrated on it and had not imagined something trying to force it down. Now just RELAX (32). . . . Your hand and arm are now as they were, not feeling tired or strained. . . . All right, just RELAX (33).

ARM IMMOBILIZATION (LEFT ARM)

You are very RELAXED (34) and comfortable, with a feeling of heaviness throughout your body. I want you to think about your left arm and hand. Pay close attention to them. They feel numb and heavy, very heavy. How heavy your left hand feels . . . even as you think about how heavy it is, it grows heavier and heavier. . . . Your left arm is getting heavier . . . heavy . . . heavy. Your hand is getting heavier, very heavy, as though it were being pressed against the arm of the chair. You might like to find out a little later how heavy your hand is - it seems much too heavy to move - but in spite of being so heavy, maybe you can move it a little, but maybe it is too heavy even for that. . . . Why don't you see how heavy it is. . . . Just try to lift

your hand up, just try. (10 seconds) That's fine. . . . Stop trying . . . just RELAX (35). You see how it was harder to lift than usual because of the RELAXED (36) state you are in. Now place your hand back on the arm of the chair and RELAX (37). Your hand and arm now feel normal again. They are no longer heavy. Just RELAX (38) . . . RELAX (39) all over.

FINGER LOCK (OVERHEAD)

All right, now something just a little different. Hold your hands together above your head with the palms together. Interlock your fingers and press your palms together tightly. Think about your fingers becoming tightly interlocked. . . . They are becoming more and more tightly interlocked. . . . You wonder how tight they are, perhaps you would not be able to separate them if you tried. . . . Your fingers are interlocked, tightly interlocked. . . . Now I want you to try to take your hands apart . . . just try (Allow 10"). Stop trying and RELAX (40). You noticed how stiff your fingers had become. Your hands are no longer tightly clasped together. . . . Now return your hands to the arms of the chair and RELAX (41). . . . Just RELAX (42).

ARM RIGIDITY (RIGHT)

Please hold your right arm straight out, and fingers straight out, too. That's it, right arm straight out. Think of your arm becoming stiffer and stiffer . . . stiff . . . very stiff . . . as you think of its becoming stiff you will feel it become stiff . . . more stiff and rigid, as though your arm were in a splint so the elbow cannot bend. A tightly splinted arm cannot bend. . . . Your arm feels stiff as if tightly splinted. . . . Test how stiff and rigid it is. . . . Try to bend it . . . try. . . . (Allow 10") That's fine. RELAX (43). Don't try to bend your arm any more. RELAX (44) and stop trying to bend your arm. You will have an opportunity to experience many things. You probably noticed how your arm became stiffer as you thought of it as stiff, and how much effort it took to bend it. Your arm is no longer stiff. Place it back in position, and RELAX (45).

MOVING HANDS (APART)

Now extend your arms ahead of you, with palms facing each other, hands close together but not touching, about two inches apart . . . about two inches apart. Both hands in front of you, palms facing each other . . . about two inches apart. I want you to imagine a force acting on your hands to push them apart, as though one hand were repelling the other. You are thinking of your hands being forced apart and they begin to move apart . . . separating . . . separating . . . moving apart . . . wider apart . . . more and more

away from each other . . . more and more. . . . (Allow 10") That's fine. Just put your hands back on the arms of the chair and RELAX (46). You notice how closely thought and movement are related.

VERBAL INHIBITION (HOME TOWN)

You are comfortably RELAXED (47) now, very RELAXED (48) . . . it is difficult to talk when you are so RELAXED (49) . . . you want just to sit back and listen. . . . . I doubt if you could name your home city or town if I asked you to . . . it is so hard to talk. . . . You might try a little later when I ask you to, but I think you will find it very difficult. . . . Try now to tell me the name of your home town . . . just try. . . . (Allow 10") That's it . . . stop trying now. . . . You see how much effort it now takes to do something usually as easy as telling someone where you are from. You can say the name of your home town much easier now. . . . Go ahead and say it. . . . Good. . . . Now RELAX (50).

HALLUCINATION (MOSQUITO)

You have been listening to me very carefully, paying close attention. You may not have noticed a mosquito that has been buzzing, singing, as mosquitos do. . . . Listen to it now . . . hear its high pitched buzzing as it flies around your right hand. . . . It is landing on you hand . . . perhaps it tickles a little . . . there it flies away again . . . you hear its high buzz. . . . It's back on your hand tickling . . . it might bite you . . . you don't like this mosquito. . . . You'd like to be rid of it. . . . Go ahead, brush it off . . . get rid of it if it bothers you. . . . (Allow 10") It's gone . . . that's a relief . . . you are no longer bothered . . . the mosquito has disappeared. . . . Now RELAX (51), RELAX (52) completely.

EYE CATALEPSY

You have had your eyes closed for a long time while you have remained RELAXED (53). They are by now tightly closed, tightly shut. . . . If you tried to open them now, they most likely would feel as if your eyelids were glued together . . . tightly glued shut. . . . Perhaps you would soon like to try to open your eyes in spite of their feeling so heavy and so completely . . . so tightly closed. Just try . . . try to open your eyes. (Allow 10") All right. Stop trying. Now again allow your eyes to become tightly shut. Eyes closed again. You had a chance to feel how tightly shut they were. Now RELAX (54). . . . Your eyes are normal again, but just keep them closed and RELAX (55).

POST-HYPNOTIC SUGGESTION (STAND-UP); AMNESIA

Stay completely RELAXED (56), but listen carefully to what I tell you next. In a little while I shall begin counting backwards from twenty to one. You will awaken gradually, but you will still be in your present state for most of the count. When I reach "five" you will open your eyes, but you will not be fully awake. When I reach "one" you will be entirely roused up, in your normal state of wakefulness. You will have been so RELAXED (57), however, that you will have trouble recalling the things I have said to you and the things you did or experienced. It will prove to cost so much effort to recall that you will prefer not to try. It will be much easier just to forget everything until you are told that you can remember. You will forget all that has happened until the experimenter says to you, "Now you can remember everything!" You will not remember <u>anything</u> until then. After you wake up you will feel refreshed, and not have any pain or stiffness or other unpleasant aftereffects. I shall now count backwards from twenty, and at "five," not sooner, you will open your eyes but not be fully aroused until I reach "one." At "one" you will be fully awake. . . . After a while, the experimenter will open the door. When he does, you will stand up, too, and stretch your arms as you sometimes do when you wake up. You will do this, <u>but you will forget that I told you to do so</u>, just as you will forget the other things, until you hear the words, "Now you can remember everything." Ready, now: 20 - 19 - 18 - 17 - 16 - 15 - 14 - 13 - 12 - 11 - 10 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1 Wake up! Wide awake! Now you feel wide awake!

APPENDIX C

Semi-structured Interview Format

APPENDIX C

Semi-structured Interview Format

1. What are your feelings, reactions to the research? Why did you sign up?

2. Do you have any idea what the purposes of the experiments were?

3. How well do you think you did with the task presented? If subject did not think that he or she did well, ask: What were your feelings, and how did you manage those feelings?

4. Was the research worthwhile or meaningful in any way? If yes: In what way?

5. What did you like and dislike about the procedure?

5a. (For those subjects who were exposed to shock) What was the experience of the shock like for you? Did you find it painful?

6. If Dave Hayes or I had more research going, would you want to participate in it? What if the research were different than this, and did not involve hypnosis?

APPENDIX D

Degree of Regressive Transference Scale

APPENDIX D

Degree of Regressive Transference Scale*

Score		Statements by Subject
+4	(a)	Words such as "father," "mother," or "Godlike."
	(b)	Statements that the hypnotist can do anything.
	(c)	Statements like the subject felt regressed; e.g., "I felt like a little kid."
+3	(a)	An experienced transfer of ego functions; "I was in his hands," statements that the hypnotist's presence was decisive, or that he/she had special power.
	(b)	Statements worded in superlatives or hyperbole; e.g., "He's the greatest"; "She's fantastic"; "I have never felt safer"; "I was extremely reassured."
+2	(a)	An experience of being safe; being cared for, or reassured.
	(b)	Expressions of trust and confidence in the experimenter; e.g., "He made me relax."
+1	(a)	Statements complimenting the hypnotist's competence; e.g., "He did a good job"; or "He did it well."
	(b)	Mildly positive statements; e.g., "He/she is nice"; etc.
	(c)	Descriptions of a positive event, e.g., "He smiled"; "I liked the part about _____."
0		In response to questions regarding the subject's experience, or questions regarding the subject's level of anxiety during the procedure, the subject appears to be responding to demand characteristics, but does not reveal any affect. For example, the subject responds simply "yes" or "no" without further elaboration.

*Adapted from LeBaron (1979)

Score		Statements by Subject
-1	(a)	Mildly negative statements; e.g., "Things didn't go very well."
	(b)	Statements that the subject felt apprehensive, worried, tense, or uneasy regarding the experiment.
	(c)	Descriptions of negative events; e.g., "The experimenter frowned"; or descriptions of failure to pass items.
-2	(a)	Statements that the subject felt strong anxiety or fear.
	(b)	Statements that the subject was uncertain about the experimenter's involvement and care; e.g., "He seemed to be in a rush."
-3		Questioning of the hypnotist's competence and ability.
-4		Open criticism and hostility toward the experiment or the hypnotist.

APPENDIX E

TAT Rating Scales

APPENDIX E

TAT Rating Scales

A. TAT Rapport*

This scale was used to rate the affective quality of the relationship between the two characters on the TAT stories told in response to Card 12M.

Score	Themes in Stories
Positive	1. a. Themes of protection-care; e.g., one person is depicted as a helper looking after the other person.
	b. Themes of guidance; e.g., one person is described as a guide or teacher directing the other's experience.
	c. Themes of obedience in which one person controls the other, who is happy to give this responsibility.
Neutral	2. a. No relationship between the two people is indicated.
	b. A relationship is indicated, but cannot be clearly classified as either positive or negative; no power or status difference is indicated; or no affective characterization is given.
Negative	3. a. Themes of obedience in which one person controls the other and either uses his or her obedience for entertainment or makes the person do things he or she does not want to do.
	b. Themes of apprehension; e.g., one person arouses misgivings in the other or causes the other person to be anxious or uncretain.
	c. Themes of hostility; e.g., one person is described as an evil or harmful person using the other person for his or her own ends.

*Adapted from Sheehan and Dolby (1979)

B. TAT Outcome

This scale was used to rate the affective quality of the ending of the TAT stories told by subjects.

Score	Outcome of Story	
Positive	1. a.	Outcome is positive; e.g., sick person gets well; strangers become friends.
Neutral	2. a.	No ending is given.
	b.	Ending is given, but is indeterminate; e.g., "Things stay pretty much the way they've always been"; "can't tell if he'll make it or not."
Negative	3. a.	Outcome is negative, e.g., "the doctor tries but the guy dies anyway"; "the one guy steals the other's money."