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Influence of Pre-Induction Instructions, Induction Format, Sex, and Locus of Control Expectancies upon Hypnotizability

Robert O'Connor

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INFLUENCE OF PRE-INDUCTION INSTRUCTIONS, INDUCTION FORMAT, SEX, AND LOCUS OF CONTROL EXPECTANCIES UPON HYPNOTIZABILITY

By

Robert E. O'Connor

A Dissertation Submitted to the Graduate School of Loyola University in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

Chicago, Illinois

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LIFE

Robert E. O'Connor was born on May 20, 1946 in Chicago, Illinois. He graduated from Brother Rice High School in June, 1964. He attended Loyola University of Chicago, where he received a Bachelor of Science degree in psychology in June, 1968.

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CHAPTER I

INTRODUCTION AND REVIEW OF LITERATURE

The primary purpose of the present study is to explore the possibility that hypnotizability may be significantly enhanced through the use of locus of control-oriented information by matching information to the subject's locus of control expectancies. Specifically, the present study investigated whether or not congruency between control related communications and a person's locus of control expectancies would increase the likelihood of a person's responding to hypnotic suggestions. The control-oriented communications consisted of two kinds of pre-induction instructions and two kinds of induction format.

Internal instructions communicated information about hypnosis to the subject which suggested that hypnosis was a skill which was under the subject's control. External instructions suggested that hypnosis was a function of external variables, such as the skill of the hypnotist. The You-your induction format utilized the traditional second person pronouns in presenting suggestions (e.g., "You are feeling drowsy and your eyelids are getting heavy"). The I-my format substituted the first person pronouns wherever possible (e.g., "I am feeling drowsy and my eyelids are
A secondary purpose of the study is to further clarify the relationship, if any, between the subject variables of sex and locus of control expectancies and hypnotizability. The research which has been done in these areas up to this point has yielded equivocal results. Therefore, the present study was designed to further clarify these issues.

The literature which was reviewed for the present study covers several related areas: a brief overview of hypnosis as a field of study and relevant current issues, locus of control as a psychological variable, the control issue in hypnosis, individual differences in hypnotizability, and attempts to modify hypnotizability.

**Hypnosis as a Topic of Scientific Investigation**

Possibly the first well recognized reference to hypnotic-like phenomena was made by the sixteenth century Greek physician Paracelsus (1490-1541). During the latter half of the middle ages, a widespread form of unusual behavior known as "dancing mania" afflicted large groups of people in various locales. Rejecting the prevalent notions of the day, such as demonology, faith healing, and exorcisms, Paracelsus believed the dancing mania to be due to astrological influences. He suggested that such disorders could be treated by the use of "animal magnetism." It seems in retrospect that the dancing mania described by Paracelsus was in fact an example of group hysteria (Mora, 1967).
Two centuries later the relationship between hysterical symptoms and hypnosis reappeared in the work of Anton Mesmer (1734-1815), an Austrian physician. Building on Paracelsus' notion of animal magnetism, Mesmer expanded the hypothesized relationship between the human body and astrological influences. He felt that physical and mental illness were due to imbalance in the magnetic forces within and between people. These forces were in turn related to the position of the planets. His notion was that a practitioner could influence these magnetic fluids in others through the use of his own magnetic forces. "Mesmerism" was accomplished with the aid of such props as a wand, black flowing robes, a baquet (large tub filled with various chemicals), "magnetized" iron rods, and so on. Mesmer himself was a very dynamic, powerful, and dramatic individual, adding to the mystique and aura of early hypnosis. While the aforementioned may have aided Mesmer in "curing" the hysterical symptoms of his patients, it led to rejection by his medical colleagues and tainted hypnosis with an air of magic which remains to the present day.

Some years later, the earlier work of Mesmer received renewed attention from two medical investigators, Liebeault (1823-1904) and Bernheim (1840-1919), who practiced in Nancy, France. As a result of this work, the "Nancy School" hypothesized that both hysteria and hypnosis were the result of suggestion, and that hysteria was a form of self-hypnosis.
In the meantime, James Braid (1795-1860), a Scottish physician, had coined the word "neurohypnotism," meaning nervous sleep to describe the Mesmeric phenomenon. He was convinced that there was a demonstrable change in the nervous system as a result of the hypnotic induction. Later Braid altered his theorizing, moving away from a physiological explanation and toward a more psychological one. He later hypothesized that hypnosis was due to a state of very strong interest and directed attention.

A turning point in the history of hypnosis came when Jean Charcot (1825-1893), a well-respected French neurologist, began to investigate hypnotic phenomena. His reputation and scientific approach were sufficient to dissociate him from what was considered the charlatanism of Mesmer. Initially, Charcot rejected the theories of Liebeault and Bernheim regarding hysteria, feeling that these disorders were due to some form of progressive neurological degeneration (Wilson, 1972).

Later Charcot began treating hysterical women with hypnosis, and achieved great success by simply suggesting that the patients' symptoms disappear. Sigmund Freud (1856-1939) studied with Charcot for two years in Paris, and became interested in the psychological basis of hysterical symptoms. Along with Josef Breuer (1842-1925), Freud developed a hypnotic technique for treating hysterical
patients. It was a combination of direct suggestion for symptom removal and the "talking cure" which encouraged patients to talk about the circumstances surrounding onset of symptoms. Freud later discarded hypnosis in favor of the method of free association, feeling that hypnosis worked "cosmetically" to remove symptoms while psychoanalysis worked "surgically" to remove pathology (Stamm, 1975).

Pierre Janet (1859-1947), a contemporary of Freud's and also a student of Charcot, played an important role in the development of hypnosis. He investigated the dissociative aspects of both hypnosis and hysteria, a contribution which further opened theorizing about hypnosis (Wilson, 1972).

It was not until the late 1920s, however, that hypnosis was investigated with experimental methodology. Clark Hull at that time investigated the relationship between hypnotic performance and performance to waking suggestions (Hull & Huse, 1930). Since the time of Hull, researchers have increasingly turned their attention to hypnotic phenomena. These efforts have been directed at a wide range of related issues. Among the most thoroughly researched areas are characteristics of the "hypnotizable" person, modification of susceptibility (to be further investigated here), psychophysiological correlates of hypnotic responsiveness, the "nature" of hypnosis, and clinical applications of hypnosis. A half-dozen books have been published in the last 10 years reviewing the broad range of experimental literature. Two
major quarterly journals are devoted entirely to hypnosis research (the *International Journal of Clinical and Experimental Hypnosis* and the *American Journal of Clinical Hypnosis*), and hypnosis-related research is appearing increasingly in other major psychological journals.

A recent review article by Hilgard (1975) points to five recent trends in hypnosis research, theory, and practice. First, the issue which seems to have received the most attention in recent years is the "state-nonstate" controversy. Several investigators (Barber, 1969, 1972; Sarbin & Coe, 1972) have argued against the utility of the traditional notion of "trance" or "hypnotic state" as a necessary construct. These so-called "nonstate" theorists attempt to explain hypnotic-like behavior, as they call it, on the basis of numerous situational variables, important among them "task-motivational instructions," and demand characteristics of the situation. The "state" theorists on the other hand, argue that the existence of a state of hypnosis (trance) adds to any situational characteristics which might be involved. Notably, Orne (1971, 1972) has used a "real-simulator" design to elucidate differences between really hypnotized subjects and those who are told to simulate hypnosis. Despite the amount of research that this controversy has generated, Hilgard feels the issue has not been very fruitful in clarifying important issues. This controversy is essentially a theoretical one, and, therefore, one that is not likely to be
easily resolved. For the purposes of the present investigation, it is not necessary to side with either of these theoretical schools. However, it is fair to say that the investigator's choice of the Harvard Group Scale of Hypnotic Susceptibility as a measurement instrument rather than the Barber Suggestibility Scale indicates a leaning in the state direction. The Harvard utilizes a formal induction procedure, attempting to induce trance, while the Barber uses waking suggestions. Thus, the two psychometric devices reflect the theoretical orientations of the developers (Orne and Barber, respectively).

The second trend mentioned by Hilgard is the investigation of the role played by the fantasies and imaginative involvements of the hypnotic subject. This issue has moved hypnosis research away from sole reliance on objective measurement of behavior toward a more subjective appraisal by the subject of his experiences. Thirdly, individual differences in hypnotizability continue to be investigated. This aspect of hypnosis research will be more thoroughly alluded to later in this review, as it relates directly to the present research.

Fourth, there have been recent studies supporting the notion that individual differences in neurophysiological factors may account for some of the variance in hypnotizability. Specifically, there is some evidence indicating that hemispheric laterality may be related to responsiveness.
Right hemisphere preference seems to relate to good hypnotic responsiveness, which is consistent with the relationship between imagination and right hemisphere function. Finally, clinical applications of hypnosis, especially in relation to behavior modification, have received increased attention. Hypnosis is receiving renewed interest as a valuable clinical tool that cuts across theoretical positions.

Locus of Control as a Psychological Variable

The question of perceived causality is one with long and deep historical roots. Important philosophical, ethical, and religious issues are based upon the degree of control that one has over oneself and the environment.

Among the great minds to address this issue were Miletus, Aristotle, Hume, Hartley, and Mill. The scientific investigation of "psychic causality" was begun by Wilhelm Wundt in the late nineteenth century. The early associationist and functionalist schools attempted to deal with the issues of perceived causality. More recently, various learning theorists, notably Toman and Skinner, have had much to say about the importance of the relationship between behavior and reward. Causality of reinforcement is central to both theories. The most recent attempts to analyze the ways in which people may experience control in their lives have come from the work of Tiffany (1966), Rotter (1966), de Charms (1968), and Phares (1976).

Tiffany suggested four different kinds of experienced
control: (a) control over the self and control over one's environment (both internal locus), and (b) control of the environment or "nonself" over the self, and over the nonself (both external locus). So Tiffany actually had in mind two major dimensions of control. First, the locus of control (self, nonself) and, secondly, the direction of control (control from the self or nonself, and control over the self and nonself). Tiffany generated several studies based upon this model of experienced control, but obtained few significant results. This particular paradigm has failed to generate any further research.

De Charms (1968) proposed a theory of personal causation which is relevant to the locus of control issue. His theory was essentially a motivational one. He proposed that man's primary motive is be the locus of causation of his behavior. That is, he wishes to be the origin of his behavior as opposed to being a pawn pushed about by external forces. Notz (1975) explained de Charms' theory in terms of extrinsic vs. intrinsic motivation:

De Charms used the pawn-origin dimension to distinguish between intrinsically vs. extrinsically motivated behavior. A person is said to be intrinsically motivated whenever he experiences himself as the locus of causality for his own behavior (i.e., when he sees himself as an origin). Conversely, he considers himself extrinsically motivated when he perceives himself as a pawn (p.885).

De Charms' theory has received renewed attention of late and has generated some recent research (Calder & Staw, 1975;
Deci, 1971; Notz, 1975). The pawn-origin concept is related to hypnosis in that the subject may be given pre-induction instructions which define hypnosis as being controlled by either the subject (the internal instructions of the present study) or the hypnotist (the external instructions).

Certainly the most extensive and well-recognized work in the area of control expectancies is that of Rotter and his colleagues (Rotter, 1966, 1975; Rotter, Chance & Phares, 1972). Specifically, Rotter was interested in the extent to which the individual perceives a causal relationship between his own behavior and his reinforcements or rewards he receives. In Rotter's terminology, external control is defined as the belief that reinforcements are the result of chance or luck rather than the result of one's behavior. Internal control is defined as the belief that one's reinforcements are a consequence of one's own behavior or of one's relatively permanent characteristics. It is Rotter's belief that this perception of causality is a relatively consistent personality trait, that it varies greatly among individuals, and that it is an important component of various learning situations.

In order to measure this characteristic, Rotter devised a scale, the I-E Scale (Appendix A), which is composed of 29 forced-choice items relating to locus of control. For example, a subject is told to choose between two statements: 

"(a) In the long run people get the respect they deserve in
this world, and (b) Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries" (Rotter, 1966, p. 11). The first statement is obviously meant to relate to internal and the second to external locus of control. Low scorers on the Rotter I-E scale are said to be "internals;" high scorers are "externals."

The Rotter scale has been used extensively, and generally it has been found to be valid and reliable (see methodology section). Rotter himself reviewed the literature on his scale in 1971, and alluded to several studies that are relevant to the present research. For example, he found that internals tend to prefer situations in which any risk taking is under their own control. They also are more attuned to environmental information which may be of relevance in decision making. Internals appear to be more trusting than externals, while, at the same time, avoiding conformity or manipulation.

Also relevant to the present study are the findings that internals and externals differ significantly in how they respond to situations, depending upon how the situations are defined (Liverant & Scodel, 1960; Watson & Baumal, 1967).

**Locus of Control and Hypnotizability**

Shortly after Rotter's introduction of the I-E Scale, investigators in hypnosis research became aware of the possible implications this work had for the question of
hypnotizability. Certainly the control issue is very relevant to hypnosis. When hypnosis is discussed, questions such as the following are frequently encountered:

Who is controlling what happens, the subject or the hypnotist?
Does the hypnotic subject subjugate his will to that of the hypnotist?
Will the hypnotic subject lose control or become unconscious during the process?
Can the hypnotic subject be made to perform actions against his will while hypnotized?

A number of investigators have attempted to clarify the relationship between locus of control and hypnotizability in the last 10 years. The results have been contradictory and confusing up to this point. The following discussion is a summary of these investigations.

Klemp (1969) hypothesized that internal subjects would be more susceptible than externals. His rationale for this hypothesis was based upon the assumption that focusing of attention is the prime variable in hypnosis, and the finding that internals focus more readily than externals. He found a significant positive correlation (+.36) between internality and hypnotizability, but only for female subjects. The present study further investigated the relationship between sex and hypnotizability. It is also hypothesized that internal subjects will be more hypnotizable than externals.

Ricks (1970) attempted to match locus of control expectancy to communications about hypnosis in an attempt
to modify hypnotizability. Not only was there no significant effect, but no relationship was found at all between locus of control and hypnotizability. The fact that all of his subjects were male may be of significance, taking into account Klemp's findings above.

Greene (1972) attempted to manipulate beliefs regarding locus of control in a prehypnotic judgement task. Groups of internals and externals were given tasks described as a function of "chance" or "skill", and then administered the Barber Suggestibility Scale. Her results failed to show a statistically significant relationship between locus of control and hypnotizability (called "suggestibility" in Barber's terminology). She did find, however, that internals were more susceptible after a task described as skill determined and that externals were more susceptible after a task defined as chance determined. This provides support for one of the hypotheses of this experiment. It is hypothesized that congruence between generalized locus of control expectancies and locus of control communications about hypnosis will significantly affect hypnotizability. It should be noted that despite the implications of Klemp's and Rick's studies, Greene made no mention of sex differences and did not analyze her results with regard to sex. This failure to analyze sex differences was surprising, as Greene provided
a very extensive literature review, parts of which have been alluded to here.

More recently, Bean and Duff (1975) attempted to clarify the relationship between situational and general locus of control expectancy and susceptibility. They presented direct information to the subjects about the nature of hypnosis as related to control. They used two forms of a Hypnosis Attitude Questionnaire, one form defining hypnosis as a technique which does not involve a surrender of control to the hypnotist and the other form specifying that it does involve a surrender of control. They then administered the Harvard Group Scale of Hypnotic Susceptibility to the subjects, all of whom had taken the I-E Scale earlier. Contrary to their predictions, these investigators found no significant effect for locus of control. That is, both internals and externals were equally hypnotizable regardless of the communication regarding control. Addressing the sex variable issue, they did separate analyses for men and women, and again failed to achieve significance.

Browning and Friesen (1974) manipulated a variable they call "mode of task motivation and induction" to learn if this was meaningfully related to I-E scores. This mode manipulation involved a rather subtle change in wording. The extrinsic mode presented instructions in a traditional
way using a "you will" format (e.g., You will notice that you may be tense... relax yourself... concentrate on your forehead). The intrinsic mode used an "I am" format (e.g., I may be tense... I must relax myself... I am concentrating on my forehead). Their results indicated that in general the intrinsic mode of induction was superior in affecting hypnosis as compared to the extrinsic mode. Also, they obtained significant results concerning congruence between induction modality and I-E Scale scores. That is, internals receiving an intrinsic mode and externals receiving an extrinsic mode were more susceptible than those subjects who received incongruent modes. The significant results presented here occurred despite a very small sample (N = 20). The present study also hypothesizes that congruency between modality or format and I-E Scale scores will improve hypnotizability.

The studies cited above are all similar in purpose and intent to the present study. Justification for another such study is made for two reasons. First, the results of the various studies are obviously equivocal and often contradictory. The questions posed by the investigators have not been answered satisfactorily. Secondly, each of the studies contains at least one methodological flaw or shortcoming making the results difficult to interpret.
Klemp's initial study was simply a correlational one, with no active manipulation of variables. Also, the sex variable issue which he raised presents important questions. The Ricks study has already been criticized due to its all-male sample. In addition, Ricks himself criticized his own methodology on four more counts in attempting to explain his lack of significant results. Greene's study was rather indirect in its method of manipulation of variables and contained no analysis of results by sex. Bean and Duff avoided many of the methodological shortcomings of the earlier studies, but may have obliterated any significant results they might have obtained by using the median score on the I-E Scale to divide internals from externals. Finally, Browning and Freisen used a very small number of subjects (N = 20) and a very old and rather questionable criterion measure (an adaption of a 1938 scale of hypnotic depth).

**Individual Differences in Hypnotizability**

It has long been recognized that large and often relatively stable differences exist among people with respect to hypnotic responsiveness. Recently, E. Hilgard (1975) summarized the research in this area, updating his earlier work (1965). In addressing himself to personality correlates of hypnotic responsiveness, Hilgard alluded to four areas which have been heavily investigated: imagery, imaginative
involvements (absorption), creativity, and cerebral function.

The weight of evidence as reviewed by Hilgard indicates that there is a small but significant positive relationship between ability to develop clear sensory images and ability to respond to hypnotic suggestions (J. Hilgard, 1970; Palmer & Field, 1968; Perry, 1973). The ability to become absorbed in imaginative involvements has been shown to be a factor in hypnotizability by various investigators (J. Hilgard, 1970, 1974; Tellegen & Atkinson, 1974). The latter investigators also reported two Minnesota Multiphasic Personality Inventory (MMPI) factors as being related to hypnotizability: a stability-neuroticism factor and an introversion-extraversion factor. Stability and extraversion correlated positively with hypnotizability. As regards creativity, several investigators have found a consistent relationship between creativity and hypnosis, with the relationship being more consistent and greater in women (K. Bowers, 1971; K. Bowers & P. Bowers, 1972; P. Bowers, 1967; Perry, Wilder, & Appignanesi, 1973).

There has been a recent reawakening of interest in the study of psychophysiological correlates of hypnotic responsiveness. Fairly stable EEG differences tend to exist between good and poor hypnotic subjects (Bakan & Svorad, 1969; London, Hart, & Leibovitz, 1968; Morgan, McDonald, & Hilgard, 1974; Nowlis & Rhead, 1968). A very interesting relationship seems to exist between cerebral hemispheric laterality of function and hypnosis. Bakan (1969, 1970), and Gur and
Reyher (1973) have established a relationship between hypnotizability and right hemisphere preference. Hilgard (1975) goes on to note, however, that a number of plausible relationships between personality characteristics and hypnotizability have failed to receive experimental validation.

**Attempts to Modify Hypnotizability**

A recent review in modification of hypnotizability by Diamond (1974) contained 186 references. This is some indication that this is not a new nor sparsely researched area. Diamond alluded to attempts to modify hypnotizability via sensory alterations, hypnotic set and environmental setting variations, training experiences in nonhypnotic behavior, and training in hypnotic behavior. For the purposes of this review, only those studies relating to what Diamond calls "informational control" will be reviewed. The reader who wishes further information on efforts to modify hypnotizability should consult Diamond's extensive work.

Numerous investigators have suggested that proper information designed to overcome negative attitudes and anxieties about hypnosis increases responsiveness to suggestions (Barber & DeMoor, 1972; Cronin, Spanos, & Barber, 1971; Pattie, 1956; Sarbin, 1950; Secter, 1960; White, 1941). Diamond (1972) provided both disinhibitory and facilitative information in order to increase susceptibility.
Gregory and Diamond (1973) substantiated the finding that these verbal modeling cues, as they are called, significantly enhance susceptibility.

In concluding his section on informational control, Diamond says:

Information appears to alter attitudes about hypnosis on preference, definition, task motivation, and expectation levels, as well as providing a guideline as to the necessary cognitive behavior for the hypnotic experience. A more careful analysis of the precise internal mechanisms must await further investigation (p. 192).

It should be noted here that despite his extensive investigation of the area, Diamond neglected the aforementioned studies relating hypnotizability to locus of control. It is hoped that the present study will help to further clarify the "internal mechanisms" to which Diamond referred.

Hypotheses

1a. It is hypothesized that internal subjects are more responsive to hypnotic suggestions when they have been given internal instructions than external instructions.

1b. It is hypothesized that external subjects are more responsive to hypnotic suggestions when they have been given external instructions than internal ones.

2a. It is hypothesized that internal subjects will be more responsive to hypnotic suggestions when the I-my format is used than when the You-your format is used.
2b. It is hypothesized that external subjects will be more responsive to hypnotic suggestions when the You-your format is used than when the I-my format is used.

3. It is hypothesized that internal subjects will be generally more responsive to hypnotic suggestions, regardless of conditions than will externals.
CHAPTER II

METHOD

Subjects

The subjects who participated in this study were 86 undergraduate students from Loyola University of Chicago. These students were chosen from a larger pool of 353 undergraduates. The basis for selection of the students was the student's score on the Rotter Scale of Internal-External Control. Specifically, only those subjects scoring 7 or below or 12 or above on the Rotter Scale were selected. These scores represent the upper and lower thirds of the distribution for the aforementioned pool of subjects. Also, previous studies have used these scores as cut-off points. The only other criteria for selection were the subject's sex and willingness to participate in the study.

Instruments

The two psychological measures used in this study were the Rotter Scale of Internal-External Control, and the Harvard Group Scale of Hypnotic Susceptibility, Form A.

The Rotter Scale (Appendix A) was developed by Rotter in 1966. The instrument consists of 29 forced choice items, 23 of which account for the actual score, and 6 of which are "filler" items intended to disguise the purpose of the scale.
The scale was designed to assess the degree to which the subject believes in causal relationships between his own behavior and the reinforcements he receives. A very internal person sees a close link between these two, while a very external person believes that reinforcements are more the result of chance, luck, or control by powerful others.

The Rotter Scale has been very widely used since its introduction in 1966. It is recognized as the standard instrument for the measure of the locus of control trait. Rotter presented data on reliability and validity in his original monograph.

Using such criteria as judges ratings, interviews, recovery from serious illness, survey results, and controlled laboratory tests, numerous investigators have supported the validity of the locus of control concept and the Rotter Scale. Some of the early work was done with a longer, 60-item scale, thus the earlier dates (Cardi, 1962; Davis & Phares, 1967; Franklin, 1963; Liverant & Scodel, 1960; Phares, 1968, 1976; Rotter, Chance, & Phares, 1972; Seeman, 1963).

Recent work by Rotter (1971) provides further construct validity, based on the fact that behavioral differences between internals and externals continue to occur in the predicted direction. In general, it has been shown that internals are more likely than externals to: (a) be alert to environment factors which may provide useful
information for future decision making, (b) work actively toward improving environmental conditions, (c) place greater value on reinforcements due to their own skill or effort, and (d) be resistive to subtle attempts to manipulate or influence them.

Test-retest reliability ranged from .49 to .72 in Rotter's original reports. Split-half reliability was .72, and Kuder-Richardson internal consistency was .74. Several studies indicated that there was no significant relationship between the Rotter Scale and intelligence test scores (Cardi, 1962; Ladwig, 1963; Strickland, 1962). There seems to be some slight, but significant tendency for internal responses to be more socially desirable, as measured by the Marlowe-Crowne Social Desirability Scale (Rotter, 1966).

The Harvard Group Scale of Hypnotic Susceptibility, Form A is an adaptation of an earlier individually administered scale, the Stanford Hypnotic Susceptibility Scale, Form A (Weitzenhoffer & Hilgard, 1959). The group form was developed by Shor and Orne (1962) to allow for administration to groups of unlimited size. The scale itself (Appendix C) consists of 12 items which are self-scored by the subjects. All subjects are presented with a standard induction, and susceptibility is measured by their reported responsiveness to the 12 test items (e.g., eye closure, arm rigidity, posthypnotic suggestion). Several experiments on validity have shown a high correspondence between the
group form and the earlier individual form of the test
(Bentler & Hilgard, 1963; Bentler & Roberts, 1963; Shor &
Orne, 1963).

Since the group form is self-scoring and the earlier
individual form observer-rated, several studies have been
done comparing the two. The correspondence between self
and observer ratings has been shown to be quite high, cor-
relating from .83 to .89 in different comparisons (Bentler
& Hilgard, 1963; Shor & Orne, 1963). It appears that self-
scoring produces scores that are less than one point higher
than observer-scored ratings.

The manual for the Harvard Group Scale allows for
presentation via audio tape if desired. Several investi-
gators have used taped induction and found their results
comparable to live inductions (Barber & Calverly, 1964;
Bean & Duff, 1975; Land & Greenberg, 1971; Small & Kramer,
1969; Ulett, Appinar, & Itel, 1972). Because of the ex-
perimental nature of this study and the subsequent need for
standardization of presentation, it was decided to tape not
only the two induction procedures, but also the pre-induction
instructions.

Procedure

As mentioned previously, all subjects were chosen from
a subject pool of undergraduate students at Loyola University.
All 353 subjects in the original pool were administered the
Rotter Scale as a part of a larger battery of tests and
inventories. Those students with suitable I-E scores were selected at random, and contacted individually by telephone. The subjects were told that the experiment involved the use of hypnosis, and that they would have to be willing to be hypnotized. Those subjects who wished to participate were then assigned to groups which were matched for locus of control expectancies and sex.

Four different treatment conditions were utilized in this study, representing the combinations of pre-induction instructions and induction modality. In all cases, subjects were presented with a "live" general introduction by the experimenter. They were told that further details of the experiment and information about hypnosis would be presented via audiotape for standardization purposes. They were then played one of the two tapes containing either internal or external instructions about hypnosis. The internal tape explained that hypnosis is a function of the subject's skill, that the subject is in complete control of the situation at all times, and that conscious awareness remains undiminished (Appendix D). The external tape defined hypnosis as a function of variables which exist outside of the subject, explained that the operator is in control, and that there is some loss of conscious awareness (Appendix E). The subjects were then given the opportunity to ask the experimenter questions. The answers to these questions coincided with the type of instructions presented. This part of the procedure represented the
pre-induction instructions aspect.

The subjects were then played one of two tapes. One was the verbatim instructions for the Harvard. These instructions utilized the You-your format throughout. The other tape contained the Harvard instructions modified to utilize the I-my format (Appendix B). This part of the procedure represents the induction format aspect.

Following the second tape, the Harvard was administered to all subjects. After the subjects completed this self-rating instrument, feedback about the experience was solicited by the experimenter. Any unfavorable or disturbing reactions on the part of the subjects were watched for carefully, and no one displayed such a reaction. Although the likelihood of such a negative response is very small (Shor & Orne, 1962), the debriefing and feedback session was structured in such a way as to allow for any such circumstances to be dealt with.

During every phase of the study, safeguards were taken to minimize the possibility of unfavorable reactions. As mentioned previously, each subject was phoned individually and made aware that the experiment involved the use of hypnosis. Also during the introductory remarks, this was re-explained and anyone who wished not to participate was free to leave, receiving full credit for the experiment. No one chose to leave. Finally, the debriefing and feedback session
was left open-ended, allowing sufficient time for any questions or comments.

**Design**

The design of the present study is conceptualized as a 2x2x2x2 design. The two subject variables of sex (male, female) and locus of control expectancy (internal, external), and the two treatment variables of pre-induction instructions (internal, external) and induction format (I-my, You-your) account for the design. The purpose of the design was to clarify the influence of the four main effects on hypnotizability and to investigate the various interactions among the variables. The dependent measure of hypnotizability in all cases is the Harvard Group Scale of Hypnotic Susceptibility.
CHAPTER III

RESULTS

The results of the current investigation are presented as follows: First, information about the subject sample and its comparability to normative samples will be presented. Secondly, the descriptive data for each of the 16 cells of the study are provided. Thirdly, the hypotheses which were tested in the investigation will be discussed, with statistical information provided. Finally, some significant and unexpected results which arose from the study will be presented.

Subject Population and Subject Sample

The 353 subjects who completed the Rotter Scale defined the subject pool for the present study. The distribution of scores appeared to be roughly normally distributed (see Appendix P). The mean score for all subjects in the pool was 10.58, and the standard deviation was 4.18. The means cited by Rotter in his original work (Rotter, 1966) were 8.15 and 8.42 for males and females respectively. The standard deviation for males was 3.88 and for females 4.06. Thus, the Loyola pool appears to have been somewhat more externally oriented than the original sample. However, since
subjects for the present study were chosen using cut-off points to define internal and external scores, the difference between the Loyola and normative samples is not of consequence to the results.

Figure 1 indicates that the distribution of Harvard Group Scale of Hypnotic Susceptibility scores for the present sample is quite comparable to two earlier normative samples. The Chi Square goodness of fit test (Snedecor & Cochran, 1967) was used to test the normalcy of the present sample. A Chi Square of 8.49 was calculated. The critical value ($\chi^2 = .05$) of Chi square for 12 degrees of freedom is 21.03. Since the Chi square did not approach the critical value, it was concluded that the current sample distribution did not deviate significantly from normal. The normal distribution was obtained despite the fact that the sample was a specialized one including only internal and external subjects, whereas the earlier samples were chosen without regard to Rotter scores.

Further substantiation for the comparability of the present sample to the earlier normative samples is given by the data presented in Table 1. This table compares the percentages of the various samples describing themselves positively (i.e. in the hypnotizable direction) on each of the 12 items of the Harvard. The items were also ranked in terms of percentage of response, with the most frequent response ranked first. Rank order correlation coefficients
Figure 1. Means and Percentage Distributions of Normative and Current Samples on the Harvard.
Table 1
Percentages of Subjects Responding in the Hypnotizable Direction to each of the Harvard Items

<table>
<thead>
<tr>
<th>Harvard Item</th>
<th>Loyola Univ.</th>
<th>Harvard Univ.</th>
<th>Univ. of California</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Postural Alteration</td>
<td>68 (2)</td>
<td>86 (2)</td>
<td>68 (3)</td>
</tr>
<tr>
<td>2. Eye Closure</td>
<td>66 (4)</td>
<td>74 (4)</td>
<td>56 (4)</td>
</tr>
<tr>
<td>3. Hand Lowering</td>
<td>74 (1)</td>
<td>89 (1)</td>
<td>71 (2)</td>
</tr>
<tr>
<td>4. Arm Immobilization</td>
<td>40 (8)</td>
<td>48 (9)</td>
<td>35 (9)</td>
</tr>
<tr>
<td>5. Finger lock</td>
<td>59 (5)</td>
<td>67 (5)</td>
<td>52 (5)</td>
</tr>
<tr>
<td>6. Arm Rigidity</td>
<td>52 (7)</td>
<td>57 (6)</td>
<td>48 (6)</td>
</tr>
<tr>
<td>7. Hands Moving</td>
<td>67 (3)</td>
<td>86 (3)</td>
<td>77 (1)</td>
</tr>
<tr>
<td>8. Inhibition</td>
<td>37 (9)</td>
<td>50 (8)</td>
<td>44 (7)</td>
</tr>
<tr>
<td>10. Eye Catalepsy</td>
<td>56 (6)</td>
<td>56 (7)</td>
<td>39 (8)</td>
</tr>
<tr>
<td>12. Amnesia</td>
<td>33 (10)</td>
<td>48 (10)</td>
<td>35 (10)</td>
</tr>
</tbody>
</table>

Sample Means = 50.0  61.3  49.3

a Rank of the item in terms of percentage of response, with most frequent response ranked first.
(Edwards, 1972) were then calculated comparing the Loyola sample to the earlier samples. The coefficients were +.99 between the Loyola and Harvard samples, and +.94 between the Loyola and California samples. These results substantiate the hypothesis of comparability between the present sample and those used in previous research using the same instrument.

**Descriptive Statistics for All Treatment Conditions**

Table 2 provides the means and standard deviations for all 16 treatments of the present investigation. As can be seen from the table, the cell means varied greatly from 3.80 to 8.60, and the standard deviations varied from 0.87 to 4.10. The grand mean for all subjects was 6.00. This indicated that the typical subject responded in the hypnotizable direction to six of the 12 hypnotic suggestions of the Harvard Scale. Raw data for all subjects is included in Appendix G.

**Four-Way Analysis of Variance of Harvard Scores**

Table 3 presents the results of the four-way analysis of variance for all the main effects and the two, three, and four-way interactions. This analysis was done using the Statistical Package for the Social Science (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). Specifically, the subprogram Anova for factorial designs with unequal cell frequencies was utilized. The three hypotheses that were tested in the study failed to receive support from the analysis.
<table>
<thead>
<tr>
<th>Subject Type</th>
<th>Internal Instructions</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>External Instructions</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I-my Format</td>
<td>You-your Format</td>
<td>I-my Format</td>
<td>You-your Format</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Male</td>
<td>M 8.20</td>
<td>5.20</td>
<td>4.20</td>
<td>5.80</td>
<td></td>
<td>M 4.20</td>
<td>5.70</td>
<td>1.60</td>
<td>1.60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD 1.60</td>
<td>3.65</td>
<td>1.60</td>
<td>1.60</td>
<td></td>
<td>SD 1.60</td>
<td>1.57</td>
<td>1.57</td>
<td>1.57</td>
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<td></td>
<td>N 5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
<td>N 5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>M 5.40</td>
<td>5.83</td>
<td>8.60</td>
<td>4.00</td>
<td></td>
<td>M 8.60</td>
<td>5.80</td>
<td>1.85</td>
<td>2.97</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD 1.02</td>
<td>1.57</td>
<td>1.85</td>
<td>2.97</td>
<td></td>
<td>SD 1.02</td>
<td>1.57</td>
<td>1.85</td>
<td>2.97</td>
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<td></td>
<td>N 5</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td></td>
<td>N 6</td>
<td>6</td>
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<td>External</td>
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<tr>
<td>Male</td>
<td>M 6.40</td>
<td>6.00</td>
<td>4.40</td>
<td>6.20</td>
<td></td>
<td>M 4.40</td>
<td>6.00</td>
<td>1.96</td>
<td>2.48</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD 1.85</td>
<td>4.10</td>
<td>1.96</td>
<td>2.48</td>
<td></td>
<td>SD 1.85</td>
<td>4.10</td>
<td>1.96</td>
<td>2.48</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>5</td>
<td></td>
<td>N 5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>M 7.00</td>
<td>3.80</td>
<td>8.11</td>
<td>5.33</td>
<td></td>
<td>M 8.11</td>
<td>3.80</td>
<td>0.87</td>
<td>3.40</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD 2.68</td>
<td>2.76</td>
<td>0.87</td>
<td>3.40</td>
<td></td>
<td>SD 2.68</td>
<td>2.76</td>
<td>0.87</td>
<td>3.40</td>
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<tr>
<td></td>
<td>N 5</td>
<td>5</td>
<td>9</td>
<td>6</td>
<td></td>
<td>N 5</td>
<td>5</td>
<td>9</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
Table 3
Four-Way Analysis of Variance of Harvard Scores

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Effects</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sex (S)</td>
<td>1</td>
<td>2.47</td>
<td>&lt; 1.00</td>
</tr>
<tr>
<td>Type (T)</td>
<td>1</td>
<td>.26</td>
<td>1.00</td>
</tr>
<tr>
<td>Instructions (I)</td>
<td>1</td>
<td>.03</td>
<td>&lt; 1.00</td>
</tr>
<tr>
<td>Format (F)</td>
<td>1</td>
<td>41.07</td>
<td>5.84***</td>
</tr>
<tr>
<td><strong>2-Way Interactions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S x T</td>
<td>1</td>
<td>.13</td>
<td>&lt; 1.00</td>
</tr>
<tr>
<td>S x I</td>
<td>1</td>
<td>26.83</td>
<td>3.81*</td>
</tr>
<tr>
<td>S x F</td>
<td>1</td>
<td>33.66</td>
<td>4.78**</td>
</tr>
<tr>
<td>T x I</td>
<td>1</td>
<td>3.55</td>
<td>&lt; 1.00</td>
</tr>
<tr>
<td>T x F</td>
<td>1</td>
<td>.07</td>
<td>&lt; 1.00</td>
</tr>
<tr>
<td>I x F</td>
<td>1</td>
<td>.92</td>
<td>&lt; 1.00</td>
</tr>
<tr>
<td><strong>3-Way Interactions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S x T x I</td>
<td>1</td>
<td>.05</td>
<td>&lt; 1.00</td>
</tr>
<tr>
<td>S x T x F</td>
<td>1</td>
<td>6.31</td>
<td>&lt; 1.00</td>
</tr>
<tr>
<td>S x I x F</td>
<td>1</td>
<td>41.10</td>
<td>5.84***</td>
</tr>
<tr>
<td>T x I x F</td>
<td>1</td>
<td>3.94</td>
<td>&lt; 1.00</td>
</tr>
<tr>
<td><strong>4-Way Interaction</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>S x T x I x F</td>
<td>1</td>
<td>20.27</td>
<td>2.88</td>
</tr>
<tr>
<td><strong>Within Subjects</strong></td>
<td>70</td>
<td>7.04</td>
<td></td>
</tr>
</tbody>
</table>

* *p = .05
** *p = .03
*** *p = .02
Hypothesis 1a suggested that internal subjects would be more responsive to hypnotic suggestions when given internal instructions than when given external instructions. Hypothesis 1b suggested that external subjects would be more responsive to hypnotic suggestions when given external instructions than when given internal ones. As can be seen from Table 3, the Type by Instructions interaction was not significant, thus failing to support the first hypothesis.

Hypothesis 2a suggested that internal subjects would be more responsive to hypnotic suggestions when the I-my format was used than when the You-your format was presented. Hypothesis 2b suggested that external subjects would be more responsive to hypnotic suggestions when the You-your format was presented than when the I-my format was used. Again, the analysis of variance indicated that the Type by Format interaction was not statistically significant.

Hypothesis 3 suggested that internal subjects would be generally more responsive to hypnotic suggestions than would external subjects. The main effect for Type was not statistically significant, and thus hypothesis 3 failed to be supported.

**Significant Effects and Interactions among Variables**

The analysis presented in Table 3 indicated that a number of significant results were obtained from the present study, although none of these related directly to the primary hypotheses. As can be seen, only the format main effect
achieved statistical significance ($p = .02$). Inspection of the means showed that the I-my format produced a mean score that was 1.4 points higher than the You-your format (6.68 and 5.28, respectively).

Table 3 also indicates that the two-way interactions of sex by instructions and sex by format were statistically significant. The sex by instructions interaction was significant at the .05 level. Figure 2 graphically describes this interaction effect. It can be seen that for males, the internal instructions yielded a higher mean score than did the external instructions (6.45 and 5.15 respectively). The opposite was the case for females. The external instructions produced a higher mean score than did the internal instructions (6.72 and 5.52 respectively). In order to test the significance of these and other differences between means, Duncan's Range Test (Edwards, 1972) was used. The results of this test indicated that the difference between males and females was statistically significant ($p = .10$) under the external instructions condition.

The sex by format interaction was also significant ($p = .03$). Figure 3 shows that the significance is due entirely to the influence of format upon females. The male mean scores were exactly the same with both formats (5.80), while the female scores were greatly affected by format. Specifically, the females who were presented with the I-my format produced a mean score of 7.42, while the You-your
Figure 2. Interaction of Sex by Instructions
Figure 3. Interaction of Sex by Format.
format yielded a mean of 4.82 (p = .005). Females presented with the I-my condition scored significantly higher (p = .10) than the males under either condition.

The three-way interaction of sex by instructions by format was also significant (p = .02). Figure 4 shows the interaction effects of these three variables. As this figure shows, the interaction effect is seen as clearly related to the external condition. Thus, the interaction effect of Sex by Format which was demonstrated in Figure 3 is really confined only to the external instructions. Under this condition, females were far more hypnotizable (p = .01) when the I-my format was used (M = 8.28) compared to when the You-your format was presented (M = 4.73). For males, on the other hand, the You-your format yielded a higher mean score under the external condition than did the I-my format (6.00 and 4.30, respectively), although this difference was not statistically significant. Females receiving the I-my format scored significantly higher than males receiving the I-my format (8.28 compared to 4.30, p = .005), and males presented with the You-your format (6.00, p = .10).

When the results of this same interaction are examined with respect to the internal condition (lower graph), it can be seen that both males and females appeared somewhat more hypnotizable under the I-my format, although the results were not statistically significant. The mean scores for males were 7.30 and 5.60 for the I-my and You-your conditions
Figure 4. Three-way Interaction of Instructions by Sex by Format.
respectively. For females, the mean scores for I-my and You-your formats were 6.20 and 4.91, respectively.
CHAPTER IV

DISCUSSION

Although none of the hypotheses of the present study were supported, a number of statistically significant findings emerged from the investigation. Certainly the most significant finding of the study was the powerful influence of the format variable. The only prior investigation of this variable was the Browning and Friesen study (1974).

Their finding that the intrinsic modality (their phrase for the I-my format) was generally superior to the more traditional extrinsic modality (You-your) was strongly supported by the present study. Across all conditions, the I-my format was significantly superior in producing hypnotic susceptibility. What this finding suggests is that if no other variables are considered, the hypnotic operator would do well to utilize the I-my format consistently rather than the traditional You-your format. Although the change is a subtle one, the results were quite significant.

Browning and Friesen found that for their subjects, a congruence between induction modality and locus of control expectancies significantly enhanced hypnotic responsiveness. That is, internals receiving I-my induction and externals
receiving You-your induction were more susceptible than those receiving incongruent modalities. The results of the present study were not consistent with those of the earlier study. The present study indicated that the I-my format was preferable for externals as well as internals. In other words, locus of control expectancies made no difference.

As mentioned previously, the Browning and Freisen investigation was methodologically an inadequate study. Their research was done with an unacceptably small number of subjects (N = 20), and utilized a very questionable criterion measure (an adaptation of a 1938 scale of hypnotic depth). Their results, therefore, are certainly open to question. The present study overcame the aforementioned methodological problems by testing a larger number of subjects (N = 86), and using a more well-accepted and widely used criterion measure (the Harvard Group Scale of Hypnotic Susceptibility).

The lack of significance of the locus of control variable was the second important piece of information to come from the present study. Locus of control was not a significant variable either as a main effect or in interaction with other variables. Thus, the present study lends support to earlier studies which found no relationship between locus of control expectancies and hypnotizability (Bean & Duff, 1975; Greene, 1972; Ricks, 1970).

While neither pre-induction instructions nor sex were significant as main effects, both seemed to be important when considered in combination with each other and with the
format variable. The sex by instructions interaction indicated that males tended to be more hypnotizable when given internal instructions, and females when given external instructions. The sex by format interaction indicated that females were significantly more responsive to hypnotic suggestions when the I-my format was used, but males responded equally well to the two formats.

Taking the three significant variables into account in various interactions, several significant results appeared. The results indicated that the most effective combination of pre-induction instructions and induction format varied depending upon the sex of the subject. For males, internal instructions and the I-my format produced significantly higher scores than the various other combinations. For females, the I-my format was also superior, but the external instructions produced higher scores than the internal instructions.

The results, therefore, have immediate practical implications for practitioners who utilize hypnosis as a clinical tool. Depending upon the sex of the subject, stressing either internal or external aspects of hypnosis in the pre-induction instructions may significantly enhance hypnotizability. Stressing that the subject is in control of the situation appeared to facilitate induction for males. On the other hand, females who were told that the control for what was happening was outside themselves were more hypnotizable than those receiving internal instructions.
As regards the format variable, the practical implications affect only females. The I-my format significantly enhanced hypnotizability for female subjects, and it would thus seem useful to employ this format when the hypnotic subject is female. For males, the traditional You-your format was just as effective as the I-my format, so either could be utilized without affecting hypnotic responsiveness.

Theoretically, it is more difficult to make sense out of the findings. It appears that the theory that congruency between locus of control expectancies and instructions and format would increase hypnotizability was not supported in any way by the present study. In fact, a number of recent studies have failed to support this theory. Thus, the weight of evidence suggested that this theory and the locus of control variable, as measured by the Rotter Scale, are not of any consequence when considering hypnotizability.

It is, of course, possible that the Rotter Scale was not the appropriate instrument for measuring the control variable which operates in hypnosis. The Rotter Scale claims to measure a very important, enduring, and rather pervasive personality trait. However, the items tap heavily into attitudes about academic life and what might be called political activism. It is possible that the Rotter Scale does not measure a unidimensional trait of locus of control, but rather an allied group of attitudes which indirectly relate to perceived control. A factor analytic study of the Rotter Scale could help to explore this possibility.
The Rotter Scale may also be criticized as a measurement instrument on the basis of questionable internal consistency. The original monograph (Rotter, 1966) cites biserial item correlations which ranged from .109 to .480. Such low correlations call into question the internal reliability of the Rotter.

One of the reasons why internals were hypothesized to be more hypnotizable than externals related to the finding that internals tend to be more trusting than externals, and therefore more willing to trust the hypnotist. It might be possible to test the relationship between trust and hypnotizability more directly. Rotter (1967) devised the Interpersonal Trust Scale to measure this trait. A study could be designed to assess the relationship between the personality dimensions of interpersonal trust and hypnotizability.

What theory can be used to help explain the very significant finding regarding format change? The difference remained regardless of Rotter scores, so the congruency theory again seems to add nothing. The present investigator would like to suggest that the format findings might better be explained as a function of the hypnotic state rather than as a function of subject variables.

It has been suggested that while in the hypnotic state, unconscious processes are closer to the surface than when a person is in a waking state. Much of the early use of
hypnosis used this theory therapeutically. One of the notions put forth in psychocybernetics is that the unconscious aspect of the mind thinks only deductively and deals with information very concretely, making no inferences. The thought processes of the hypnotized person then are rather computer-like and not inferential as in the waking state. For example, a hypnotized person may be asked: "Could you tell me your age?" He is very likely to say "yes," or simply nod his head, thus giving a very literal answer to the question. He makes no inferences.

It is this quality of hypnotic performance which may account for the superiority of the I-my format. The standard You-your format requires the subject to transform the second-person command into a first-person behavior. It seems that some inductive thought process may be involved, thus somewhat inhibiting the hypnotic process. The I-my format allows the subject to perform much more directly without the job of cognitive translation. This suggestion is proposed to help explain the results which occurred in this study, but further clarification of the theory and the results are necessary.

It would be possible to test this hypothesis of cognitive translation both outside of and within the hypnotic state. If, indeed, a cognitive transformation is necessary when a person receives any second person command or request, then it would follow that a person given a first person
suggestion might respond more quickly to the suggestion. It would be possible to measure the reaction time of subjects given both types of requests to see if there was, in fact, any significant difference. A similar design could be used to test the reaction time of subjects in the hypnotized state. It would be hypothesized that the subjects in the I-my groups would respond more quickly to suggestions than the You-your groups in both the hypnotized and non-hypnotized conditions. However, the difference would presumably be greater in the hypnotized state because of the increased difficulty in making inferences while hypnotized.

The sex differences which appear when format and instructions are considered are more difficult to explain theoretically. It may be that males are more concerned with the control-aspect of hypnosis than are women. Thus, the internal instructions served to reassure them that they will not lose control in the situation, and hypnotic susceptibility is thus enhanced. The finding that under the external condition, females were significantly more hypnotizable than males could possibly be due to an examiner variable. It may be that some females were more comfortable with the idea of temporarily relinquishing control to the male operator than were the males.

This possibility could be related to attitudes concerning sex role stereotypes which the subjects may hold. It is possible, for example, that some of the females who
were excellent hypnotic subjects may adopt a submissive attitude in relation to men generally. This would explain part of their conformity to suggestions given by a male. Some males who were particularly poor subjects, on the other hand, may hold male-dominant attitudes which would make it difficult for them to respond well to the hypnotic situation. These hypotheses could be tested by measuring the sex-role attitudes of subjects and relating these scores to hypnotizability.

The examiner variable could be explored by utilizing both male and female examiners and subjects of both sexes. If differences in hypnotizability were found based upon the interaction of sex of the experimenter and sex of the subject, then this would support the hypothesis that sex of the examiner does make a difference. It would be important in such a study to control for the ability of the hypnotist. Both the male and female experimenters would have to be shown to be equally skillful across subjects.

Other variables which may have confounded the results relate to the composition of the subject sample. One important variable is related to the level of coercion used to obtain subjects. The present study utilized subjects who had been informed that the experiment involved the use of hypnosis prior to their volunteering. In fact, a significant percentage (approximately 5 percent) of the people contacted declined to participate because of the use of hypnosis. The
only pressure which subjects were under to participate was related to course requirements. All students in the subject pool were required to participate in five hours of research as a psychology course requirement. This was the only aspect of the situation which might be considered coercive. Thus the present sample might best be considered a voluntary rather than a coerced group.

The fact that the sample was a voluntary one may have made a difference in terms of the sample’s hypnotizability. The two normative samples alluded to earlier differed in terms of the degree of coercion used to obtain subjects. The Harvard sample (Shor & Orne, 1963), like the present one, could best be considered a hypnotic-volunteer group, as all subjects were previously informed that hypnosis was to be used. The California sample (Coe, 1964) was not informed that hypnosis was part of the experiment until immediately before administration of the Harvard Scale. By the author’s own admission, the subjects were, therefore, more coerced than was the Harvard sample. The previously cited rank order correlations between the present sample and the earlier samples would seem to support the suggestion that the Loyola sample was not coerced. The Loyola sample correlated +.99 with the Harvard sample, and +.94 with the California sample.

In reference to those people who declined to participate in the study because hypnosis was involved, it would be
interesting to try to persuade these subjects to participate in a different study. It may be that these unwilling participants, many of whom said they didn't "believe in" hypnosis, would, in fact, be no different than the other volunteers in terms of hypnotizability. This could be tested by comparing the "unwilling" subjects' scores to those of "willing" participants.

Another aspect of the subject sample which could be further investigated is the relationship of college major to hypnotizability. In the California normative study, Coe (1964) examined this relationship, and found that there were significant differences in terms of hypnotizability between science majors and dramatic arts majors. The dramatic arts majors were significantly more hypnotizable than the science majors. Coe explained this finding with relation to role-taking aptitude. He hypothesized that the drama majors were high in role-taking aptitude, and science majors low in this aptitude. The present sample was not analyzed according to college major, but further investigation of this variable is seen as important.

The differential effect of the I-my format upon females as compared to males is difficult to explain. Possibly females are able to identify more easily with the first person I-my presentation. It may also be that males are more readily able to make the cognitive transposition from the second person presentation to the first person behavior requested of them. This possibility could be
explored by comparing the reaction times of males and females to both I-my and You-your suggestions.

The present investigation thus raised a number of issues for future research. Certainly the powerful influence of the I-my format, especially with female subjects, needs to be replicated. The differential effect of internal and external instructions upon males and females likewise needs to be further investigated. Other suggestions for further research included the importance of trust in hypnosis, the necessity of making a cognitive transformation in the implementation of hypnotic suggestions, and possible sex differences in the ability to make this transformation. A similar study to investigate the cognitive translation effect in the non-hypnotized state was also suggested. The effect of attitudes relating to sex-role stereotypes upon hypnotizability was also suggested as an area to be further explored. The influence of the hypnotist's sex could also be investigated to clarify what effect this has upon hypnotizability. It was also pointed out that the composition of the subject sample in terms of amount of coercion used to obtain subjects, and the subject's college major, may relate to hypnotizability.

In summary, although none of the main hypotheses of the study was supported by statistical analysis, a number of significant results were reported. These results have practical implications as well as theoretical importance for the field of hypnosis.
CHAPTER V

SUMMARY

The purpose of the present study was to assess the effect of locus of control expectancies, pre-induction instructions, induction format, and sex upon hypnotizability. Specifically, the present investigation explored the possibility that hypnotizability may be significantly enhanced by matching control oriented communications to the subject's locus of control expectancies.

The control oriented communications consisted of two kinds of pre-induction instructions, and two kinds of induction format. Internal instructions communicated information about hypnosis to the subject which suggested that hypnosis was a skill which was under the subject's control. External instructions suggested that hypnosis was a function of external variables, such as the skill of the hypnotist.

The You-your induction format utilized the traditional second person pronouns in presenting suggestions (e.g., "You are feeling drowsy"). The I-my format substituted the first person pronouns wherever possible (e.g., "I am feeling drowsy").
The three hypotheses that were tested all related to the locus of control variable. First, it was hypothesized that internal subjects would be more responsive to hypnotic suggestions when given internal instructions, and likewise that external subjects would be more responsive when given external instructions. Secondly, it was hypothesized that internal subjects would be more hypnotizable when the I-my format was used, and that externals would be more responsive when the You-your format was utilized. Thirdly, it was hypothesized that internal subjects would, as a group, be more responsive to hypnotic suggestions than externals.

Eighty-six subjects were chosen for participation in the study based upon the subject variables of sex and locus of control expectancies as measured by the Rotter I-E Scale. Treatment conditions were various combinations of pre-induction instructions and induction format. The dependent measure of hypnotizability was the Harvard Group Scale of Hypnotic Susceptibility, Form A. Each group of subjects was presented one of the two pre-induction instructions via audiotape. The induction proper was then presented, again on tape, utilizing one of the two induction formats. Following the induction tape, all subjects were administered the Harvard Scale.

The results of the study failed to support the primary hypotheses presented, but several statistically
significant, if unexpected, findings emerged. Most signif­
ificant was the effect of the induction format upon
hypnotizability. The I-my format was found to signifi-
cantly enhance hypnotizability as compared to the tra-
ditional You-your format (p = .02). The sex x instruc-
tions interaction was also significant (p = .05), indi-
cating that males tended to respond better to hypnotic
suggestions when internal instructions were given, and
females when external instructions were used. The sex x
format interaction was also significant (p = .03), in-
dicating that for females the I-my format greatly enhanced
hypnotic responsiveness, and that for males, both formats
were equally effective. The 3-way interaction of sex,
instructions, and format was also significant (p = .02).
This interaction indicated that if internal instructions
were utilized, the I-my format yielded higher scores for
both males and females. However, if external instructions
were used, males were more hypnotizable when the You-your
format was used, and females when the I-my format was
utilized. Implications of these findings, both practical
and theoretical, were presented and discussed. The most
important practical implication of the study related to the
finding that the I-my format yielded significantly higher
scores of hypnotizability than did the traditional You-your
format.
REFERENCES


Barber, T. X., & DeMoor, W. A. A theory of hypnotic induction procedures. *American Journal of Clinical*


Deci, E. L. The effects of externally mediated rewards on


University, 1963


O'Connell, D. N. An experimental comparison of hypnotic depth measured by self-ratings and by an objective scale. *International Journal of Clinical and*
Experimental Hypnosis, 1964, 12, 34-46.


Phares, E. J. Differential utilization of information as a function of internal-external control. Journal
of Personality, 1968, 36, 649-662.


Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80, 1, (Whole No. 609).


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


The following paragraphs are the verbatim instructions which were given to the subjects of this study. The reader will note that the score on the Rotter is determined by the number of underlined items which the subject chooses. The higher the score, the more external the subject.

The Rotter I-E Scale

INSTRUCTIONS

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you are concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.

Your answers to the items on this inventory are to be recorded on the separate answer sheet. Print your name and any other information requested by the examiner on the answer sheet, then finish reading these directions. Do not open this booklet until you are told to do so.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find the answer for every choice.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.
1. a. Children get into trouble because their parents punish them too much.
   b. The trouble with most children nowadays is that their parents are too easy with them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.
   b. People's misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
   b. There will always be wars, no matter how hard people try to prevent them.
4. a. In the long run people get the respect they deserve in this world.
   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. a. The idea that teachers are unfair to students is nonsense.
   b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. a. Without the right breaks one cannot be an effective leader.
   b. Capable people who fail to become leaders have not taken advantage of their opportunities.
7. a. No matter how hard you try some people just don't like you.
   b. People who can't get others to like them don't understand how to get along with others.
8. a. Heredity plays the major role in determining one's personality.
   b. It is one's experiences in life which determine what they're like.
9. a. I have often found that what is going to happen will happen.
   
   b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
   
   b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
   
   b. Getting a good job depends mainly on being in the right place at the right time.

12. a. The average citizen can have an influence in government decisions.
   
   b. This world is run by the few people in power, and there is not much the little guy can do about it.

13. a. When I make plans, I am almost certain that I can make them work.
   
   b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good.
   
   b. There is some good in everybody.

15. a. In my case getting what I want has little or nothing to do with luck.
   
   b. Many times we might just as well decide what to do by flipping a coin.

16. a. Who gets to be boss often depends on who was lucky enough to be in the right place first.
   
   b. Getting people to do the right thing depends upon ability, luck has little to do with it.
17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

b. By taking an active part in political and social affairs the people can control world events.

18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

b. There is really no such thing as "luck".

19. a. One should always be willing to admit mistakes.

b. It is usually best to cover up one's mistakes.

20. a. It is hard to know whether or not a person really likes you.

b. How many friends you have depends upon how nice a person you are.

21. a. In the long run the bad things that happen to us are balanced by the good ones.

b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort we can wipe out political corruption.

b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.

b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.

b. A good leader makes it clear to everybody what their jobs are.

25. a. Many times I feel that I have little influence over the things that happen to me.
b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.

b. There's not much use in trying too hard to please people, if they like you, they like you.

27. a. There is too much emphasis on athletics in high school.

b. Team sports are an excellent way to build character.

28. a. What happens to me is my own doing.

b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. a. Most of the time I can't understand why politicians behave the way they do.

b. In the long run the people are responsible for bad government on a national as well as on a local level.
APPENDIX B
I-my modification of Harvard Induction

MAIN PROCEDURES

(The following instructions are to be presented verbatim.)

la. HEAD FALLING (Total time: 3'30")

To begin with, I want to experience how it feels to respond to suggestions when I am not hypnotized. I will now sit up straight in my chair....Close my eyes and relax. I will continue, however, to sit up straight. That's right. Eyes closed and sitting up straight. I will stay in this position with my eyes closed, while at the same time letting myself relax. (Allow 30" to pass.) Now I will remain in the same position and keep my eyes closed...sitting up straight in my chair....with my eyes closed.

In a moment I shall think of my head falling forward. Thinking of a movement and making a movement are closely related. Soon after I think of my head falling forward I will experience a tendency to make the movement. I will find my head actually falling forward, more and more forward, until my head will fall so far forward that it will hang limply on my neck.

I am listening carefully to what is being said and am thinking of my head falling forward, drooping forward. Thinking of my head falling forward, falling forward, more and more forward. My head is falling forward, falling
forward. More and more forward. My head is falling more and more forward, falling more and more forward. My head is going forward, drooping down, down, limp and relaxed. My head is drooping, swaying, falling forward, falling forward, falling forward, falling, swaying, drooping, limp, relaxed, forward, forward, falling, falling, falling....Now!

That's fine. Now I am sitting up and opening my eyes. That's right. Sitting up and opening my eyes. I can see how thinking about a movement produces a tendency to make the movement. I learn to become hypnotized as I bring myself to give expression to my action tendencies. But at this point I have the idea of what it means to accept and act upon suggestions.

2a. EYE CLOSURE (Total time: 15' 25")

Now I am going to seat myself comfortably and rest my hands in my lap. That's right. Rest my hands in my lap. Now I am going to look at my hands and find a spot on either hand and just focus on it. It doesn't matter what spot I choose, I just select some spot to focus on. I shall refer to the spot which I have chosen as the target. That's right....hands relaxed....looking directly at the target. I am about to receive some instructions that will help me to relax and gradually to enter a state of hypnosis. Just relax and make myself comfortable. I
want to look steadily at the target and while keeping
my eyes upon it to listen to what is being said, my abil-
ity to be hypnotized depends partly on my willingness to
cooperate and partly on my ability to concentrate upon the
target and upon these words. I have already shown myself
to be cooperative by coming here today, and with further
cooperation I can become hypnotized. I can be hypnotized
only if I am willing. I am willing and I am doing my
best to cooperate by concentrating on the target and lis-
tening to these words, letting happen whatever I feel is
going to take place. I just let it happen. If I pay close
attention to what is being said, and think of the things
I am told to think about, I can easily experience what it
is like to be hypnotized. There is nothing fearful or
mysterious about hypnosis. It is a perfectly normal con-
sequence of certain psychological principles. It is merely
a state of strong interest in some particular thing. In
a sense I am hypnotized whenever I see a good show and for-
get I am part of the audience, but instead feel I am part
of the story. Many people report that becoming hypno-
tized feels at first like falling asleep, but with the dif-
fERENCE that somehow or other they keep hearing the sugges-
tions as a sort of background to whatever other experience
they may be having. In some ways hypnosis is like sleep-
walking; however, hypnosis is also an individual experience
and is not just alike for everyone. In a sense the hypno-
tized person is like a sleepwalker, for he can carry out various and complex activities while remaining hypnotized. All I need to do is to keep up my attention and interest and continue to cooperate as I have been cooperating. Nothing will be done that will cause any embarrassment. Most people find this a very interesting experience. (Time: 3' 35")

I am just relaxing, I'm not tense. I'm keeping my eyes on the target. Looking at it as steadily as I can. Should my eyes wander away from it, that will be all right...I just bring my eyes back to it. After a while I may find that the target gets blurry, or perhaps moves about, or again, changes color. That is all right. Should I get sleepy, that will be fine, too. Whatever happens, I will let it happen and keep staring at the target for a while. There will come a time, however, when my eyes will be so tired, will feel so heavy, that I will be unable to keep them open any longer and they will close, perhaps quite involuntarily. When this happens, I will just let it take place. (Time: 1' 10")

As the instructions continue, I will find that I will become more drowsy, but not all people respond at the same rate to what is being said. Some people's eyes will close before others. When the time comes that my eyes have closed, I will just let them remain closed. I may find that suggestions are being given for my eyes to close. These sug-
gestions will not bother me. They will be for other people. Giving these suggestions to other people will not disturb me but will simply allow me to relax more and more.

I am finding that I can relax completely but at the same time sit up comfortably in my chair with little effort. I will be able to shift my position to make myself comfortable as needed without it disturbing me. Now I just want myself to relax completely. Relax every muscle of my body. Relax the muscles of my legs....Relax the muscles of my feet....Relax the muscles of my arms....Relax the muscles of my hands....of my fingers....Relax the muscles of my neck, of my chest....Relax all the muscles of my body....Let myself be limp, limp, limp. Relax more and more, more and more. Relax completely. Relax completely. Relax completely. (Time: 2' 15")

As I relax more and more, a feeling of heaviness perhaps comes over my body. A feeling of heaviness is coming into my legs and my arms....into my feet and my hands....into my whole body. My legs feel heavy and limp, heavy and limp....my arms are heavy, heavy....my whole body feels heavy, heavier and heavier. Like lead. My eyelids feel especially heavy. Heavy and tired. I am beginning to feel drowsy, drowsy and sleepy. My breathing is becoming slow and regular, slow and regular. I am getting drowsy and sleepy, more and more sleepy while my
eyelids become heavier and heavier, more and more tired and heavy. (Time: 1' 25")

My eyes are tired from staring. The heaviness in my eyelids is increasing. Soon I will not be able to keep my eyes open. Soon my eyes will close of themselves. My eyelids will be too heavy to keep open. My eyes are tired from staring. My eyes are becoming wet from straining. I am becoming increasingly drowsy and sleepy. The strain in my eyes is getting greater and greater, greater and greater. It would be so nice to close my eyes, to relax completely, and just listen sleepily to the instructions. I would like to close my eyes and relax completely, relax completely. I will soon reach my limit. The strain will be so great, my eyes will be so tired, my lids will become so heavy, my eyes will close of themselves. (Time: 1' 20")

My eyelids are getting heavy, very heavy. I am relaxed, very relaxed. There is a pleasant feeling of warmth and heaviness all through my body. I am tired and drowsy. Tired and sleepy. Sleepy. Sleepy. Sleepy. Listening only to the instructions. Paying attention to nothing else but the instructions. My eyes are getting blurred. I am having difficulty seeing. My eyes are strained. The strain is getting greater and greater, greater and greater. (Time: 50")

My lids are heavy. Heavy as lead. Getting heavier
and heavier, heavier and heavier. They are pushing down, down, down. My eyelids seem weighted, weighted with lead, heavy as lead....My eyes are blinking, blinking, blinking....closing....closing.... (Time: 35")

My 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 my eyes have not closed fully as yet, I have concentrated well upon the target, and have become more relaxed and drowsy. At this time I will just let my eyes close. That's it, eyes completely closed. I am closing my eyes now. (Time 35")

I am now comfortably relaxed, but I am going to relax even more, much more. My eyes are now closed. I will keep my eyes closed until I am told otherwise, or am told to awaken....I feel drowsy and sleepy. Just listening to the instructions. Paying close attention to them. Keeping my thoughts on what is being said....just listening. I am going to get much more drowsy and sleepy. Soon I will be deep asleep, but I will continue to hear the instructions. I will not awaken until I am instructed to do so. A count will now begin. At each count I will feel myself going down, down, into a deep, comfortable, a deep restful sleep. A sleep in which I will be able to do all sorts of things I am asked to do. One--I am going to go deeply asleep....Two--down, down into a deep, sound sleep....
Three--four--more and more, more and more asleep....Five--six--seven--I am sinking into a deep, deep sleep. Nothing will disturb me. Paying attention to the instructions and only to such things as may be called to my attention. I should keep on paying attention to the instructions and to the things I am told....Eight--nine--ten--eleven--twelve--deeper and deeper, always deeper asleep--thirteen--fourteen--fifteen--although deep asleep I can clearly hear the instructions. I will always hear the instructions, no matter how deeply asleep I may feel myself to be....Sixteen--seventeen--eighteen--deep asleep, fast asleep. Nothing will disturb me. I am going to experience many things that I will be told to experience....Nineteen, twenty. Deep asleep! I will not awaken until I am told to do so. I will wish to sleep and will have the experiences which will presently be described. (Time: 3' 40")

3a. HAND LOWERING (LEFT HAND) (Total time: 5' 40")

Introduction. As I become even more drowsy and sleepy, it will not disturb me to make myself comfortable in my chair and put my head in a comfortable position.

Now that I am very relaxed and sleepy, listening without effort to the instructions, I am going to learn more about how my thoughts affect my actions in this state. Not all people experience just the same things in this state. Not all people experience just the same things in this state, and perhaps I will not have all the experiences
that will be described to me. That will be all right. But I will have at least some of the experiences and I will find this interesting. I will just experience whatever I can. I will pay close attention to what is being said, and watch what happens. Just let happen whatever I find is happening, even if it is not what I expect.

Instruction Proper. I will now extend my left arm straight out in front of me, up in the air, with the palm of my hand down. Left arm straight out in front of me... straight out, up in the air, with the palm of my hand down. That's it. Left arm straight out in front of me... palm down. I will now pay close attention to this hand, the feelings in it, and what is happening to it. As I pay attention to it I am more aware of it than I have been--I notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for my fingers to twitch ever so slightly....That's right, I am paying close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy....heavier and heavier....as though a weight were pulling the hand and the arm down....I can picture a weight pulling on it....and as it feels heavier and heavier it begins to move....as if something were forcing it down....a little bit down....more and more down....down....and as I listen to the count it gets heavier and heavier and goes down more and more....one,
down...two, down....three, down....four, down, more and more down....five, down....six, down....seven....eight....heavier and heavier, down and more and more....nine....down....ten....heavier and heavier....down more and more and more. 

(Allow 10")

That's fine....just let my hand now go back to its original resting position and relax. My hand back to its original resting position and relax. I must have noticed how heavy and tired the arm and hand felt; much more so than it ordinarily would if I were to hold it out that way for a little while; I noticed how something seemed to be pulling it down. Now just relax....my hand and arm are quite comfortable again....quite comfortable again. There....just relax. Relax.

4a. ARM IMMOBILIZATION (RIGHT ARM) (Total time: 2' 55")

I am very relaxed. The general heaviness I have felt from time to time I now feel all over my body. Now I am going to pay close attention to my right arm and hand....my right arm and hand share in the feeling of heaviness....how heavy my right hand feels....and I note how as I think about this heaviness in my hand and arm the heaviness seems to grow even more....Now my arm is getting heavy....very heavy. Now my hand is getting heavy....so heavy....like lead....perhaps a little later I would like to see how heavy my hand is....it seems much too heavy to lift....but perhaps in spite of being so heavy I could lift it a
little, although it may now be too heavy even for that.... Why don't I see how heavy it is....Just try to lift my hand up, just try. (Allow 10")

That's fine....I will stop trying....just relax. I notice that when I tried to lift it, there was some resistance because of the relaxed state I am in. But now I can just rest my hand again. My hand and arm now feel normal again. They are no longer heavy. I could lift them now if I wanted to, but I won't try now. Just relax....relax completely. Relax. Just relax.

5a. FINGER LOCK (Total time: 1' 40")

Now let me try something else. Put my fingers together. Interlock my fingers together. Interlock my fingers and press my hands tightly together. That's it. Put my fingers together. Interlock my fingers and press my hands tightly together. Interlock tightly....hands pressed tightly together. My fingers are becoming tightly interlocked together, more and more tightly interlocked together....so tightly interlocked together that I wonder very much if I could take my fingers and hands apart.... My fingers are interlocked, tightly interlocked....and I will now try to take my hands apart....just try....(Allow 10")

That's right. I will stop trying now and relax. I notice how hard it was to get started to take them apart. My hands are no longer tightly clasped together....I can take them apart. Now I will return my hands to their
resting position and relax. Hands to their resting position and relax...just relax.

6a. ARM RIGIDITY (LEFT) (Total time: 2' 25")

I will now extend my left arm straight out in front of me, up in the air, and make a fist. Arm straight out in front of me. That's right. Straight out, and make a fist. Arm straight out, a tight fist....I'm making a tight fist. I will now pay attention to this arm and imagine that it is becoming stiff....stiffer and stiffer....very stiff....and now I notice that something is happening to my arm....I notice a feeling of stiffness coming into it ....It is becoming stiff....more and more stiff....rigid ....like a bar of iron....and I know how difficult.... how impossible it is to bend a bar of iron like my arm.... I see how much my arm is like a bar of iron....I will test how stiff and rigid it is....I will try to bend it....try. (Allow 10")

That's good. Now I will just stop trying to bend my arm and relax. Stop trying to bend my arm and relax. I want myself to experience many things. I felt the creeping stiffness....that I had to exert a good deal of effort to do something that would normally be very easy. But my arm is not stiff any longer. I will just place my arm back in resting position....back in resting position. Just relax and as my arm relaxes, let my whole body relax. As my arm relaxes, let my whole body relax.
7a. HANDS MOVING (TOGETHER) (Total time: 1' 45")

I will now hold both hands up in the air, straight out in front of me, palms facing inward—palms facing toward each other. Hold my hands about a foot apart.... about a foot apart. Both arms straight out in front of me, hands about a foot apart....palms facing inward.... about a foot apart.

Now I am going to imagine a force attracting my hands toward each other, pulling them together. As I think of this force pulling my hands together, they will move together, slowly at first, but they will move closer together, closer and closer together as though a force were acting on them....moving....moving....closer, closer ....(Allow 10" without further suggestion).

That's fine. I can see again how thinking about a movement causes a tendency to make it. Now I will place my hands back in their resting position and relax....my hands back in their resting position and relax.

8a. COMMUNICATION INHIBITION (Total time: 1' 25")

I am very relaxed now....deeply relaxed....thinking how hard it might be to communicate while so deeply relaxed ....perhaps as hard as when asleep....I wonder if I could shake my head to indicate "no". I really don't think I could....I might try a little later to shake my head "no" when told to try....but I think I will find it quite difficult....Why don't I try to shake my head "no" now....
just try to shake it. (Allow 10")

That's all right....I will stop trying and relax. I see again how I have to make an effort to do something normally as easy as shaking my head. I can shake it to indicate "no" much more easily now. I will shake my head easily now....That's right, now relax. Just relax.

9a. HALLUCINATION (FLY) (Total time: 1' 30")

I have been paying such close attention to what I have been doing that I have not noticed the fly which has been buzzing about me....But now that I have had my attention called to it I become increasingly aware of this fly which is going round and round about my head....nearer and nearer to me....buzzing annoyingly....I hear the buzz getting louder as it keeps darting at me....I don't care much for this fly....I would like to shoo it away....get rid of it....It annoys me. I will go ahead and get rid of it now....(Allow 10")

There, it's going away....it's gone....and I am no longer annoyed....no more fly. Just relax, relax completely. Relax....just relax.

10a. EYE CATALEPSY (Total time: 2')

I have had my eyes closed for a long time while I have remained relaxed. They are by now tightly closed, tightly shut....In a few moments I shall be instructed to try to open my eyes. When I am told to try, most likely
my eyes will feel as if they were glued together.... tightly glued shut. Even if I were able to open my eyes, I would, of course, only do so momentarily and then immediately close them again and relax, so as not to disturb my concentration. But I doubt that I will be able—even momentarily—to open my eyes. They are so tightly closed that I could not open them. Perhaps I would soon like to try to open my eyes momentarily in spite of their feeling so heavy and so completely....so tightly closed. Just try....try--to open my eyes. (Allow 10")

All right. I will stop trying. Now again I will allow my eyes to become tightly shut. My eyes, tightly shut. I've a chance to feel my eyes tightly shut. Now relax. My eyes are normal again, but just keep them closed and relax. Normal again....just keep them closed and relaxed....relaxed and shut.

11a. POST-HYPNOTIC SUGGESTION (TOUCHING LEFT ANKLE);

AMNESIA (Total time: 3' 35")

I will remain deeply relaxed and pay close attention to what I am going to be told next. In a moment a backwards count will begin from twenty to one. I will gradually wake up, but for most of the count I will still remain in the state I am now in. By the time the number five is reached, I will open my eyes, but I will not be fully aroused. When the number "one" is reached I will be fully
alert, in my normal state of wakefulness. I probably will have the impression that I have slept because I will have difficulty in remembering all the things I have been told, and all the things I did or felt. In fact, I will find it to be so much of an effort to recall any of these things that I will have no wish to do so. It will be so much easier simply to forget everything until I am told that I can remember. I will remember nothing of what has happened until I hear: "Now you can remember everything!" I will not remember anything until then. After I open my eyes, I will feel fine. I will have no headache or other after-effects. The backwards count from twenty will now begin, and at "five", not sooner, I will open my eyes but not be fully aroused until I hear "one". At "one" I will be awake.... A little later I will hear a tapping noise like this. (Demonstrate). When I hear the tapping noise, I will reach down and touch my left ankle. I will touch my left ankle but forget that I was told to do so, just as I will forget the other things until I am told: "Now you can remember everything." Ready, now: 20--19--18--17--16--15--14--13--12--11--10, half-way--9--8--7--6--5--4--3--2--1. I am waking up! Wide awake! Any remaining drowsiness which I may feel will quickly pass.

(A distinct tapping noise is now to be made. Then allow 10" before continuing).
APPENDIX C
The following are 11 of the 12 items of the Harvard Group Scale of Hypnotic Susceptibility, Form A. The twelfth item (post-hypnotic amnesia) is based upon the number of suggestions remembered by the subject.

SECTION ON OBJECTIVE, OUTWARD RESPONSES

Listed below in chronological order are the eleven specific happenings which were suggested to you during the standard hypnotic procedure. We wish you to estimate whether or not you objectively responded to these eleven suggestions, that is, whether or not an onlooker would have observed that you did or did not make certain responses by certain specific, predefined criteria. In this section we are thus interested in your estimates of your outward behavior and not in what your inner, subjective experience of it was like. Later on you will be given an opportunity to describe your inner, subjective experience, but in this section refer only to the outward behavioral responses irrespective of what the experience may have been like subjectively.

It is understood that your estimates may in some cases not be as accurate as you might wish them to be and that you might even have to guess. But we want you to make whatever you feel to be your best estimates regardless.

Beneath a description of each of the eleven suggestions are sets of two responses, labeled A and B. Please circle either A or B for each question, whichever
you judge to be the more accurate. Please answer every question. Failure to give a definite answer to every question may lead to disqualification of your record.

I. HEAD FALLING

You were first told to sit up straight in your chair for 30 seconds and then to think of your head falling forward. Would you estimate that an onlooker would have observed that your head fell forward at least two inches during the time you were thinking about it happening?

Circle one:  A. My head fell forward at least two inches.
            B. My head fell forward less than two inches.

II. EYE CLOSURE

You were next told to rest your hands in your lap and pick out a spot on either hand as a target and concentrate on it. You were then told that your eyelids were becoming tired and heavy. Would you estimate that an onlooker would have observed that your eyelids had closed (before the time you were told to close them deliberately)?

Circle one:  A. My eyelids had closed by then.
            B. My eyelids had not closed by then.

III. HAND LOWERING (LEFT HAND)

You were next told to extend your left arm straight out and feel it becoming heavy as though a weight were pulling the hand and arm down. Would you estimate that
an onlooker would have observed that your hand lowered at least six inches (before the time you were told to let your hand down deliberately)?

Circle one:  
A. My hand had lowered at least six inches by then.  
B. My hand had lowered less than six inches by then.

IV. ARM IMMobilIZATION (RIGHT ARM)

You were next told how heavy your right hand and arm felt and then told to try to lift your hand up. Would you estimate that an onlooker would have observed that you did not lift your hand and arm up at least one inch (before you were told to stop trying)?

Circle one:  
A. I did not lift my hand and arm at least one inch by then.  
B. I did lift my hand and arm an inch or more by then.

V. FINGER LOCK

You were next told to interlock your fingers, told how your fingers would become tightly interlocked, and then told to try to take your hands apart. Would you estimate that an onlooker would have observed that your fingers were incompletely separated (before you were told to stop trying to take them apart)?

Circle one:  
A. My fingers were still incompletely separated by then.  
B. My fingers had completely separated by then.
VI  ARM RIGIDITY (LEFT)

You were next told to extend your left arm straight out and make a fist, told to notice it becoming stiff, and then told to try to bend it. Would you estimate that an onlooker would have observed that there was less than two inches of arm bending (before you were told to stop trying)? Circle one: A. My arm was bent less than two inches by then.
B. My arm was bent two or more inches by then.

VII  MOVING HANDS TOGETHER

You were next told to hold your hands out in front of you about a foot apart and then told to imagine a force pulling your hands together. Would you estimate than an onlooker would have observed that your hands were not over six inches apart (before you were told to return your hands to their resting position)?
Circle one: A. My hands were not more than six inches apart by then.
B. My hands were still more than six inches apart by then.

VIII  COMMUNICATION INHIBITION

You were next told to think how hard it might be to shake your head to indicate "no", and then told to try. Would you estimate that an onlooker would have observed you to make a recognizable shake of the head "no"? (That is, before you were told to stop trying.)
Circle one:  A. I did not recognizably shake my head "no".
            B. I did recognizably shake my head "no".

IX EXPERIENCING OF FLY

You were next told to become aware of the buzzing of a fly which was said to become annoying, and then you were told to shoo it away. Would you estimate that an onlooker would have observed you make any grimacing, any movement, any outward acknowledgement of an effect (regardless of what it was like subjectively)?

Circle one:  A. I did make some outward acknowledgement.
            B. I did not make any outward acknowledgement.

X EYE CATALEPSY

You were next told that your eyelids were so tightly closed that you could not open them, and then you were told to try to do so. Would you estimate that an onlooker would have observed that your eyes remained closed (before you were told to stop trying)?

Circle one:  A. My eyes remained closed.
            B. My eyes had opened.

XI POST-HYPNOTIC SUGGESTION (TOUCHING LEFT ANKLE)

You were next told that after you were awakened you would hear a tapping noise at which time you would reach down and touch your left ankle. You were further informed that you would do this but forget being told to do so. Would you estimate that an onlooker would have observed either that you reached down and touched your left ankle,
or that you made any partial movement to do so?

Circle one:  
A. I made at least an observable partial movement to touch my left ankle.
B. I did not make even a partial movement to touch my left ankle, which would have been observable.
APPENDIX D
The pre-induction instructions given to the students defined hypnosis as either under the student's control (internal instructions) or under the hypnotist's control (external instructions). The following pages present verbatim the instructions that were given.

**Internal Instructions:**

A few remarks about the nature of hypnosis might be in order before we begin. Hypnosis has been studied extensively by scientists for the past fifty years. Before that time, hypnotic phenomena were known to exist, and were even utilized in different ways. However, little was known about the nature of hypnosis, or how and why it worked. Today, thanks to the efforts of investigators from around the world, a great deal is known about hypnosis.

First, it is a well accepted fact that hypnotizability, the phenomenon to be studied here, is primarily a function of the ability of the individual subject. It is an ability or skill which some people possess to a greater extent than others. It is a valuable skill which relates to the person's ability to exercise control over his own mind and body. Any pleasant or interesting experiences which occur are the result of these abilities in the subject.

Secondly, the hypnotic subject, even in the deepest stages of hypnosis, is in complete control of the situation. At no time does the subject relinquish control to the hyp-
notist. The hypnotist acts merely as a guide and helps the subject to develop his own potential and skill as a hypnotic subject. The subject in a very real sense hypnotizes himself, with the hypnotist simply providing instruction and guidance.

Thirdly, the hypnotic subject remains totally conscious and aware throughout the procedure. At no time is there any period of unconsciousness. Thank you again for your participation in this study, and I hope you enjoy your experience with hypnosis. Any further questions you may have will now be answered by the experimenter.
A few remarks about the nature of hypnosis might be in order before we begin. Hypnosis has been studied extensively by scientists for the past fifty years. Before that time, hypnotic phenomena were known to exist, and were even utilized in different ways. However, little was known about the nature of hypnosis, or how and why it worked. Today, thanks to the efforts of investigators from around the world, a great deal is known about hypnosis.

First, it is a well accepted fact that hypnotizability, the phenomenon to be studied here, is primarily a function of situational variables which exist outside of the subject. If these external variables such as the ability of the hypnotist, clarity of instructions, and environmental setting are good, the subject will experience hypnosis. Any pleasant or interesting experiences which occur are the result of these variables.

Secondly, the hypnotic subject must temporarily relinquish control to the hypnotist. The hypnotist is, in a very real way, in control of the situation once the subject has been hypnotized. From that point on, the suggestions of the hypnotist exert a powerful influence over the subjective experience and the objective behavior of the subject. While hypnotized then, the hypnotic subject is, in a sense, under the influence of the suggestions of the hypnotist.
Thirdly, the hypnotic subject's awareness of external reality is diminished while in the hypnotic state. There may be periods of relative lack of conscious awareness. Thank you again for your participation in this study, and I hope you enjoy your experience with hypnosis. Any further questions you may have will now be answered by the experimenter.
APPENDIX F
Figure A1. Distribution of Rotter Scores in Total Population

N = 353
M = 10.50
SD = 4.18
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Table 2A.

Rotter I-E and Harvard Scores for Internal Instruction, You-your Condition

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The dissertation submitted by Robert E. O'Connor has been read and approved by the following Committee:

Emil J. Posavac, Ph.D., Chairman
Associate Professor, Psychology, Loyola University

Patricia M. Barger, Ph.D.
Professor, Psychology, Loyola University

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

May 17, 1976
Director's Signature