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Relationship of Hypnotic Susceptibility to Personality Variables as Shown by MMPI and California Q-Set Scores.

Zelda Faith Easton
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RELATIONSHIP OF HYPNOTIC SUSCEPTIBILITY TO PERSONALITY VARIABLES AS SHOWN BY MMPI AND CALIFORNIA Q-SET SCORES

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

The Department of Psychology

by

Zelda Faith Easton
B.A., Austin College, 1965
M.A., Louisiana State University, 1966
August, 1970
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ABSTRACT

The purpose of the present study was to determine what personality variables differentiate between highly hypnotizable and refractory subjects so that future prediction of susceptibility might become possible.

Subjects were drawn from a pool of undergraduate females enrolled at Louisiana State University. Each subject who volunteered to participate in hypnosis experiments was screened through use of an interview and MMPI to eliminate any subjects for whom hypnosis induction might prove to be a disturbing experience. Subjects were then given up to three training sessions in hypnosis. Two groups of 15 subjects were selected on the basis of their SHSS scores. The highly hypnotizable group consisted of those who scored 10 or above on the SHSS while the refractory group score between 0 and 4. Both groups were then administered the CQ-set.

MMPI and CQ-set data were item analyzed using Fisher's exact probability test to determine which items differentiated between groups. Five MMPI items and two CQ-set items were significant at the .05 level. There was no patterning evident among items and results were no greater than that to be expected by chance alone. A single classification ANOV was used to determine if any MMPI scales differentiated hypnotizable from refractory subjects, but no significant differences were found.
The results support the conclusion that both groups come from the same population. Other studies have produced similar results. It is thus apparent that present techniques have not proved successful in differentiating between hypnotizable and refractory subjects. New approaches will have to be explored before prediction of susceptibility becomes possible.
CHAPTER I

INTRODUCTION

Hypnosis in Historical Perspective

The nature of hypnosis has been a subject of controversy for centuries. Its history is a long and interesting one extending into ancient times with stories of shamanism, demoniacal possession, and folk medicine. Hypnotism as we know it, however, has its origin in the work of Franz Anton Mesmer (1734-1815). The following brief history is taken largely from the work of Pattie (1967).

In 1766 Mesmer published a medical dissertation describing the effects of the sun and moon on the human body, calling the resulting attraction gravitas animalis. Later in 1774 after treating a young woman with hysterical complaints by applying magnets to her body, Mesmer changed the name of his universal attraction to magnetismus animalis. Magnets were later abandoned when Mesmer found that the "magnetism" could be communicated by passing his hands over the patients' bodies. When his treatment came under criticism by the physicians in Vienna, Mesmer moved to Paris. In Paris he found such a large number of patients that it became necessary to treat them in groups. In 1784 a commission established by the king investigated animal magnetism and reported that no such force existed. Two followers of Mesmer amended the theory of animal magnetism. Marquis de Puységur (1751-1825) declared the power of magnetism to exist in
the will of the magnetizer which he uses to project a special fluid onto other objects. A Portuguese priest, Jose Custodio de Faria (1755-1819), declared that it was the characteristics of the subjects rather than the work of the magnetizer which produced somnabulism. "Liquidity of the blood" and "psychic impressionability" led to somnabulism. He was also apparently the first person to realize that patients could be made insensitive to the pain induced by surgery.

Mesmerism developed late in England. John Elliotson (1791-1868) was probably the first prominent physician in England to use mesmerism. He was ostracized and harassed by the medical profession. James Braid (1795-1860), a Scottish physician, found he could induce phenomena similar to that produced by the mesmerists by having his subjects stare at a spot until fatigue was induced. Braid felt that a change in the nervous system was occurring and called the phenomenon "neurohypnotism" or "nervous sleep." The name was shortened to hypnotism. Later he tried to explain the phenomena with the concept "monoideism" (having one dominant idea). He explained hypnotism as a "subject's responding to suggestions in a state of mental concentration." While Braid was conducting his studies, a Scottish surgeon in India, James Esdaile (1808-1859), performed around 300 major operations using mesmerism to eliminate pain.

In France interest in hypnosis continued and culminated in two schools: the Nancy school with A. Liebeault (1823-1904) and H. Bernheim (1840-1919) and the Salpêtrière school of Jean-Martin Charcot (1825-1893). Charcot's prestige made hypnosis a respectable subject
for study by France's medical men even though his pathological interpretation of hypnosis was supplanted by the suggestion theory of the Nancy School.

Sigmund Freud, after having seen a stage demonstration, decided to study with Charcot. Later in 1889 he studied at the Nancy School and used hypnosis to investigate the patient's history and to remove symptoms. However Freud abandoned hypnosis because he felt that the removal of symptoms was sometimes temporary and because some patients could not develop a deep trance. He substituted free association for hypnosis.

In the United States Morton Prince (1854-1929) was an early investigator of hypnosis particularly as it related to multiple personalities. Clark Hull (1884-1952), one of the most distinguished experimenters in the United States, is credited with bringing hypnotic phenomena into the laboratory for legitimate investigation. He and his students produced voluminous publications. It was not, however, until World War II that an interest in hypnosis greatly increased among dentists, physicians, and psychologists, and this interest continues into the present. Study of hypnotic phenomena has increased in respectability with the formation of scientific and clinical professional societies such as A.S.C.P., Division 39 of APA, and the designation of hypnotists as Diplomates by the APA.

A Brief Look at Theories of Hypnosis

Even today the nature of hypnotic phenomena are debated.
There are many theories which attempt to explain various aspects of hypnosis. Only a few of these, representing divergent viewpoints, will be discussed.

Gill and Brenman (1967) used psychoanalytic concepts in their explanation of hypnosis. For them hypnosis was both a transference relationship and an altered state. During the process of induction a subsystem developed within the ego which lost its autonomy and submitted to domination by part of the social environment, the hypnotist. This subsystem was regressed and worked "in the service of the overall ego," and it was only this subsystem which was controlled by the hypnotist. The overall ego maintained a reality-oriented relationship with the hypnotist and only temporarily relinquished control of the subsystem.

Sutcliffe (1965) discussed two opposing viewpoints regarding hypnotic phenomena which he termed the "credulous" and the "skeptical." In the "credulous" approach stimulation which occurred by suggestion was believed to be equivalent to real stimulation by the environment, and an individual was said to be able to transcend his normal capacities while in the hypnotic trance. The "skeptical" viewpoint held that the subject acted "as if" the suggested conditions were in fact real. This skeptical view raised two possibilities concerning the subject's behavior. First, the subject may have been simulating hypnotic behavior and the question arose as to what aspects of the hypnotic experience motivated a subject to misreport his experience. A second possibility which is similar to the
thinking of many who held the "credulous" view is that the subject
is actually deluded into believing that the hypnotist's description
of reality is in fact real. This issue is unresolved.

Sarbin and Andersen (1967) declared their theory to be a
skeptical one. They viewed "hypnotic induction" and "trance" as un-
necessary in bringing about the experiences and behaviors which are
called "hypnotic." To explain their theory of hypnosis, they made
use of the metaphor "role-enactment." This term is not meant to imply
"simulation" or "playing" but carried the implication that the sub-
ject was "earnest" in his efforts and strove to behave as he felt the
hypnotist wished. Just as some actors "lose" themselves in a role
so do good hypnotic subjects. Factors which accounted for good role
enactment were not to be found in such concepts as "trance" but in
the study of variables such as the subject's role expectations, his
role taking skills, congruence between role and the subject's self
characteristics, and his sensitivity to demands of the role.

Edmonston (1967) suggested that no special theory of hypnosis
need be formulated because hypnotic behavior, like all other human
behavior, could be subsumed under the already established stimulus-
response learning theory. He supported the theory of Hull in which
hypnosis was viewed as a habit "learned through repetitious stimulus-
response pairings." Hull studied hypnosis in the laboratory and
demonstrated that it conformed to the same characteristics as did a
habit. These characteristics included the fact that a behavior should
be facilitated by practice, show a partial decrement with disuse, and
"recover with less practice than required for original learning."

It is apparent from this sampling of theories of hypnosis that there is little basis for agreement but a need for more definitive research. Different orientations underlie each theory, and no theory has successfully explained all phenomena associated with hypnosis.

Review of the Problem Area

An Old Controversy

Not only has the nature of hypnosis had a long history of controversy but the question of who can be hypnotized has long been debated. The famous dispute between the Nancy School and the Salpetriere School concerned this problem. For Liebault and Bernheim of the Nancy School, hypnosis was a heightened state of suggestibility induced by suggestion itself. With the proper conditions available, almost anyone could be hypnotized. Charcot and his successor Janet, however, disagreed and believed that only hysterics could be hypnotized since the phenomena of hypnosis were like those of hysteria and to be hypnotized implied that one had hysterical tendencies. The controversy was decided in favor of the Nancy School with suggestibility being accepted as the more inclusive concept pertaining to both hysteria and hypnosis (Barry, 1931). However, while hypnotizability is no longer viewed as an exclusive ability of hysterics, the problem of predicting who can be hypnotized has not been resolved. Dana (1964) stated that three basic approaches have been used in predicting susceptibility.
The first is to attempt to hypnotize a person and to declare him susceptible if he becomes hypnotized. Clearly this is not prediction for the behavior to be predicted has already been demonstrated. Another method has been to use tests of waking suggestibility but these, too, essentially involve hypnosis. The third approach has been the attempt to relate other variables, particularly personality factors, to susceptibility. Considerable research has been conducted in an effort to support this viewpoint.

Hypnotizability as Related to Other Personality Variables

Several attempts (Deckert, 1963; Barber, 1964; Dana, 1964) have been made to review the literature in this area. Some of their major findings and additional research will be reviewed below as it relates to the problem of hypnotizability.

Age, Sex, and Intelligence

Several studies have found susceptibility related to age. Hilgard (1967) reviewed a study by Liebeault in which of 744 cases covering an age range from 7 to above 63, over half of the children between 7-14 were termed somnambulistic and no child under 14 was unaffected by the hypnotic procedures. Messerschmidt (1933) found children ages 6 to 8 the most responsive to postural sway with a decline in ability thereafter. London (1962) and Moore and Lauer (1963) found no consistent relation between age and susceptibility using London's Children's Hypnotic Susceptibility Scale but children differed from adults on the kinds of items to which they usually responded. Children readily demonstrated amnesia and hallucinations...
but resisted keeping their eyes closed. Barber and Calverley (1963) administered hypnotic-like suggestions without a formal induction and found the highest susceptibility between ages 8 and 10 with a decrease until the ages of 14 to 15 where scores plateaued. In general children in approximately the age range 8-12 responded most readily to hypnotic-like suggestions even without formal induction than younger children or adults. Adult level responding is apparently reached around the age of 14-15.

Early studies reviewed by Weitzenhoffer (1953) showed that women tended to score slightly higher than men on suggestibility but most differences were non-significant. In a later study (Weitzenhoffer, 1958a) 100 men and 100 women were hypnotized with half of each sex being hypnotized by a male and the other by a female. No sex differences were demonstrated. Hilgard, (1965) reported no significant difference in means on Form A of the Stanford Hypnotic Susceptibility Scale between men and women as studied in his laboratory. Sex is not viewed as a predictor of hypnotizability.

A small positive relation between hypnotizability and intelligence has been demonstrated (White, 1930; Davis and Husband, 1931, Friedlander and Sarbin, 1938), but usually the correlations were non-significant. Barry (1931) used the Army Alpha and Hull (1933) used grade point averages and obtained zero-order correlations. The relation of hypnotizability and mental deficiency is unsettled, but Sternlicht and Wanderer (1963) found 12 out of 20 mentally defective children to be hypnotizable. From these studies it is evident that
intelligence is an unreliable index of susceptibility.

**Personality Traits and Psychiatric Diagnoses**

Extroversion has been hypothesized to be related to hypnotizability. Using the Neyman-Kohlstedt Extroversion-Introversion Test, White (1930) found a significant correlation between extroversion and a scale of hypnotic behaviors, but these results were not confirmed by Barry, MacKinnon, and Murray (1931) who used the same measure of extroversion but a different scale as the criterion for hypnotizability. Other negative results have been reported by Davis and Husband (1931) and Roach (1947) who used ratings by judges or other inventories. Several researchers (Furneaux and Gibson, 1961; Lang and Lazovik, 1962; Hilgard and Bentler, 1963; and Cooper and Dana, 1964) studied the relationship between extroversion and hypnotizability using the Maudsley Personality Inventory. Several trends in a positive direction were noted (Lang, 1962; Cooper, 1964). Cooper's results approached significance ($p \approx 0.05 - 0.10$) but only in Hilgard's study (1963) was the small positive relationship clearly significant ($r \approx 0.21$). Generally results demonstrated that extroversion was not consistently related to hypnotizability. While there may be a slight trend in this direction, one is not able to predict hypnotizability using only measures of extroversion.

Neuroticism as it relates to susceptibility has undergone considerable investigation. Early studies such as Davis and Husband (1931) and Messer, Hinckley, and Mosier (1938) found nonsignificant
correlations between neuroticism and early inventories such as the Bernreuter Personality Inventory. Heilizer (1960) attempted to relate "neuroticism and/or anxiety" to suggestibility as measured by postural sway and heat illusion tests. He used a battery of tests including the Thematic Apperception Test, the Bills-Vance-McLean Index of Adjustment and Values, and the Taylor Anxiety Scale. No significant differences were found between Ss who were high and low on his measures of "neuroticism and/or anxiety." The Maudsley Personality Inventory has been used in a series of studies in which Furneaux and Gibson (1961) obtained a significant negative correlation (-.38) between neuroticism and susceptibility while others (Lang and Lazovik, 1962; Hilgard and Bentler, 1963; and Cooper and Dana, 1964) found nonsignificant relationships. The results of these studies are difficult to compare because of the various criteria of hypnotizability employed and the different tests of neuroticism used. This area of study becomes even more complicated when neuroticism is defined by psychiatric diagnoses rather than by personality inventories, and the subjects become primarily hospitalized patients rather than college students. Eysenck (1947) studied the relationship between neuroticism and suggestibility. His subjects were 900 males and 330 females diagnosed as neurotic and hospitalized in England. His criterion for suggestibility was the postural sway test where the S is given suggestions to sway forward. Eysenck rated Ss as suggestive if they swayed forward or backward at least two inches. Classifying those who swayed backwards as suggestive is highly unusual.
since most investigators term such Ss as resistant. With these criteria, 52 percent of the females and 76 percent of the males were found to be suggestible. These percentages were considerably higher than those obtained in the control group of non-neurotics. In the normal group 20 percent of the 60 females and 18 percent of the 60 males were found suggestible. Besides Eysenck's unusual inclusion of those who swayed backwards, his study may be criticized for not having controlled postural sway without suggestions (static ataxia). It was found in a further analysis conducted by Eysenck that 31 percent of the neurotics had swayed more than 2 inches in either direction before being given suggestions to sway, and none of the normals swayed before being given the suggestion. Ingham (1954) matched 37 neurotics and 42 normals as to age, sex, weight, and height and compared them for the amount of swaying with and without suggestions. Neurotics swayed more than the normals under both conditions. When Ingham paired his subjects so that they were matched on static ataxia, he found no difference between normals and neurotics on suggestibility. Doland (1953) in America and Stukat (1958) in Sweden failed to replicate Eysenck's findings. Except for Eysenck, neuroticism as defined by psychiatric diagnosis has not been found to be related to hypnotizability.

Many investigators knowing of the controversy between the Nancy and Salpetriere schools have attempted to discover whether hysterics, defined by psychiatric diagnosis, are more suggestible than non-hysterics. Two studies by Eysenck (1943) and (1947) compared
hysterics to non-hysterical neurotics and "dysthymics" (characterized by depression, anxiety, and obsessional tendencies) respectively. He found that the hysterics did not exceed the other groups in suggestibility but were nevertheless highly suggestible. Stukat (1958) using postural sway and the Chevreul pendulum as measures of suggestibility found no differences between "hysterical personalities" and non-hysterics. In general hysterics did not appear more hypnotizable than non-hysterics. Studies using the MMPI Hy scale as the criterion of hysteria will be discussed later although it may be stated here that the results of these studies were contradictory.

Investigators have questioned whether or not psychotics are hypnotizable. Abrams (1964) reviewed three studies (Wilson, Cormen, and Cole, 1949; Gale and Herman, 1956; and Heath, Hoaken, and Sainz, 1960) which found more than 50 percent of the psychotics to be susceptible. The susceptible included functional and organic groups and did not exclude paranoid schizophrenics. Kramer and Brennan (1964) tested 25 hospitalized schizophrenic women using the SHSS, Form A and found their mean score was as high as that of college student volunteers. Barber, Karacan, and Calverley (1964) found it difficult to hypnotize their population of schizophrenics. Their population was a chronic one while those of Kramer and Brennan were more recent admissions and were also in therapy. Webb and Nesmith (1964) used the postural sway test to measure suggestibility. They found normal subjects to be more suggestible than psychiatric patients with

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1A disc is suspended on a string and held in the subject's hand. Suggestions are given that the disc will begin to move.
psychotics being more susceptible than nonpsychotic patients. In brief, it appears that psychosis does not keep one from being hypnotized, provided he is in sufficient contact for hypnosis to be attempted.

Several other personality traits have been studied to determine their relationship to hypnotizability. Levitt, Brady, and Lubin (1963) studied two groups of student nurses classified as refractory and hypnotizable using the Edwards Personal Preference Schedule, the Guilford-Zimmerman Temperament Survey, the IPAT anxiety scale, and a group Rorschach. The hypothesis that hypnotizable subjects would be low in anxiety and high in dependency was confirmed for the two measures of anxiety and for one of the three measures of dependency. Rosenweig and Sarason (1942) found hypnotizability to be related to "impunitiveness" (blaming neither oneself nor others when frustrated) and "repression." Impunitiveness was assessed by the Rosenweig Picture-Frustration test. Repression was said to have occurred if a subject remembered more of the 6 jigsaw puzzles which he was allowed to successfully complete than the 6 on which he was forced to fail. Willey (1951), Doland (1953) and Barber (1961) failed to find any relationship between susceptibility and "impunitiveness" using the Picture-Frustration test. Dawson, Noblin, and Timmons (1965) found no relation between hypnotizability and orality or anality using the Blacky Test but hypnotizables were significantly more conditionable to verbal stimuli. Barry, MacKinnon, and Murray (1931) used the Allport Ascendance-Submission test and found no correlation between
submission and hypnotizability. Another approach was taken by White (1937) who discussed two types of trance states, active and passive. Using ratings of seven variables by a clinical staff, White concluded that actives rated high on Affiliation (pleasing others to win their affection) and Deference (following the leadership of others). Passives were low on Affiliation and Dominance. Zuckerman, Persky, and Link (1967) have attempted to relate anxiety, depression, and hostility to hypnotizability. They have, however, stressed the importance of a distinction between state and trait variables. They argued that trait variables (those consistent over time) are not related to susceptibility and found in their study no relationship to exist between MMPI trait scales of anxiety, depression, and hostility and hypnotizability. This study included 3 Runs of small, highly motivated groups using the Multiple Affect Adjective Check List which they argue measured state variables (those which are situationally induced). As measured by the MAACL, anxiety was significantly and negatively correlated with hypnotizability in Run 1 only; depression in Runs 1 and 3, and hostility in all three Runs. Most of these studies need to be replicated before satisfactory conclusions can be drawn.

Hypnotizability has also been related to good adjustment. Baumgartner (1931) found positive relationships between six desirable personality traits and postural sway. Friedlander and Sarbin (1938) related "amiability" and hypnotizability. Faw and Wilcox (1958) found, in general, susceptibles to have better over-all adjustment scores than refractories using the MMPI, a group Rorschach, and
clinical assessment of diaries. Barber (1956) ranked 18 students on the Davis-Husband Scale of Hypnotic Susceptibility and on ten traits measured by the Guilford-Zimmerman Temperament Survey. He found positive correlations ranging from +.47 - +.70 between susceptibility and "ascendance," "sociability," "emotional stability" and "objectivity." Barber suggested that his findings tended to support other studies relating adjustment to susceptibility, and he coined the phrase a "good guy" theory of hypnotizability. Weitzenhoffer and Weitzenhoffer (1958) obtained negative results using the Guilford-Zimmerman and Cattell 16PF, 200 Ss, and the Friedlander-Sarbin scale of hypnotizability. Since this study used a more adequate measure of hypnotizability and a considerably larger sample, doubt is cast on Barber's results and the "good guy" theory remains in dispute.

**Projective Tests**

Several studies have attempted to predict susceptibility to hypnosis through the use of the Thematic Apperception Test, primarily Card 12M. An early precursor to these studies was conducted by White (1937b). Each subject was asked to tell a story about hypnosis during a test of imagination. The correlation between the ratings of seven judges and the actual responsiveness of subjects to hypnosis using the Barry, MacKinnon, and Murray scale was $r = +.34 \pm .16$. The seven most hypnotizable subjects stated explicitly that the hypnosis attempt discussed in their story was a success. The other eight subjects made this point incidental, described the hypnosis as a
failure, or expressed repugnance for the imagined experience. Two other studies (Rosenweig and Sarason, 1942; Sarason and Rosenweig, 1942) used the Barry, et al. scale of hypnotizability and postural sway with an abbreviated TAT set including Card 12M. Two judges scored the TAT stories, and results were interpreted in terms of the triadic hypothesis that hypnotizability was related to impunitiveness and repression. It was found that impunitive Ss were hypnotizable while extrapunitive Ss were not. All three of these studies made use of clinical judgment, TAT methodology, and the same criterion of susceptibility, and all reported positive results even though different aspects of the TAT were studied. Negative results were reported by Secter (1961) who used Card 12M and a group induction procedure. His measure for trance depth is not specified adequately and the judges, rating attitude toward hypnosis and mention of hypnosis on Card 12M, had only marginal agreement among themselves. Because of these variables and the fact that the judges in Secter and White's studies evaluated attitudes differently, no comparison between the two is feasible. Levitt, Lubin, and Brady (1962) could find no difference between hypnotizable and refractory Ss when TAT stories using a modified Card 12M were studied for the mention of hypnosis and affective tone. Dana and Cooper (1964) compared scores on TAT Card 12M and Form C of the SHSS. Results indicated that when subjects' attitudes toward hypnosis were judged nonbenevolent or negative, Ss were less hypnotizable. Also, it was impossible to hypnotize approximately 73 percent of the Ss who were judged to be autonomous and
anxious. From these studies there appeared to be a trend for a subject's attitude toward hypnosis as obtained from TAT stories to be related to his ability to be hypnotized. As will be seen later, subjects' attitudes toward hypnosis obtained by questionnaire or verbal report were correlated with hypnotizability and little, if anything, was apparently gained by using the TAT.

The Rorschach Psychodiagnostic test has also been used in an effort to predict susceptibility. Sarbin and Madow (1942) attempted to discriminate between 16 highly susceptible Ss and 8 Ss low on a standardized hypnotic scale using the Rorschach. Several analyses of the data were made with the ratio of whole to detail responses (W/D) proving to be the only factor which discriminated between the two groups. Brenman and Reichard (1943) gave the Rorschach to 6 highly susceptible and 8 refractory Ss and were unable to replicate Sarbin and Madow's findings. However, they found Fc to discriminate between the two groups. Schafer (1947) used 19 hypnotizable and 19 refractory subjects and was unable to find any Rorschach factors which could discriminate between groups. Steisel (1952) used two approaches to the Rorschach in an attempt to relate it to susceptibility. He analyzed scoring variables and derived a suggestibility measure. He asked each subject if he could see six different percepts per card suggested to him by the experimenter. Two of these were appropriate and 4 were inapplicable responses. The number of inappropriate responses the subject accepted constituted his suggestibility score. Of 72 correlations only 3 reached a 5% level of confidence, indicating
a chance finding. Doland (1953) and Stukat (1958) found no relationship between the Rorschach and postural sway. It can thus be seen that the Rorschach has not proved to be useful in the prediction of susceptibility.

**Personality Inventories**

The Minnesota Multiphasic Personality Inventory has been studied for its relationship to hypnotic susceptibility. Sarbin (1950) administered the MMPI to 16 somnambulistic Ss and 18 light trance Ss and found that the Hy (hysteria) scale differentiated at p .01. Faw and Wilcox (1958) gave the MMPI to 44 women and 36 men college students who underwent a group hypnotic induction procedure. Depth of hypnosis was determined by ratings of trained observers and self-ratings which correlated +.68 with each other. Results were interpreted as showing that susceptibles had better overall adjustment as determined by the sum of T scores in addition to the other instruments employed (a group Rorschach and the clinical assessment of diaries). Among the poorly adjusted, however, there was a small group who were susceptible who had high Hy scores. In general the unsuscptibles had higher scores on D (indicating a tendency toward depression), Mf (showing more dissatisfaction with their sex status) and Sc (admitting more schizoid tendencies). Profiles of neither group corresponded to what is considered to be the general pattern of the neurotic, behavior disorder, or psychotic. Secter (1961) was unable to find any relationship between four levels of susceptibility
which ranged from refractory to deep trance and MMPI scaled scores. He then combined two lower and two upper trance levels and performed an item analysis of the MMPI. Only seven items were significant which he interpreted as occurring by chance. In contrast to Faw and Wilcox, susceptible subjects had higher, but not significantly higher, scores on D, Mf and Sc. Also, deep trance subjects had the lowest Hy scores but the differences obtained were not significant. It is difficult to compare these two studies because of the difference in populations. (Faw and Wilcox used college students and Secter used mature professional men primarily physicians and dentists). The criteria for hypnotic depth also differed. Schulman and London (1963) also failed to replicate the results of Faw and Wilcox or Sarbin. Using 87 females and rating susceptibility on the SHSS, Form A, they found only the Pd (psychopathic deviate) scale to distinguish between the four levels with the deep trance group being significantly lower than the other three groups. All scales were within one standard deviation of the mean of the normal standardization group of the MMPI. High and low point codes were also unrelated to hypnotizability. Hilgard (1965) reported in his book Hypnotic Susceptibility that research on the MMPI in his laboratory over several years has found only one score that had a significant relationship for both sexes. This score is the Sum-True score which he interpreted as an acquiescence tendency. On an abbreviated MMPI several scales were significant for males but not for females. Gravitz (1969), while not directly studying hypnosis, has inspected
the MMPI responses of over 11,000 normal adults and found that many adults admitted to experiences which Gravitz described as hypnotic-like experiences (HLE). Eight of these 24 items are generally considered "critical" indicators of emotional difficulties. He found that usually more women than men acknowledged HLE. Gravitz suggests that it may be feasible to develop an HLE scale for the MMPI similar to those developed by Shor and others. These scales will be discussed later. In general MMPI scales have not consistently been related to susceptibility and cannot presently be used as predictors of hypnotizability. Only one investigator has performed an item analysis which gave apparently chance results. Whether those seven items or the ones selected by Gravitz prove to be useful awaits further study.

The California Psychological Inventory (CPI) which differs from the MMPI primarily in its lessened pathological emphasis has also been investigated in relationship to susceptibility. Moore (1961) used 79 male Ss and classified their level of susceptibility using the SHSS. He administered the CPI and found no relationship between any of the scales and hypnotizability. Hilgard and Lauer (1962) administered the CPI to 110 male and 106 female college students over a two year period and correlated these results with SHSS, Forms A and B. No scales were significant for both males and females. An attempt was made after the first year to construct a 33 item scale based on an item analysis of the CPI for use with females and one for males. It proved impossible to cross-validate the scale.
The original correlation between the scale for males and hypnotizability was +.67 and for females +.66. Upon replication correlations dropped to -.05 and +.08, respectively. Prediction based on the CPI has not proven so far to be possible.

The Guilford-Zimmerman Temperament Survey has also been studied in relation to susceptibility and the results have been inconsistent. Barber (1956) found several factors—Ascendance, Sociability, Emotional Stability, and Objectivity—related to hypnotizability in a small sample of 18 college students. Levitt, et al. (1963) using the SHSS as the measure of hypnotizability found Emotional Stability to be correlated significantly. Unfortunately, Weitzenhoffer and Weitzenhoffer (1958) failed to find any relationship between the Guilford-Zimmerman (or the Cattell 16 PF which was also administered) and hypnotizability with a large sample of 200 college students.

The Leary-Interpersonal Check List (ICL) and its relationship to hypnotizability has been investigated in two studies. Bentler (1963) administered the ICL to two groups of female college students totaling 84 Ss and a group of 43 males. Significant correlations were obtained between both the Cooperative-Overconventional dimension and a Positive Interpersonal Orientation factor of the ICL and hypnotizability for both female samples. In general the pattern for the males was similar but none of the correlations reached significance. Barber and Calverley (1964) attempted to replicate these results using 249 Ss. Half of these were tested on the BSS after receiving a standardized induction procedure while the other half were
tested on the BSS without an induction procedure. Only two corre­lations out of 66 were significant at the .05 level. While these results are interpreted as occurring by chance, it should be noted that one of the correlations found significant only in the hypnotized female group was the one between the Cooperative-Overconventional dimension and hypnotizability. This finding supported that of Bentler and may indicate that hypnotizability in females may have a slight relationship to "overconventionality and cooperativeness" as measured by the ICL. In all other respects the inventory appears to have no important relationship to susceptibility.

The Edwards Personal Preference Schedule (EPPS) has been used to study susceptibility. Zuckerman and Grosz (1958) found a relationship between postural sway and the Autonomy scale of the EPPS with the more suggestible subjects obtaining lower scores. Lang and Lazovik (1962) compared the SHSS, Form A scores of 32 college students with several inventories including the EPPS and reported a significant correlation between Affiliation on the EPPS and hypnotizability. Levitt, Brady, and Lubin (1963) using 31 nursing students demonstrated a relationship between dependency and hypnotizability with the more susceptible having lower scores on a combination of the Dominance, Aggression, and Autonomy scales of the EPPS. Barber and Calverley (1964) gave the EPPS to 100 undergraduates who were administered a standardized induction and rated on hypnotizability and to 414 students (high school, undergraduate, nursing, and dental students) who were given the BSS without an induction process. In the first experiment
no correlations between hypnotizability and any of the variables tested were found. In the second experiment where subjects were divided into seven groups, 9 out of 112 correlations reached significance which may be interpreted as only slightly above chance. No consistent pattern emerged, and results were interpreted as showing no relationship between suggestibility and EPPS when Total Ss were combined.

Several other inventories have been studied. Rhoades and Edmonston (1969) conducted two experiments using Cattell's IPAT and 16PF and measuring susceptibility with the Harvard Group Scale of Hypnotic Susceptibility (HGSHS). In the first study 32 male undergraduates were studied while in the second 14 older males and 10 females were used. Undergraduate males and a combination of both samples showed a significant negative correlation between Factor F (Surgency) and susceptibility. There was a significant positive correlation between Factor M (Imaginativeness) and hypnotizability but only for older males. Factor E (Dominance-Submissiveness) should equal Levitt's dependency measure and the IPAT Anxiety scale was the same measure used by Levitt, et al. (1963). None of these were significant and thus contradicted Levitt's findings. Klemp (1969) used the Rotter I-E Scale which is said to measure "Generalized Expectancies for Internal versus External Control of Reinforcement" and correlated it with susceptibility. Internality as measured by the Rotter correlated .36 which was significant at the .05 level with hypnotizability for females only. In general, personality
inventories have thus far not proved to be useful in predicting susceptibility to hypnosis.

**Interviews, Ratings, and Clinical Assessments**

Baumgartner (1931) had 5 nursing supervisors rate 56 student nurses on traits such as Honesty, Tactfulness, Optimism, and Sympathy and found no relation between these and postural sway. Barber and Calverley (1964) using the Cattell-Coan Teachers' Rating Scale had 19 teachers rate 193 children on 9 traits including Dominance, Aggressiveness, Gregariousness, and Cooperativeness. There was no relation between these traits and the BSS.

Schafer (1947) administered a test battery to 19 hypnotizable and 19 refractory Ss whose hypnotizability had been rated by researchers other than the experimenter. Personality descriptions of each subject were analyzed for variables that could distinguish between the two groups, but results were not clear-cut. A similar attempt was made by Gill and Brenman (1959) who assessed personality through the use of autobiographies, free-association sessions, and interviews. No unequivocal pattern emerged, but there was some trend for the unsusceptible to demonstrate more "emotional unadaptiveness," "denial of passive needs," and "general negativism."

Hilgard (1965) discussed the interviewing in progress in his laboratory. He postulated a "multiple-path theory of hypnotic susceptibility." He has discovered that interests in one or more areas such as reading, adventure, dramatic, arts, religious dedication, and
esthetic involvement characterized his hypnotizable subjects. Hilgard has attempted to relate these interests to their developmental history particularly to the parents' role in fostering these interests. The usefulness of this approach, however, awaits further study.

**Developmental Correlates and Attitudes Toward Environment**

The relationship between one's perception of his environment including his primary social relationships and his ability to become hypnotized has been investigated. Hilgard's work has tended to revive interest in this area. Wilcox and Faw (1959), one of the early studies, used self-rating scales which indicated that susceptible subjects perceived their parents in stronger affectional and supportive relationships than did refractory subjects, were less concerned about their adjustment with the opposite sex, were not as worried about their personal appearance, and tended to be more group oriented. In general susceptible subjects tended to view their social and environmental milieu in more positive terms than did refractory subjects. Long (1963) used the Pascal-Jenkins Behavioral Scales in order to study early stimulus-response relationships and related these to hypnotizability as measured by the Pascal Technique. Variables included under the stimulus categories "Father" and "Mother" discriminated among those "high" and "low" in susceptibility. "Activities with Subject" and "Displays of Affection" as related to the "Father" stimulus and several variables related to the "Mother" stimulus were significant. In summary highly susceptible subjects
appeared to have had less deviant early-life relationships. Hewitt (1966) reported no relationship between subjects' communications on Leary's test concerned with parental relationships and susceptibility. Nowlis (1969) using data obtained from the Laboratory for Human Development at Harvard studied early childhood socialization experiences as related to hypnotizability and the occurrence of hypnotic-like experiences in late adolescence. There were low positive correlations between variables related to firm parental discipline in childhood and hypnotizability and especially the occurrence of hypnotic-like experiences. Dawson\(^1\) has stated that in his research he has found that subjects with less psychic trauma are more susceptible to hypnotic induction. In brief the work in this area tended to show a correlation between susceptibility and healthy early-life relationships, but more study is needed before prediction of susceptibility is possible.

**Inventories of Hypnotic-Like Experiences**

Several attempts to develop inventories of hypnotic-like experiences have been made. These experiences included such situations as becoming so engrossed in a movie that one feels he is an actor, feeling one's body move without one's willing it, and having considerable enjoyment for the "thrills" at the amusement park. Shor, Orne, and O'Connell (1962) attempted to validate and cross-validate

\(^1\)Personal Communication, 1970.
the Personal Experiences Questionnaire (PEQ). Choosing the best 45 items from the validation sample, they administered these to a sample whose hypnotic performance was well-known. They obtained a significant correlation, $r = .46$, with the SHSS, Form A. As (1962; 1963) using his Experience Inventory (EI) found significant correlations ranging from $.31$ to $.47$ for a sample of males and two samples of females and the SHSS. Lee (1964) correlated the Hypnotic Characteristics Inventory (HCI) with the SHSS. Of her five categories "Role-Playing" was the best single predictor of hypnotizability $r = .38$. "Impulsivity versus Rationality" and "Trance-like Experiences" correlated $r = .26$ and $r = .10$, respectively. The other two categories failed to correlate with susceptibility.

Barber and Calverley (in press) administered their own questionnaire plus those of As and Shor, et al. to 83 and 89 Ss rated on the BSS with and without an induction, respectively. None of the correlations between any of the scales and the BSS were significant. This study contrasted sharply with the other studies and differed from them on the scale used for rating susceptibility. While there is support for a small positive relationship between these scales and susceptibility, Barber's results cannot be ignored and the reason for this discrepancy is presently not known.

Attitudes Toward Hypnosis

Investigators have studied the relationship between attitudes toward hypnosis and actual susceptibility. One approach for studying
attitudes has been the use of the Semantic Differential Technique. Brightbill and Zamansky (1963) studied 12 somnambulistic and 14 refractory subjects who were asked to rate 8 concepts related to the experimental use of hypnosis on scales containing 20 bi-polar adjectives. Good hypnotic subjects significantly rated the concept "hypnosis" more favorably than refractory subjects. Zamansky and Brightbill (1965) used the Semantic Differential containing 9 concepts related to hypnosis. In this study no significant differences were found, but the trend was similar to that in the earlier study. Hartman (1965) using a Semantic Differential Technique related the ratings of concepts about hypnotism to the HGSHE and reported no significant differences. The Semantic Differential has thus not proved capable of predicting susceptibility and suffers the same criticism that generally is applied to rating scales which is the trend for most raters to rate toward the middle of the scale.

Melei and Hilgard (1964) administered a questionnaire to 340 subjects who were later hypnotized. Results indicated that attitudes toward hypnosis were predictive of hypnotizability for females who had never been hypnotized before but not for males who lacked prior experience. There was a significant but low positive correlation between self-predictions and actual susceptibility for both sexes. Dermen and London (1965) administered several questionnaires including an Hypnosis Survey which surveyed opinions relating to one's experience with hypnosis, motivation, and self-prediction. Comparing the survey variables to the HGSHE, the "Motivation-Experience" score
correlated .32 for males and .49 for females. Included in this "motivation" score were self-predictions which correlated on their own .49 for females at a .01 level and .35 for males at a .05 level. In summary one's attitude toward hypnosis and self-prediction appeared to have a small positive relationship to hypnotizability.

The Q-Sort

The Q-Technique has been a useful addition to personality assessment and research. Advocates of the Q-sort methodology (Stephenson, 1953; Block, 1961) have found it to be an excellent dependent variable for assessing individual personality.

The procedure used in Q-sorting is not complicated. Statements concerning personality traits or theoretical formulations are usually placed on cards. Each subject is asked to sort the cards into a designated number of categories with each category sometimes requiring a specific number of cards. Sorting may be done by laymen as well as professionals.

Care must be taken in selecting items for a Q-sort. Goodling and Guthrie (1956) suggested that items should show high inter-sorter variability in order to increase discrimination. Low intra-sorter variability is desired to insure reliability. Items should be worded carefully so that they will not consistently have strong positive or negative value across different sorts. This caution is particularly relevant to self-sorts (descriptions of one's own personality) because Edwards (1955) has shown that profiles
sorted on the basis of social desirability correlated with self-sorts .84 for males and .87 for females. The number of cards in a Q-deck should be large enough to insure reliability yet small enough to be easily manipulated. Generally Q-decks consist of approximately 100 items but may contain larger or smaller numbers of items.

Q-decks have been developed in order to study a variety of problems. Rubin and Shontz (1960) developed a Q-set to study the prototype diagnostic conceptions of schizophrenia held by clinical psychologists. Neff (1963) and van der Veen (1965) developed decks to investigate the meaning of work and parents' conceptions of the family, respectively. Block (1961) studied personality profiles. Several studies have been conducted to determine the reliability of the Q-sort method. Rubin and Shontz (1960) found sort-resort reliabilities for 8 raters to range from .74 to .92 with a mean of .86. Frank (1956) reported test-retest reliabilities for the Q-sorts of 10 Ss to range from .93 to .97. In general Q-technique has proved to be a useful and reliable tool for studying a variety of problems.

The California Q-set (CQ-set) developed by Block (1961) is probably the most adequate deck available for research on personality variables. This deck consists of 100 items selected from psychiatric and psychological reports. Form III is the culmination of ten years of research and refinement of the original deck. Block has attempted to develop a Q-set whose language suggested no particular theoretical orientation, had few double meanings, and was non-evaluative in tone. Van Atta (1966) has used the CQ-set and statements derived from
therapy sessions to study thinking processes used by clinicians. Gadol (1968) investigating the validity of the Rorschach made use of the CQ-set. In research thus far the Q-set has proved to be valuable and will likely continue to find wide applicability particularly in personality assessment.

Summary and Critique

For several decades research studies have attempted to discover what personality variables were characteristic of hypnotizable and nonhypnotizable subjects. Such information would lead to methods of predicting susceptibility without having to actually attempt hypnosis and would also facilitate understanding the nature of hypnosis.

While much research has been conducted, only a few trends have been discernible. From the research results reviewed here, several variables may be mentioned as apparently bearing some relationship to hypnotizability:

1. Age, especially between 8 and 12 years

2. Generally good adjustment with a positive view of the social and environmental milieu

3. A reasonably healthy, affectionate relationship with parents

4. A cooperative and overconventional manner (primarily if subject is female)

5. Experience with situations hypnotic-like in nature
6. A favorable attitude toward hypnosis (particularly if female) and a self-prediction of hypnotizability. From the numerous studies conducted, it is evident that few significant factors have been discovered and currently prediction of susceptibility is difficult, if not, impossible in other than descriptive terms.

Several reasons for the lack of comparable results among research studies can be suggested. Studies varied considerably on criteria used for classifying levels of susceptibility. Hypnotizability may have been defined by such diverse means as the presence of eye catalepsy, ratings of observers, experimenter's own unstandardized instrument, or a more recent standardized scale. Subjects for studies often came from a variety of populations including children, psychiatric patients, undergraduate students, nurses in training, and professional people. Personality traits hypothesized as being related to hypnotizability were not consistently defined. In one instance a trait like "neuroticism" would be defined by psychiatric diagnosis while in another study the definition might be determined by a scaled score on the MPI. However justified these criticisms may be, they are not sufficient to account for the paucity of findings in this area. What appears needed is a relatively different approach to the study of personality variables.

It is proposed that refractory and hypnotizable subjects be asked to describe their own personalities with an instrument which has not been developed for the purpose of assessing a particular set
of personality traits. In the past much of the research was designed so that a subject could describe himself only in terms of the traits which the experimenter assumed, because of his experience or theoretical orientation, related to susceptibility. In the proposed study the suggested instrument should be one that would sample a wide range of personality variables allowing the subject considerable flexibility to choose items which he believes are characteristic of his personality. The CQ-set (Block, 1961) meets these requirements. Items on the CQ-set found to differentiate between hypnotizable and refractory subjects may lead to the development of new scales predictive of susceptibility which measure aspects of personality not measured by presently existing scales.

It is also suggested that individual items from existing scales may prove to be related to hypnotizability even though the entire scale has not been found to correlate consistently with susceptibility. Item analyses, however, of the personality inventories used in hypnotic research are rare. While the MMPI, for example, has been used in several studies of hypnotizability, only Secter (1961) has performed an item analysis. He found only seven significantly differentiating items. His limited results may be partially accounted for by his questionable method of grouping subjects. Secter combined the refractory and light trance into one group and the medium and deep trance into the other group. Several studies (Schulman and London, 1963; and Secter, 1961) have demonstrated that on some traits deep trance subjects differed greatly from the other
three levels with the middle and light trance groups often sharing characteristics more similar to the refractory group. By combining the middle and deep trance subjects into one group, a confounding factor could be introduced which would lessen the chance of finding items which would differentiate "good" from "Poor" hypnotic subjects. In item analyses subjects should thus represent the two extreme levels of susceptibility.

Statement of the Problem

The primary purpose of the present investigation is to study personality variables characteristic of highly hypnotizable (deep trance) subjects and to determine which of these variables differentiate these subjects from nonhypnotizable ones.

Two approaches will be used. In the first, hypnotizable and refractory subjects will be asked to describe their own personalities using the California Q-set (Block, 1961). Secondly, the subjects will be administered a personality inventory, the MMPI, to determine if individual items are related to susceptibility.

The following hypotheses will be tested:

1. Subject choice of items on the CQ-set will be found to differentiate "good" and "poor" hypnotic subjects.

2. No scales on the MMPI will differentiate the two groups at a significant level.

3. Individual items on the MMPI, however, will discriminate between hypnotizable and refractory subjects.
CHAPTER II

METHOD

Selection of Subjects

Subjects were 30 undergraduate females presently attending Louisiana State University who volunteered to participate in hypnosis experiments. Ages ranged between 18 and 21 years.

Each subject was screened to eliminate those for whom the induction of hypnosis might prove to be a disturbing experience. Each subject was interviewed following the outline in Appendix A and then administered the MMPI. No subject whose MMPI or interview indicated severe emotional difficulties was included in the subject population. Only one subject was eliminated from the subject pool because of emotional problems.

Procedure

Each subject was administered a standardized induction procedure and her degree of hypnotic depth of trance was measured using the Stanford Scale of Hypnotic Susceptibility, Forms A and B (Appendix B). Two groups of 15 subjects were selected from the larger subject population. The first group consisted of those who scored 10 points or more on the SHSS. They were labeled the highly hypnotizable or deep trance group. The other group which was termed the nonhypnotizable or refractory group consisted of those whose scores on the SHSS ranged from 0 to 4. All subjects who did
not score at least 10 points on the initial administration of the SHSS were given up to two additional training sessions in order to ascertain whether or not their depth scores would reach the deep trance criterion with additional practice.

After selection of the groups, each subject was administered the California Q-set. (The CQ-set in its entirety is located in Appendix C.) In order for both refractory and highly hypnotizable subjects to approach the task with the same general orientation, each was told that the experimenter was studying personality characteristics of those who volunteer for experiments in hypnosis and comparing them to those subjects who do not volunteer for such experiments. Subjects were instructed to sort items of the CQ-set into two categories indicating whether the items were characteristic or uncharacteristic of themselves. General instructions given to each subject are located in Appendix D.

Analysis of Data

The CQ-set data were item analyzed using the Fisher exact probability test (Siegel, 1956).

MMPI results were analyzed by two methods. An item analysis was performed using the tables for the Fisher exact probability test (Siegel, 1956). In addition each scale of the MMPI was analyzed using a single classification ANOV (Downie and Heath, 1959).
CHAPTER III

RESULTS

The responses of the highly hypnotizable and refractory subjects to the CQ-set were analyzed using the Fisher exact probability test tables. The item analysis yielded 2 items out of 100 significant at the .05 level or above. Significant items keyed in the direction chosen by more hypnotizable subjects are as follows:

48. Keeps people at a distance, avoids close interpersonal relationships (F)

61. Creates and exploits dependence in people. (Regardless of the technique employed, e.g. punitiveness, over-indulgence.) (F)

The MMPI was also item analyzed using the Fisher exact probability test tables. Of 565 items the following 5 items were significant at the .05 level:

13. I work under a great deal of tension. (F)

208. I like to flirt. (T)

262. It does not bother me that I am not better looking. (F)

350. I hear strange things when I am alone. (F)

562. The one to whom I was most attached and whom I most admired as a child was a woman. (Mother, sister, aunt, or other woman.) (F)

The small number of items found significant in both analyses are no greater than that to be expected by chance alone.

The scales of the MMPI were analyzed using a single classification ANOV. None of the F values approached significance.
F values ranged from .001 to 1.082 considerably below the .05 level (F = 4.196).
CHAPTER IV

DISCUSSION

The small number of significant items on the MMPI and CQ-set are apparently chance results. There appears to be no particular relationship or patterning evident among items. These results are comparable to those of Sector (1961) who found only seven significant items on the MMPI. None of Secter's items were the same as those found in this study. Both studies yielded chance findings. While no previous work in hypnosis has been attempted with the CQ-set, it, too, yielded only chance results and thus cannot be used in predicting susceptibility.

Analysis of MMPI scales indicated no significant differences between highly hypnotizable and refractory subjects. Previous studies have yielded contradictory results. The Hy (hysteria) scale has been found to be significantly higher for some hypnotizable subjects (Sarbin, 1950; Faw and Wilcox, 1958) but not for others (Sector, 1961; Schulman and London, 1963). Sector (1961) found no scales to correlate with four levels of susceptibility. Schulman and London (1963) found only the Pd (psychopathic deviate) scale to differentiate among four trance levels with the deep trance group having the lowest Pd score. The present study indicates no significant difference between scale means. The greatest difference between any two means was 4.46 points on the Pd scale with the deep trance subjects scoring slightly but not significantly higher than the
refractory subjects. The smallest difference between means was .07 on the L (lie) scale with an average difference of 1.69 points.

Results of this study demonstrate no difference between hypnotizable and refractory subjects and support the conclusion that both come from the same population. The lack of significant findings is similar to results obtained in other studies. It is evident that satisfactory ways of discriminating between these two groups have not yet been devised.

The present study has several limiting factors and improvements can be suggested. Since the number of subjects used was relatively small, a larger size sample would increase the probability of finding significant differences between groups if such differences exist. However, from the extremely small differences evident among MMPI scale means, it is doubtful that a larger sample would have revealed any significant differences between hypnotizable and refractory subjects. In order to more adequately separate highly hypnotizable subjects from refractory ones, additional measures of hypnotic depth should be employed. A diverse sample from the general population should be studied so that any results obtained in the future might be more widely generalized. While the suggestions given would improve the present study, it is doubtful that such changes would drastically alter the present findings. New methods are needed for differentiating between hypnotizable and refractory subjects but finding new approaches is difficult.

Research in hypnosis is hampered by practical problems as
well as theoretical issues. One factor which often discourages researchers from conducting studies in hypnosis is the vast amount of time required to screen and train suitable subjects. Screening helps eliminate those subjects who might become distressed while undergoing induction. In general few subjects become upset, but those who are emotionally disturbed, who have chronic medical problems, or who have had frightening experiences similar in nature to induction procedures should be discouraged from participating. Ethical considerations become prominent concerns in hypnosis research. Experiments often involve deception of subjects, use of post-hypnotic suggestions, and sometimes revelation of personal information. Care must be taken to protect the rights of subjects and to insure their safety. The use of volunteers in hypnosis research also raises difficulties since such a population may bias research results. Many who would volunteer for other kinds of experiments refuse to volunteer for hypnosis studies.

While difficulties exist in conducting general hypnosis experiments, studies concerned with relating personality to susceptibility encounter additional theoretical issues. One question which arises is whether or not hypnosis is a unitary trait. Dorcus (1963) cites a study by Warner Brown (1916) which demonstrates that individuals do not react consistently to all kinds of suggestions administered in the waking state. For example, Brown reports that 90% of his subjects responded to a suggested illusion of odor, 78% to an illusion of shock, and 60% to a heat illusion. When given an illusion of
change in brightness, 55% responded. Suggested changes in size and pitch were acknowledged by 68% and 41% respectively. Dorcus contends that correlations between these tasks are so low that one cannot view suggestion as a unitary trait. Hypnosis if viewed as suggestion is likewise interpreted as not being unitary. Hilgard (1965) agrees that individuals do not respond equally to all forms of suggestion whether administered in the waking state or after a formal induction. Factor analytic studies conducted in Hilgard's laboratory, however, have demonstrated that the various tasks regarded as examples of hypnotic behavior do correlate even though the tasks by nature are very different. These correlations are sufficient for a first factor (primary suggestibility) to emerge which tends to support the theory that there is some underlying unity in hypnosis. Presently this issue is unresolved.

Another question which concerns researchers attempting to predict which persons will be hypnotizable is whether susceptibility is consistent over time. Cooper, Banford, Schubot, and Tart (1967) demonstrated that with 7 to 16 training sessions subjects changed relatively little in their scores of hypnotic depth. Most changes occurred with the very hypnotizable subjects, and little variation among refractory subjects was demonstrated. Case histories, however, are cited of subjects who are refractory under certain conditions but who become successfully hypnotized when circumstances are changed (Dorcus, 1963). Longitudinal studies are needed to determine if the hypnotic susceptibility of individuals remains constant during their
life time. There would be no value in continuing attempts to relate long term personality traits to an inconsistent ability.

If it is found that individuals respond to hypnosis only at certain times, studying personality states rather than traits may prove to be the more useful approach. Some evidence for the relationship of personality states to hypnotizability is given by Zuckerman, et al. (1967). Situational hostility was related to susceptibility in small, highly motivated groups. In some groups anxiety and depression states were also correlated with susceptibility. Research using such instruments as Spielberger's State Trait Anxiety Scale may lead to some conclusions regarding the relationship of personality to susceptibility.

Contradictory results and chance findings are common to studies attempting to determine ways of differentiating between hypnotizable and refractory subjects. Even with new instruments and improved experimental designs, little has been learned about the personality characteristics of susceptible and nonhypnotizable subjects. While several approaches for future research have been suggested, the ability to predict susceptibility without actually attempting induction may still have to await development of even newer techniques.
The purpose of the present study was to determine what personality variables differentiate between highly hypnotizable and refractory subjects so that future prediction of susceptibility might become possible.

Subjects were drawn from a pool of undergraduate females enrolled at Louisiana State University. Each subject who volunteered to participate in hypnosis experiments was screened through use of an interview and MMPI to eliminate any subjects for whom hypnosis induction might prove to be a disturbing experience. Subjects were then given up to three training sessions in hypnosis. Two groups of 15 subjects were selected on the basis of their SHSS scores. The highly hypnotizable group consisted of those who scored 10 or above on the SHSS while the refractory group score between 0 and 4. Both groups were then administered the CQ-set.

MMPI and CQ-set data were item analyzed using Fisher's exact probability test to determine which items differentiated between groups. Five MMPI items and two CQ-set items were significant at the .05 level. There was no patterning evident among items and results were no greater than that to be expected by chance alone. A single classification ANOV was used to determine if any MMPI scales differentiated hypnotizable from refractory subjects, but no significant differences were found.

The results support the conclusion that both groups come from
the same population. Other studies have produced similar results. It is thus apparent that present techniques have not proved successful in differentiating between hypnotizable and refractory subjects. New approaches will have to be explored before prediction of susceptibility becomes possible.
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APPENDICES
APPENDIX A

HYPNOSIS SCREENING BATTERY

Name ___________________________ Phone ___________________

When available _______________________________________________________________________

Why did you volunteer? __________________________________________________________________

_____________________________________________________________________________________

Based on what you know and what you have heard about hypnosis, what do you think you will experience when hypnotized?

_____________________________________________________________________________________

Have you in the past had any severe medical problems? Any present chronic illness? (Inquire as to heart disorder, blood pressure, fainting spells, rheumatic or scarlet fever, brain damage.)

_____________________________________________________________________________________

Have you ever been administered chemical anesthetics such as ether, sodium pentathol? Did you have any adverse effects such as struggling when going under, required repeated administrations before anesthetic could take effect, or afterwards severe nausea or headache?

_____________________________________________________________________________________

Have you ever sought psychiatric help?

_____________________________________________________________________________________

Do you tend to be a nervous person?

_____________________________________________________________________________________

Have you ever had thoughts you were ashamed of?

_____________________________________________________________________________________

Have you smoked pot, taken LSD, pills such as barbituates or amphetamines, or any drug considered to be hallucinogenic? (Determine frequency, if yes.

_____________________________________________________________________________________

Have you ever had prolonged periods of being depressed?

_____________________________________________________________________________________

Have you ever been robbed of your thoughts?

_____________________________________________________________________________________

Are you often moody, tend to have ups and downs, days you just feel "down in the dumps?"
Do you find it very easy to become so completely absorbed in a book or a movie you like that you become unaware of what's going on around you?

-------------------------------------

Do you like (do you think you would like) flying in an airplane? ___

What, in particular, could scare you about flying? ________________

Is it (would it be) easy for you to trust the pilot? ______________
The SHSS, Forms A and B, (Hilgard, 1965) were originally standardized on 124 students attending Stanford University and later new norms were collected on 533 cases. The means for the two groups differed by less than one half point with practically identical standard deviations. The reliability of the SHSS has been reported to be $r = .83$ on the original sample of 124 subjects using the alternate forms in determining retest reliabilities. One year later a sample of 96 yielded a retest reliability correlation of $r = .90$. 
ITEMS IN THE STANFORD HYPNOTIC SUSCEPTIBILITY SCALE,
FORMS A AND B (WEITZENHOFFER AND HILGARD, 1959)

<table>
<thead>
<tr>
<th>Item</th>
<th>Form A</th>
<th>Form B</th>
<th>Criterion of passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Postural sway</td>
<td>Backwards</td>
<td>Backwards</td>
<td>Falls without forcing</td>
</tr>
<tr>
<td>2. Eye closure</td>
<td>Form A induction</td>
<td>Form B induction</td>
<td>Eyes close without forcing</td>
</tr>
<tr>
<td>3. Hand lowering</td>
<td>Left</td>
<td>Right</td>
<td>Lowers at least 6 inches by end of 10 seconds</td>
</tr>
<tr>
<td>4. Arm immobilization</td>
<td>Right arm</td>
<td>Left arm</td>
<td>Arm rises less than 1 inch in 10 seconds</td>
</tr>
<tr>
<td>5. Finger lock</td>
<td>Before chest</td>
<td>Overhead</td>
<td>Incomplete separation of fingers at end of 10 sec.</td>
</tr>
<tr>
<td>6. Arm rigidity</td>
<td>Left arm</td>
<td>Right arm</td>
<td>Less than 2 inches of arm bending in 10 seconds</td>
</tr>
<tr>
<td>7. Moving hands</td>
<td>Together</td>
<td>Apart</td>
<td>(A) Hands close at 6 inches (B) Hands apart at least 6 inches</td>
</tr>
<tr>
<td>8. Verbal inhibition</td>
<td>Name</td>
<td>Home Town</td>
<td>Name unspoken in 10 seconds</td>
</tr>
<tr>
<td>9. Hallucination</td>
<td>Fly</td>
<td>Mosquito</td>
<td>Any movement, grimacing, acknowledgment of effect</td>
</tr>
<tr>
<td>10. Eye catalepsy</td>
<td>Both eyes closed</td>
<td>Both eyes closed</td>
<td>Eyes remain closed at end of 10 sec.</td>
</tr>
<tr>
<td>11. Posthypnotic</td>
<td>Changes chairs</td>
<td>Rises, stretches</td>
<td>Any partial movement response at signal</td>
</tr>
<tr>
<td>12. Amnesia</td>
<td>Recall of items 3-11</td>
<td>Recall of items 3-11</td>
<td>Recall of three or items</td>
</tr>
</tbody>
</table>
APPENDIX C

California Q-set Form III

1. Is critical, skeptical, not easily impressed.

2. Is a genuinely dependable and responsible person.

3. Has a wide range of interests (N.B. Superficiality or depth of interest is irrelevant here.)

4. Is a talkative individual.

5. Behaves in a giving way toward others. (N.B. regardless of the motivation involved.)

6. Is fastidious.

7. Favors conservative values in a variety of areas.

8. Appears to have a high degree of intellectual capacity. (N.B. whether actualized or not.) (N.B. Originality is not necessarily assumed.)

9. Is uncomfortable with uncertainty and complexities.

10. Anxiety and tension find outlet in bodily symptoms.

11. Is protective of those close to him.

12. Tends to be self-defensive.

13. Is thin-skinned; sensitive to anything that can be construed as criticism or an interpersonal slight.

14. Genuinely submissive; accepts domination comfortably.

15. Is skilled in social techniques of imaginative play, pretending and humor.

16. Is introspective and concerned with self as an object. (N.B. introspectiveness per se does not imply insight.)

17. Behaves in a sympathetic or considerate manner.

18. Initiates humor.

19. Seeks reassurance from others.

20. Has a rapid personal tempo; behaves and acts quickly.
21. Arouses nurturant feelings in others.

22. Feels a lack of personal meaning in life.

23. Extrapunitive; tends to transfer or project blame.


25. Tends toward over-control of needs and impulses; binds tensions excessively; delays gratification unnecessarily.

26. Is productive; gets things done.

27. Shows condescending behavior in relations with others.

28. Tends to arouse liking and acceptance in people.

29. Is turned to for advice and reassurance.

30. Gives up and withdraws where possible in the face of frustration and adversity.

31. Regards self as physically attractive.

32. Seems to be aware of the impression he makes on others.

33. Is calm, relaxed in manner.

34. Over-reactive to minor frustrations; irritable.

35. Has warmth; has the capacity for close relationships; compassionate.

36. Is subtly negativistic; tends to undermine and obstruct or sabotage.

37. Is guileful and deceitful, manipulative, opportunistic.

38. Has hostility towards others. (N.B. Basic hostility is intended here; mode of expression is to be indicated by other items.)

39. Thinks and associates to ideas in unusual ways; has unconventional thought processes.

40. Is vulnerable to real or fancied threat, generally fearful.

41. Is moralistic. (N.B. Regardless of the particular nature of the moral code.)

42. Reluctant to commit self to any definite course of action; tends to delay or avoid action.
43. Is facially and/or gesturally expressive.
44. Evaluates the motivation of others in interpreting situations.  
   (N.B. Accuracy of evaluation is not assumed.)
45. Has brittle ego-defense system; has a small reserve of integration;  
   would be disorganized and maladaptive when under stress or trauma.
46. Engages in personal fantasy and daydreams, fictional speculations.
47. Has a readiness to feel guilty. (N.B. regardless of whether  
   verbalized or not.)
48. Keeps people at a distance; avoids close interpersonal relationships.
49. Is basically distrustful of people in general; questions their  
   motivations.
50. Is unpredictable and changeable in behavior and attitudes.
51. Genuinely values intellectual and cognitive matters. (N.B. Ability  
   or achievement are not implied here.)
52. Behaves in an assertive fashion. (N.B. Item 14 reflects under-  
   lying submissiveness; this refers to overt behavior.)
53. Various needs tend toward relatively direct and uncontrolled  
   expression; unable to delay gratification.
54. Emphasizes being with others; gregarious.
55. Is self-defeating.
56. Responds to humor.
57. Is an interesting, arresting person.
58. Enjoys sensuous experiences (including touch, taste, smell, physical  
   contact).
59. Is concerned with own body and the adequacy of its physiological  
   functioning.
60. Has insight into own motives and behavior.
61. Creates and exploits dependence in people. (N.B. regardless of the  
   technique employed, e.g., punitiveness, over-indulgence.)
62. Tends to be rebellious and non-conforming.
63. Judges self and others in conventional terms like "popularity," "the correct thing to do," social pressures, etc.
64. Is socially perceptive of a wide range of interpersonal cues.
65. Characteristically pushes and tries to stretch limits; sees what he can get away with.
66. Enjoys esthetic impressions; is esthetically reactive.
68. Is basically anxious.
69. Is sensitive to anything that can be construed as a demand. (N.B. No implication of the subsequent response is intended here.)
70. Behaves in an ethically consistent manner; is consistent with own personal standards.
71. Has high aspiration level for self.
72. Concerned with own adequacy as a person.
73. Tends to perceive many different contexts in sexual terms; eroticizes situations.
74. Is subjectively unaware of self-concern; feels satisfied with self.
75. Has a clear-cut, internally consistent personality.
76. Tends to project his own feelings and motivations onto others.
77. Appears straightforward, forthright, candid in dealing with others.
78. Feels cheated and victimized by life; self-pitying.
79. Tends to ruminate and have persistent, preoccupying thoughts.
80. Interested in members of the opposite sex.
81. Is physically attractive; good-looking. (N.B. The cultural criterion is to be applied here.)
82. Has fluctuating moods.
83. Able to see to the heart of important problems.

84. Is cheerful.

85. Emphasizes communication through action and non-verbal behavior.

86. Handles anxiety and conflicts by, in effect, refusing to recognize their presence; repressive or dissociative tendencies.

87. Interprets basically simple and clear-cut situations in complicated and particularizing ways.

88. Is personally charming.

89. Compares self to others. Is alert to real or fancied differences between self and other people.

90. Is concerned with philosophical problems; e.g., religions, values, the meaning of life, etc.

91. Is power oriented; values power in self or others.

92. Has social poise and presence; appears socially at ease.

93. Behaves in a feminine style and manner. (N.B. The cultural conception is to be applied as a criterion.)

94. Expresses hostile feelings directly.

95. Tends to proffer advice.

96. Values own independence and autonomy.

97. Is emotionally bland; has flattened affect.

98. Is verbally fluent; can express ideas well.


100. Does not vary roles; relates to everyone in the same way.
INSTRUCTIONS TO SUBJECTS

The purpose of this study is to determine if the personality characteristics of students who volunteer to participate in hypnosis experiments are different from those of students who do not volunteer.

I have here a stack of 100 cards. On each card there is a phrase which can be used to describe someone's personality. I would like for you to use these cards to describe your own personality as you see yourself rather than as other people might describe you.

Read each card carefully and then decide whether the phrase is "like you" or "not like you." If the phrase describes you, then place it in one pile. If it does not describe your personality, then place it in another pile. When you finish, you should have two piles of cards with one containing cards which describe you and one group which do not describe you. Place a rubberband around each pile of cards and place them in the appropriate envelope. BE SURE THAT THE CARDS WHICH YOU FEEL DESCRIBE YOUR PERSONALITY ARE PLACED IN THE ENVELOPE MARKED "Phrases Which Are Characteristic of My Personality" AND THE UNDESCRIPTIVE CARDS ARE PLACED IN THE OTHER ENVELOPE!

At times it may be difficult to decide whether or not a phrase describes your personality. When in doubt, make the best judgment you can. If a phrase is slightly more like you or usually like you, then place it in the pile which describes you. If it is slightly less like you or usually not true of you, then place it in the pile of cards not characteristic of you.
Zelda Faith Easton was born in Lafayette, Louisiana, on January 22, 1943. After graduating from Garland High School in 1961, she entered Austin College at Sherman, Texas. She received the degree of Bachelor of Arts from that institution in 1965 with a major in psychology and in elementary education.

In September, 1965, she enrolled in the Graduate School at Louisiana State University in the Department of Psychology. She served as a graduate teaching assistant from 1965 to 1967. In the summer of 1966 a Master of Arts degree in psychology was earned at Louisiana State University. During the academic year 1967-68 she was an NDEA Fellow. She completed an internship as an NIMH Trainee at Indiana University Medical School at Indianapolis from 1968 to 1969. Presently she holds a USPHS Fellowship and is a candidate for the Doctoral degree at the 1970 Summer Commencement.
EXAMINATION AND THESIS REPORT

Candidate: Zelda Faith Easton
Major Field: Psychology
Title of Thesis: Relationship of Hypnotic Susceptibility to Personality Variables as Shown by MMPI and California Q-Set Scores

Approved:

[Signature]
Major Professor and Chairman

[Signature]
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signature]
[Signature]
[Signature]
[Signature]

Date of Examination: 22 June 1970