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Group comparison of subjects' predictions of performance and actual experimental performance: Hypnotic deafness and the hidden observer phenomena

Carlo Piccione
The University of Montana

A Group Comparison of Subjects' Predictions of Performance and Actual Experimental Performance: Hypnotic Deafness and the Hidden Observer Phenomena.

By

Carlo Piccione

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Approved by:

John G. Watkins

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R C Murray

Dean, Graduate School

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A Group Comparison of Subjects' Predictions of Performance and Actual Experimental Performance: Hypnotic Deafness and the Hidden Observer Phenomena. (93 pp.)

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ABSTRACT: In an effort to delineate the identified behavior of suggested deafness and post-deafness responding in the domain of hypnosis, normative data are presented on 189 undergraduates. A procedure which minimizes artifact effects and also provides information about the expectancies towards the performance of the above mentioned behaviors was presented. One hundred twenty (120) subjects were divided into three (3) groups, balanced for sex, experience with hypnosis, and handedness. Experimenters were blind to experimental hypotheses as assessed on pre- and post-experiment questionnaires. The control group received a pre-inquiry questionnaire that presented the explicit description of the experimental manipulations and requested that they respond within a simulator rationale --"as they think a highly hypnotizable subject would respond" -- according to specific scoring criteria. Following the completion of the pre-inquiry questionnaire the control group was administered the Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A). Both experimental groups were administered the HGSHS:A with the addition of a suggestion of deafness, followed by three loud bangs, screams to wake up, and four post-deafness suggestions. In addition one of the experimental groups was presented with the simulator rationale before the presentation of the deafness suggestion. Experimental subjects reported their behavior in the HGSHS:A response booklets which included the explicit description of the manipulations and scoring criteria noted above. The description of the experimental manipulations and the scoring criteria were identical for both the control group and the experimental groups, thus providing a common scale of measurement from which group percentages and mean differences could be calculated. As had been predicted the mean differences between the prediction of performance and actual experimental performance was highly significant. Furthermore, experimental data on the frequency of hypnotic deafness, and the advisability of using subjective reports as correctives for objective scores is presented. Findings are interpreted in terms of research implications that the procedure provides in delineating a specified behavior in the domain of hypnosis.

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The subject of hypnosis has had a long and questioned life (Ellenberger, 1970; Shor & Orne, 1965; Tinterow, 1970; Watkins, Note 1). The study of hypnosis was first subjected to experimental manipulations by Hull (1933). Hull postulated that a subjects' responsiveness tc suggestion was greater after a hypnotic induction than in the waking state. He therefore attempted to experimentally delineate those behaviors that distinguish the phenomena and thereby establish the domain of hypnosis (Hilgard, 1969, 1971, 1973).

As Hilgard (1973) has stated, it is the inquiry into the domain of behaviors associated with hypnosis that researchers should focus, rather than the endless debate of whether hypnosis is a state or nonstate. The lack of information obtained from the study of hypnosis as an explanation of behavior rather than a class of identifiable behaviors has also been discussed by Sachs (1971).

The behavioral, perceptual, and attitudinal changes that may follow a subject's exposure to a hypnotic induction procedure have been discussed by many authors (Barber, 1969; Hilgard, 1965, 1967, 1977; Hilgard & Hilgard, 1975; Watkins, Note 1). Of particular interest in this discussion

is the behavior associated with the suggestion of deafness.

Suggested Deafness Literature

Hypnotically suggested deafness has, like hypnosis, had a long and questioned existance (Barber & Calverley, 1964b; Erickson, 1938; Hilgard, 1975; Lundholm, 1928; Sutcliffe, 1961).

After a total deafness suggestion, highly susceptible subjects usually will respond in the manner expected. As Hilgard noted (1975), no sign of reaction was observed to the banging of wooden blocks near the suggested deaf subject's head or to the shots of a starter's pistol and "none was expected" (p. 167). Similarly, subjects are not responsive to questions asked of them or suggestions addressed to them. Counter to expectations, a subject in Hilgard's class demonstration of hypnotic deafness, who had been indifferent to the questions, suggestions, and sounds previously mentioned, responded to the following suggestion: "Although you are hypnotically deaf, perhaps there is some part of you that is hearing my voice and processing the information. If there is, I should like the index finger of your right hand to rise as a sign that this is the case " (p. 167). This suggestion will be referred to as the "hidden observer question", following Hilgard's metaphorical labelling of the demonstrated phenomena.

The basic question that is raised, is whether suggested deafness is solely a response to demand/bias effects or a behavior within the repertoire of the domain of hypnosis. Erickson (1938) used the startle response to a loud noise as the dependent measure of deafness on a limited number of highly susceptible and well trained subjects and found a significant change in the subjects' startle response. The conditioning paradigm (buzzer and shock) was also used by Black & Wigan (1961) and the results supported Erickson's findings that suggested deafness decreased the consequent startle response.

A procedure that tested the subject's ability to read while receiving delayed auditory feedback (DAF) was initially used by Kline, Guze, & Haggerty (1954) on a single highly hypnotizable subject given a suggestion for deafness and compared to a truly deaf subject's responses. The authors concluded that suggested deafness does alter the displayed behavior of a subject, but not to the extent displayed by an organically deaf individual. The study was criticized strongly by Barber and replicated with the use of nonhypnotized subjects as controls (Barber & Calverley, 1964b). Although it was found that hypnotized subjects produced less verbal distortions than nonhypnotized subjects, using the DAF, the authors reported that the responses were unlike those of the truly deaf. Sutcliffe's (1961) results concurred when using the same procedure. Other experimenters (Kramer & Tucker, 1967; Sheibe, Gray, &

Keim, 1968) have also used the verbal inhibiting effects of DAF as the dependent measure in experiments involving suggested deafness. Both sets of authors have attempted to use control groups or instructions to decrease the artifact effects.

Kramer & Tucker (1967) used three highly hypnotizable subjects in a self-control procedural series of seven recordings with a set of "pretend to be deaf" (p. 39) instructions. They pointed out the difficulty in objectively and reliably scoring the speech disturbances, and hence they adapted the criteria of "clear and unmistakable distortions" (p. 39) to improve reliability. However, this scoring method produced very small numbers of recorded errors which debilitated the interpretation of the results. The authors, although reporting the possibility of bias, offered the subjective impression that the hypnotically deaf subjects' speech disturbances were less than the nonhypnotized "pretend" readings. In a replication study, Schiebe et al. (1968) included five simulating subjects in an effort to determine if hypnotically suggested deafness differs from simulated deafness. Scheibe et.al. concluded that instruction can produce a decrease in speech distortion but that hypnotic instructions do not uniquely effect the outcome responses. They further suggested the effects of demand characteristics as an influencing and possibly encompassing variable in experimentally induced deafness. An incidental finding of a significantly

decreased reading time for the hypnotic subjects was mentioned and suggested for further research.

Graham & Schwarz (1973), in a study attempting to seperate response bias effects from sensory effects, used a method of signal detectability (Green & Swets, 1966). They also used the simulator design proposed by Orne (1959), with seven reportedly nonhypnotizable subjects. The simulator group significantly differed from the susceptible group in the detection of a masked signal in the pre- and post-experimental conditions. The results of the suggested deafness, during the experimental condition, showed no significant differences between the two groups. The authors explained the difference as possibly due to the distraction of the control subjects from the signal detection task by concentration on their function as simulators. The authors conclude that hypnotic suggestions "can result in sensory changes... that are not observed among simulating control subjects" (p. 1092). While statistically unsound (using t-test comparisons without a main treatment effect), the experiment attempted to delineate an identifiable behavior and did not attempt to sustantiate a theory pro- or -con about the state of hypnosis.

Holombo (Note 2) in pilot work investigating lateral hypnotic deafness, found that a subject was able to answer the Stenger test for functional hearing loss, in a manner suggestive of organic dysfunction of the right ear. It was

also reported that cross-over lateralization took place at the appropriate level, without prior suggestion that it should.

In summary, positive evidence of suggested deafness was found when hearing was tested by conditioning techniques (Black & Wigan, 1961; Erickson, 1938; Lundholm, 1928). Holombo, (Note 2), using the Stenger test, found in one subject that hypnotically suggested lateral deafness resulted in responses comparable to those given by the organically deaf. Other studies have shown little or no difference in the tested hearing of suggested deaf subjects (Barber & Calverley, 1964b; Graham & Schwarz, 1973; Kramer & Tucker, 1967; Scheibe et al., 1968; Sutcliffe, 1961). The situational demand/bias expectancies are clearly evident in the literature on suggested deafness and the presence of the artifact has been demonstrated. Although hypnotically suggested deafness has been investigated and compared to simulators and truly deaf subjects, there does not appear to be any literature concerning its frequency of occurrence in the population at large.

Before proceeding into the suggested methodological techniques to employ in investigating a specific behavior, suggested deafness, in the domain of hypnosis and the effects of expectancy on the hidden observer phenomena, a review of the literature on expectancy factors will be undertaken.

Expectancy Literature Review

Subject expectancy: The subject in a hypnosis experiment has been exposed to numerous bits of information from the communication media. Movies, books, and television have presented some form of hypnosis to almost all people in the world. Orne (1959, 1966) and London (1961) found that subjects are well acquanted with the word "hypnosis" and the traditional behaviors that are associated with the lore. The concept is further supported by their reporting that subjects typically behave in accordance with their preconceptions. Numerous studies have attempted to assess the subject' pre-experimental expectations (self report predictions) of hypnotic depth and correlate the estimates with subsequent responsiveness (Barber & Calverley, 1966, 1969; Derman & London, 1965; Gregory & Diamond, 1973; Melei & Hilgard, 1964; Shor, 1971). The correlational studies have reported a small but significant positive correlation between pre-experimental expectations and responses to test suggestions. These results tend to support the notion that performance after a hypnotic induction is not composed of a simple relationship but rather a complex interaction of factors with the subjects' expectancies playing a part (Shor, 1971).

Shor (1971) and Devereux (1966) have noted, that it is largely a matter of whether or not subjects believe that a hypnotic effect is likely to take place which determines

their response to hypnotic suggestion. A number of studies have reported significant, but small, correlations between hypnotic performance and the subjects' attraction/desire to be hypnotized, as measured by self report questionnaires (Barber, Ascher, & Mavroides, 1971; Barber & Calverley, 1966; Derman & London, 1965; London, 1961; London, Cooper, & Johnson, 1962; Melei & Hilgard, 1964).

Experimenter effect: Orne (1959) proposed that the hypotheses might be conveyed, unintentionally, by the procedure or the experimenter, through what was called "the demand characteristics of the experimental situation" (p. 281). It was hypothesized that demand characteristics can influence a subject's responses. The importance of experimenter artifact in research has been well documented (Adair, 1973; Barber, 1969, 1976; Bowers, 1967, 1973; Friedman, 1967; Jung, 1971; Miller, 1972; Rosenthal & Rosnow, 1969). Rosenthal (1966, 1969), in a series of studies concluded with findings similar to those already discussed by Orne (1959, 1962, 1969). That is, the experimenter's expectancies or desires are transmitted to subjects by means of unintentional paralinquistic cues and that this biases the subjects' responses. Orne (1969) has pointed out however, that the experimenter bias effects postulated by Rosenthal are dependent on the motives of the experimenter, while demand characteristic effects depend on the perception of the subjects (p.147). A review of 31 studies by Barber & Silver (1968a, 1968b) reported that many

experiments claiming the effects of experimenter bias were wrought with what Barber (1976) calls investigator data analysis effect (inappropriate analysis). In another review by Weber & Cook (1972) they reported finding little evidence that experimental subjects typically respond in accordance with the postulated bias of the experimenter's knowledge of the hypotheses. In a well conducted experiment, however, Zobel & Lehman (1969) did report significant paralinguistic cueing effects on a task involving tone discrimination. But researchers in the field (Johnson, 1976) conclude that the experimenter expectancies or desires can influence the responses of some types of subjects, but not others (McFall & Schenkein, 1970).

The possible personal attributes of the experimenter that might result in altered responses are reviewed by a number of authors (Friedman, 1967; Johnson, 1976; Masling, 1966; Rosenthal, 1966). It has been reported that the sex, age, ethnic identity, prestige, dominance, and warmth of the experimenter, at times, effects the results. Added to these artifacts is the possibility of the experimenter failing to follow the procedure, misrecording, and even fudging the data. A more thorough general review of the pitfalls in human research is presented by Barber (1976). He commendably remarks on the lack of discussion concerning the role of the investigator. Barber reports five areas where the investigator might bias the results of the research. They are: 1) investigator paradigm effect , 2) investigator

experimental design effect, 3) investigator loose procedure effect, 4) investigator data analysis effect, (he reports on eight pitfalls commonly encountered in the statistics involving human research), and 5) investigator fudging effect.

Situational and set factors: A further review of the literature reveals very few instances where situational factors influence the responsiveness of subjects in a standardized hypnotic test. A comparison of group and individually administered tests of susceptibility, report no significant performance differences (Bentler & Roberts, 1963; Bentler & Hilgard, 1963). Self scoring and observer scoring was found to be highly correlated (Bentler & Hilgard, 1963; Shor & Orne, 1963). As was the presentation of suggestions by way of a tape recorder in comparison to being presented live (Barber & Calverley, 1964a; Reyher & Pottinger, 1976). A historical review of the development of various scales for measuring hypnotic susceptibility has been made by Hilgard (1967; 1965, chap. 4).

Barber and colleques have studied the role of the word "hypnosis" on subjects' subsequent responsiveness (Barber, 1969; Barber & Calverley, 1964a, 1966; Glass & Barber, 1961). That is, they have compared the results of groups specifically told that the experiment involved hypnosis with groups given other definitions of purpose. Generally, the Barber group has found that the responsiveness of subjects

is higher for test situations defined as hypnosis in contrast to other labels or repeated instructions to relax. Other investigators have concurred (Hilgard & Tart, 1966). Contrary findings have been reported by Barber & Calverley (1962, 1963) using a task motivational condition (Original Task Motivational Instructions, OTMI) when compared to standard hypnotic induction. The original wording of the OTMI (Barber & Calverley, 1964 (a)) provided the subject with extremely strong statements urging the subject to comply. Bowers (1967) replicated the study in an attempt to investigate the possibility of subjects responding inaccurately in order to meet the extreme compliance demands. Bowers' experiment incorporated an honesty instruction and found that subjects corrected their scores, denying the vividness that was previously reported. Spanos & Barber (1968) confirmed Bowers' finding and the resultant corrections produced non-significance between groups. They did report that by using the revised task motivational instructions ("Imagine vividly the suggestions and perform to the best of your ability"; Barber, 1969, p. 46) the subjects were as responsive as the hypnotic induction group. However, the results obtained when the original task motivational instructions were used, become less convincing (Hilgard, 1975). The demand to respond (increased compliance) has also been demonstrated to enhance hypnotic performance by other investigators (Slotnick & London, 1965).

After using factorial designs and multidimensional analyisis, Barber and collegues concluded (Barber & Calverley, 1969; Barber, Spanos, & Chaves, 1974; Spanos & Barber, 1974; Spanos & McPeake, 1975) that a subject's performance might be effected by numerous variables. Barber (1969) reported that the manner in which the situation was defined, the wording and tone of the suggestions or instructions, the subjects' attitudes towards hypnosis and, the subjects' expectancies concerning their own performance, were a few of these variables.

Some workers (Watkins, 1963a, 1963b) in the field with a more psychoanalytic orientation have questioned the role of psychodynamic factors on the subjects' susceptibility. Although the personal dynamics of the subject and hypnotist have not been experimentally reviewed, the clinical relevance of studying the interactions of client and therapist seems apparent. The relationship between the client and therapist would appear to significantly effect the identified behavior of study and the clients' susceptibility.

In overview, the possibility of contaminants enter into any experimental situation involving human beings. The extent, type, and divergence of responses from "pure" treatment effect due to artifact have not been conclusively articulated. The experimental findings seem to continually suggest that a complex interaction of multiple factors exist

in the study of human behavior , and the study of hypnotic behavior must definitely be seen within this framework. The problem that is generally raised concerning this point pertains to the modification of susceptibility. Subject expectancies, experimenter bias, personality indicators, situational and set variables, have all been studied in hope of delineating individual differences in response to a hypnotic situation. The credulous and skeptical points of view have been presented in recent reviews by Diamond (1977) and Perry (1977).

The identification and subsequent correction for expectancy/demand artifact was initially proposed by Orne (1959) and further supported by other investigators (Rosenthal, 1969). Orne (1969) later termed the proposed techniques as "quasi-controls". The concept of quasi-controls was intended to refer to "almost control groups" for "the assessment of demand characteristic variables in order to evaluate how such factors might effect the experimental outcome" (p. 160). The three techniques were: (a) the postexperimental inquiry, (b) nonexperiment or pre-inquiry, and (c) simulators. The interpretation of the results obtained using Orne's quasi-controls presents the investigator with some difficulty. The quasi-controls serve to delineate the demand/expectancy effects. The results serve to correct for the variance associated with the individual differences and do not permit inference to be drawn about the effect of the independent variable. The

questioning of a subject's expected response to a specified treatment, or pre-inquiry "quasi-control", has received the greatest acceptance in studies on anxiety (Bernstein, 1973; Borkovek & Nau, 1972; Lick & Bootzin, 1975; Rosen, 1976). The pre-inquiry has been used in the correlational studies previously mentioned (e.g. Melei & Hilgard, 1964), where subjects were reported to have clear-cut preconceptions pertaining to what hypnosis was and what types of behaviors a hypnotized person exhibits.

Bowers (1973) reports on two paradigms commonly used in "hypnosis" experiments. He criticizes Barber's positivistic (output-input) view of the phenomena as not providing for the possibility of experimental trance effects. Bowers points out that if significant differences in favor of the hypnotic induction group are found, then Barber might conclude that the experiment has not controlled for the situational demand characteristics. If there is no differences or the performance of the nonhypnotic group is enhanced, then evidence is suggested for a non-trance theory. On the Orne simulator design, Bowers reports that the possibility of performance being attributable to nonexpectancy or essence effects is provided, but only by default. If there is a significant difference between the simulators and the reals, then it can be concluded that the effect is not attributable solely to demand characteristics. However, the inverse is not true. If there is no difference, then the investigator can not assume that the

hypnotic group was only responding to demand. As Bowers suggests there might be a difference between simulators and reals in their perception of the situation, which has not been accounted for. Bowers (1967, 1973) and Orne (1969, 1971) have suggested that reals and simulators might differentially employ internal cues towards the experimental manipulations or external cues to moniter their behavior. Bowers suggests that an attibutional approach to investigating hypnotic phenomena might be informative and efficacious.

The majority of authors discussing alternative methodological paradigms seem to concur on a number of points. First, there is the need to develop an experimental design where the main effects are due to treatment manipulations and not confounded by artifacts. Research with human subjects can at best only approximate this proposal. The investigator is left with two alternatives; attempt to minimize the confounding variables and/or attempt to identify and possibly correct for its effects. In the attempt to minimize the artifact effect in hypnosis research, authors (e.g. Barber, 1969, 1976; Orne, 1969; Rosenthal, 1969) have suggested the use of similar populations across all groups. That is, subjects should be balanced for sex, experience with hypnosis, and naivety to the experimental hypotheses. The implementation of double blind experimenters and observers is <u>strongly</u> recommended, as well as the assessment of their expectancies.

Furthermore, much could be gained through audiotaping suggestions and/or instructions, and running a-priori statistical analyses is suggested.

Diamond (1974) after surveying the current field of hypnotic susceptibility enhancement, concluded that the assessment of the subject's expectancy or "preferential attitudes towards hyponsis emerges as perhaps the best overall pencil-and-paper predictors of subsequent susceptibility" (p. 186). Bem (1967) using the pre-inquiry technique has concluded that subjects are more knowledgeable of how they might perform than they are commonly given credit. The difficulty in reliably assessing the subjects' attributions to a particular experimental situation was presented by Bowers (1973).

Shor (1971) assessed the expectancies of a group of subjects taken as a whole and compared these results with later performance on the Harvard Group Scale of Hypnotic Susceptibility:Form A (HGSHS:A, Shor & Orne, 1962). Two (pre-inquiry) questionnaires were used; one assessed the individual's expectancies towards being influenced , and the other their estimates of the general college population's expectancies. Although a correlational study, Shor emphasized the statistic of mean differences. "The reasoning is that antecedent variables affecting the responses will be reflected in the average behavior of a group of subjects even though the complex interactions

attenuate the magnitude of simple and direct correlations" (p. 155). A common scale of measurement was used (HGSHS:A) to accommodate the focus on the mean differences. One hundred sixty-four subjects were given both pre-inquiry questionnaires and later administered the taped HGSHS:A instructions. As was predicted, small but signigificant correlations were found between the "expectancies to perform" percentages from both questionnaires and actual performance percentages. The mean differences were found to be most highly divergent and inversely proportional to the difficulty of the items. That is, they underestimated the response frequencies of the hard items and overestimated that of the easy items (hallucinatory and motor, respectively). Shor concludes that the behavior of the subject depends on the complex interaction of variables. The expectancy of being influenced can not uniquely predict performance. Shor argues, in an attempt to stimulate research with clinical relevence, that the investigator's attention should be focused towards finding the conditions that enhance hypnotic responsiveness and away from trying to find simple correlations. Shor further reports, "the basic novelty of the present questionnaire procedure is that it asks subjects to predict hypnotic performance from explicit descriptions of the items" (p. 165). This writer concurs that the procedure is innovative and an advancement in the available paradigms. However, the identical items that are explicitly described to the subjects are later presented to

the same subjects within the dependent measure. The practice effect and the subjects' evaluative "self-talk" behavior when presented with a task that they have already "predicted" would appear to bias the results. The presentation of over 12 pages of written instructions would also appear to effect the results.

Following Orne's "quasi-control" procedure of the "pre-inquiry or nonexperiment" and Shor's further development stressing the use of a common scale of measurement, a pilot study was run at the University of Montana. It was hypothesized that the inclusion of a deafness suggestion followed by bangs and screams to "wake up" would not significantly alter the susceptibility distribution of the Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A). A representative sample of the response percentages to a pre-inquiry questionnaire that explicitly descibed the deafness suggestion and four post-deafness suggestions was also collected. Seventy-two subjects, equated for sex, were divided into two groups. One group received the HGSHS:A with a deafness suggestion. The other group received a pre-inquiry questionnaire and the HGSHS:A. The common scale of measurement, HGSHS:A, was audiotaped with and without the deafness suggestion. The questionnaire asked the subjects to respond to the items as if they had actually been subjected to the experimental treatment, an explicit description of which was provided.

An analysis of variance using the subject scored responses to the 12 items of the HGSHS:A yielded no significant between-groups effect (F=2.203, df=68, p=.14). The hypothesis that the inclusion of the deafness suggestion would not significantly effect subjects' responsiveness to the HGSHS:A was not rejected.

Thirty-two percent of the subjects completing the pre-inquiry questionnaire predicted that they would be able to simulate deafness. Thirty-eight percent of the experimental subjects reported that they did not exhibit a startle response at the presentation of loud noise and shouts to wake up following the suggestion of deafness. The questionnaire further requested that the subjects predict the responses to four post-deafness suggestion. Three of the suggestions were of the type that Hilgard (1975) reported would not be answered by a hypnotically deaf subject and the fourth was the "hidden observer" question. The predicted post-deafness response percentages were relatively equal (22, 24, 32, and 27%, respectively). Further investigation, with controls for experimenter bias effects, to assess and compare predictions of performing post-deafness suggestions with actual performance appears warrented.

A major criticism and a topic of discussion in research involving hypnosis in general and suggested deafness in particular, as already noted, is the extent to which

expectancy and demand characteristics effect the subject's behavior (Barber, 1976; Orne, 1959, 1962, 1969; Rosenthal, 1966, 1969; Rosenthal & Rosnow, 1969, 1975). The role of demand characteristics and experimenter bias, it must be remembered, do not only effect hypnotic responsiveness but all responsiveness when there is a human experimenter. The field of hypnosis should be applauded for the implementation of controls to minimize experimenter artifacts. Unfortunately, very informative data is immediately rejected when the the behavior is associated with hypnosis, on the grounds that it is purely "artifact". Shor, (1971) reminds us that there are no simple correlations of "predictors" for human behavior, but instead complex interactions. As Orne (1959) initially proposed, the behavior associated with the hypnotic phenomena might result from the interaction of three effects, "a)the subjects' preconceptions of what hypnosis is, b)implicit cues by the hypnotist as to what he thinks it should be, and c)the particular techniques of trance induction" (p. 277). Barber (1969), as was previously reported, listed a number of variables that appear to effect hypnotic-like responsiveness.

Hilgard (1975) demonstrated an identifiable, expected, behavior; that is, suggested hypnotic deafness. Hilgard clearly stated that he expected the hypnotically deaf subject not to respond to suggestions, questions, or sounds. These expectations were upheld by the experienced subject's performance. He also reported a counterexpectational

postdeafness behavior in response to what the writer called the "hidden observer question". Although Hilgard and the subject reported amazement at the non-volitional response to the hidden observer question; the behavior is open for scientific investigation to determine the extent of the response being cued by demand.

In summary, suggested deafness literature was reviewed and it appears that sensory changes are produced in subjects hypnotically suggested to lose their hearing. The sensory impairment, however, does not simulate organic deafness in controled studies that have compared suggested deaf with truly deaf subjects. Although, suggested deafness has been a behavior of study within the domain of hypnosis for some time, the literature is void of any normative data on the behavior. It is generally assumed that responsiveness to the suggestion of deafness is restricted to the upper range of hypnotically susceptible subjects.

HYPOTHESES

The current investigation will attempt to design a procedure, following Shor (1971), to delineate the identified behavior of hypnotically suggested deafness in an analoque population.

1) It was hypothesized that the predicted percentages of performance to a deafness suggestion and four post-deafness suggestions, obtained from a pre-inquiry questionnaire, will significantly differ from the performance percentages of the

experimental subjects administered the same suggestions after a hypnotic induction.

2) It was also hypothesized that the inclusion of either a deafness suggestion, deafness suggestion and "pseudo-simulator set", or four post-deafness suggestions would not produce a significant difference between the group means on the dependent measure; the Harvard Group Scale of Hypnotic Susceptibility: Form A.

METHODS

Subjects

The subjects were 120 college students, with each sex equally represented. A total of 142 (189 including Group II Alternate, to be discussed later) were tested. Subject selection attempted to minimize; incomplete self-report booklets, previous experience with hypnosis, and left-handedness variance. The selection process continued in that order until the cell size quota (20 males, 20 females) was achieved. Otherwise, cell quota was obtained by referring to a random numbers table to determine which numbered subjects should be excluded from the study. All the subjects were "coerced volunteers" (Boucher & Hilgard, 1962) from an introductory psychology class at the University of Montana. In the sense that the subjects all received credit for their participation which would serve as partial fulfillment of the research credits required for successful completion of the course. The subjects were not required to specifically participate in this experiment. The subjects were provided with clearly posted sign-up sheets that were divided into three meeting times (Th., T., Th.) during the same evening hour.

Dependent Measures

There were five dependent measures: 1) the subject scored susceptibility index from the HGSHS:A, 2) the observer scored susceptibility index from 8 of 12 items on

the HGSHS:A, 3) percentages of predicted performance from the pre-inquiry questionnaire completed by the control group, 4) the percentage of subjects' scored performances of the experimental manipulations from the response booklet and, 5) percentage of observer scored performances of the experimental manipulations.

The 12 item Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A) served as one of the common dependent measures. Susceptibility was determined following the HGSHS:A manual (Shor & Orne, 1962) from the HGSHS:A self-report booklets. The experimental treatment group subjects were also presented with the description and scoring criteria for the deafness suggestion and four post-deafness suggestions at the appropriate location in an unobtrusive manner within the HGSHS:A booklet.

The HGSHS:A booklet insert that contained the explicit descriptions of the experimental manipulations was also used in the pre-inquiry questionnaire. Therefore, the subject scored item criteria and the descriptions of the experimental manipulations presented in the pre-inquiry questionnaire and the HGSHS:A self-report booklet, were identical in its wording and format. The exact similarity between the two measures thereby allowed for comparison of the percent of subjects responding in a positive (yes) manner.

Observers scored the subjects' responses to eight of the 12 HGSHS:A items (excluding eye closure, eye catalepsy, post-hypnotic suggestion, and amnesia). Observers also scored the subjects' responses to the experimental manipulations. The same scoring criteria that were presented to the subjects were employed by the observers. Each observer reported on 3 to 6 (mode=5) pre-arranged subjects for whom they had an unobstructed view.

Materials

The experimental hypothesis required the development of a suggestion for hypnotic deafness. The deafness suggestion was to be inserted between the sixth and seventh items (arm rigidity and hands moving together) of the HGSHS:A and had the following wording:

> You are relaxed, very relaxed. In a short while I shall ask you to momentarily shut off the sound that you hear around you. I will count from 1 to 5 and as I count, it will become more and more difficult to hear, until you are tapped on the shoulder, at which time normal hearing will return, instantly. As I count from 1 to 5 it will seem like there are plugs in your ears that prevent any auditory stimulation from coming through. It will become more and more difficult to hear, so that when I reach 5 you will not be able to hear at all. Your ears will be so plugged that you will not be able to hear anything, until you are tapped on the shoulder, at which time normal hearing will return. Relaxed and ready. 1--2--3--4--5. (10" pause) "Wake up, wake up, wake up" is shouted followed by three bangs on a pan with a metal spoon (in a total time of 10")
>
> Postdeafness items would be inserted here.
> 20" allowed for shoulder tapping.
>
> That's fine, just relax, eyes closed and relaxing. Normal hearing is returning and you are more and more relaxed. Normal hearing has returned and you are now very relaxed and in your resting position.

That's fine.

Four post deafness suggestions were developed. The suggestions were of the type that Hilgard (1975) reported not expecting a hypnotically deaf subject to answer or respond. One, and only one, of the suggestions was reportedly answered by Hilgard's hypnotically deaf subject. That is the hidden observer question, "...maybe there is some part of you that is hearing..." (p. 167). The positioning of the items was determined by an experimentally blind individual who picked slips out of a hat that contained the four suggestions. For ease of presentation, the full page insert that was part of the experimental subjects HGSHS:A response booklet and also a part of the pre-inquiry questionnaire follows.

> You were then suggested that your ears would soon begin to feel plugged as the experimenter began to count. Your ears would become more and more plugged and you would momentarily loose your hearing until you were touched on the shoulder. When you were touched on the shoulder normal hearing was to return. He then began to count and deafness was suggested.
>
> Three loud bangs and screams to "wake up" were then presented.
>
> Would an observer have noted that you did not flinch or respond in a startled manner to the shouts or the pounding?
> ( )yes ( )no
>
> Answer the following questions in the boxes provided. Your shoulder had not been touched.
>
> The experimenter then stated: "Not being able to hear is a very alarming experience, and I can appreciate that. You've done a fine job and I thank you. Now, if you heard me, just raise the

index finger of your left hand."

Would an observer have noted that the index finger of your left hand had lifted, or made a noticeable movement, in response to the suggestion?
( )yes ( )no

He then said: "Although you are hypnotically deaf, perhaps there is some part of you that is hearing my voice and processing the information. If there is, I should like the index finger of your right hand to rise as a sign that this is the case."

Would an observer have noted that the index finger of your right hand had lifted, or made a noticeable movement, in response to the suggestion?
( )yes ( )no

He then said: "Raise your right arm directly in front of you."

Would an observer have noted that your right arm had lifted from the resting position, or made a noticeable movement, in response to the suggestion?
( )yes ( )no

The experimenter then stated: "That's fine, normal hearing is returning. Just nod your head when normal hearing returns."

Would an observer have noted that your head "nodded" , or made a noticeable movement, in response to the suggestion?
( )yes ( )no

Following from the findings of Melei & Hilgard (1964) and others, (Derman & London, 1965; Barber & Calverley, 1966; 1969) a "pseudo-simulator set" was developed. The "pseudo-simulator set" presented an experimental situation involving hypnosis and then requested the subjects to respond to subsequent suggestions as they "think" a hypnotized person would respond. The "pseudo-simulator set" had the following wording:

> Use your imagination and try to consider that the following conditions exist. Ready?
>
> You are an individual who has had experience with hypnosis. That is, you know how a person would respond, or act, when hypnotized and given different suggestions. In an experiment, a specialist in hypnosis proceeds to administer those instructions commonly used when hypnotizing someone. He presents a number of suggestions that you respond to in a way that a hypnotized person would respond.
>
> Now respond to the following suggestion as you think you would respond if you were in the situation that was just described.

It was proposed by John R. Means (Note 4) that the "power" of the pre-inquiry questionnaire might be assessed by questioning the subjects as to their degree of confidence in responding to the suggestions. The confidence of responses scale was worded:

> How confident do you feel about your answers, in respect to your answers reflecting the responses of a hypnotized person?
>
> (place an x in the box that most appropriately represents your confidence.)
>
> ( ) 0% not confident ( ) 20% ( ) 40% moderately confident ( ) 60% ( ) 80% ( ) 100% very confident

The pre-inquiry questionnaire consisted of; the "pseudo-simulator set", the description of the deafness suggestion and post-deafness suggestions with the accompanying scoring criteria, the confidence of responses scale, and questions about the subjective nature of their responses (why did you respond the way you did?).

Three audiotapes served as the experimental instruments. A modification of the HGSHS:A was recorded on a 7 inch reel -to- reel tape. The experimental instrument retained all the items found in the HGSHS:A, but included the "pseudo-simulator set", followed by the deafness suggestion and post-deafness suggestions between the sixth and seventh items (arm rigidity and hands moving together). This audiotape, which served as the master, will be referred to as the Group Susceptibility Scale:III, (GSS:III).

The GSS:III recording was duplicated onto another reel-to-reel tape with the unobtrusive deletion of the "pseudo-simulator set". The resultant recording will be called the Group Susceptibility Scale: II, (GSS:II). A similar duplication of the GSS:II was performed, with the deletion of the deafness suggestion and the four post-deafness items. The third tape, therefore, retained only the items found on the HGSHS:A. The recording of the HGSHS:A was run through the duplicator, in an attempt to balance for "noise".

Therefore, the three recorded susceptibility scales used as the experimental instruments were the HGSHS:A, GSS:II, and the GSS:III.

Procedure

Subjects were tested in three, (twenty male and twenty female), groups during the same evening hour. The pre-recorded tapes were presented in a moderately sized room

(seating capacity=189) on a reel-to-reel tape recorder, with two large extension speakers arranged in the front and back of the room. The ambient sound level of the room was rated as good, with a decibel (dB) reading on the A scale of less than 40 dB(A). A post-hoc analysis of the maintained sound level of the recorded criteria for hypnotic deafness (three loud bangs and screams to "wake-up") was determined in the approximate center of the room to range from 90 - 98 dB(A). The approximate average was 94 dB(A) and because of the reverberent character of the room, the sound level would probably be very close to these levels at every subjects' seat. The particular order of the three scales was randomly determined from a random numbers table on the day of the first group session.

An undergraduate, upperclass male, unfamiliar with the experimental hypothesis, was the experimenter and recorded the master audiotape. Five male and four female undergraduates, similarly blind to the hypothesis, were the observers. Two, two hour practice sessions were arranged with all the observers/experimenter as a group. The purpose of the sessions was to expose the observers to the scoring criteria of the items, to practice scoring displayed samples of hypnotic behavior, as well as to inform them of the procedures involved. Five, one hour rehearsals and a two hour taping session were arranged with the experimenter.

During the meetings with the observers and the experimenter, the author attempted to maintain their naivety to the experimental hypothesis and theories of dissociation. The deafness suggestion and the post-deafness suggestions were presented to the observers and experimenter as an inherent part of the HGSHS:A. The pre-inquiry questionnaire was not seen and its contents were not discussed with any of the participants prior to its use with Group I, at which time the observers were able to see the cover page of the questionnaire but were encouraged not to look at the contents. A 2 hr. "dress rehearsal" was held two days before the scheduled first group. At the end of the rehearsal a five question, subjective questionnaire on; 1) experimenters' expectencies, 2) investigator's hypotheses, 3) personal hypotheses, 4) predictions of results, and 5) perceived role in the experiment, was handed out to all the participants. The participants were urged to complete the questionnaire, "as honestly and as reliably as you can". An envelope was handed to one of the observers and the investigator further requested that the questionnaire be completed "confidentially". He asked that the completed forms be placed in the envelope and sealed, and that he would not examine the contents until <u>after</u> the experiment was completed. The investigator then excused himself And sat in the back of the room.

A similar procedure, using the identical questionnaire, was given to the experimenters immediately after the data recording was completed for the final group (Group II Alternate, discussed later). After this procedure was completed the experimenters were fully debriefed.

Group I

After the subjects were comfortably seated in alternating rows, the experimenter greeted them while the observers handed out the self-report booklets (Shor & Orne, 1962) along with the pre-inquiry questionnaire. The experimenter then told the subjects the following:

> "The unsealed booklet that was just handed to you is a questionnaire that I would appreciate your filling out at this time. Please read the questionnaire carefully. I would like you to do that right now if you would please. Thank you."

After allotting ten minutes for the completion of the questionnaire the experimenter provided the preliminary remarks about hypnosis directly from the instructions in the Harvard Group Scale of Hypnotic Susceptibility Manual, (Shor & Orne, 1962). The pre-recorded tape of the HGSHS:A was then presented. Upon completing the HGSHS:A response booklet, the subjects were requested to turn in both questionnaires and credit was given for their participation.

Group II and Group III

The subjects allocated to each group were seated, greeted and handed a HGSHS:A response booklet, with the experimental manipulations insert, only. After prkviding

the general information about hypnosis, the experimenter proceeded with the presentation of the taped susceptibility scales. That is, the subjects in Group II (deafness group) were administered the GSS:II and, Group III (rationale plus deafness group) the GSS:III. The experimenter requested the subjects to turn in their completed response booklets and credit was given for their participation.

After the groups that met on the first two evenings had completed the response booklets, the experimenter urged the participants to; "Please do not talk of, or about, the experiment to your classmates. That might bias their participation and the experimental outcome. Thank you."

The subjects in all three groups were given an hour in the following week, when all interested individuals could ask questions and be debriefed by the author.

RESULTS

A 2 (sex) x 3 (groups/treatments) factoral design was subjected to an analysis of variance program. The analysis of variance on the subjects' responses to the 12 items of the HGSHS:A that were similar across the three groups is summarized in Table 1.

Insert Table 1 about here

There was a treatment main effect ($p<.01$). Table 2 displays the results of an a-posteriori Newman-Keuls test of pairwise comparisons in which a significant difference between the means of Group II (deafness group) and Group I (control group) ($p<.01$) and between Group II (deafness group) and Group III (rationale plus deafness) ($p<.05$) was found. There was, however, no significant difference between the means of Group III and Group I.

Insert table 2 about here

The treatment main effect appears to be the result of the inclusion of Group II's (deafness group) source of variance. An alternate (deafness) group was scheduled, and the double blind procedure was maintained. This group was administered GSS:II instructions to assess if the divergence from the expected hypothesis of no-treatment main effect was either due to inherent factors of the treatment or to spurious population variance. When the Group II alternate

(Gp 2A) data was inserted and the revised CRF 2 X 3 was subjected to an analysis of variance, no main effects were found. Table 3 summarizes these results.

Insert Table 3 about here

The Gp 2A data was used on only the above analysis of variance.

The results of the eight items on the HGSHS:A that were scored by the observers and the subjects were subjected to: 1)An analysis of variance using the subject scored responses. 2)An analysis of variance using the observer scored responses. 3)A split-plot factorial [2(sex) X 3 (groups) * 2(repeated measure; subject scored, observer scored)] analysis of variance. Table 4 summarizes the analysis of variance when using the subject scored responses on only 8 of the 12 items on the HGSHS:A, (excluding; eye closure, eye catalepsy, post-hypnotic suggestion, and amnesia). Although a significant treatment main effect persists, the probability has dropped to a $p<.05$.

Insert Table 4 about here

The analysis of variance on the observer scored items produced no significant main effects, as summarized in Table 5.

Insert Table 5 about here

The split-plot factorial analysis of variance is summarized in Table 6 and shows a significant repeated measure effect, however, no sex or treatment main effect was noted.

Insert Table 6 about here

Although a significant difference between subject scored and observer scored responses was noted, a Pearson Correlation Coefficient of .6637 (n=120) was obtained with significance greater than .001.

A Hartley's F-max test and a Chi-square test (for SPF 2X3*2) were performed on all the analyses of variance. The hypothesis of homogeneity of variance could not be rejected in any of the manipulations. The power of the analysis of variance F-test was determined for the CRF 2 X 3 (Kirk, 1968, p. 107) and the probability of rejecting a false null hypothesis exceeded .99 at the .05 level and equaled .984 at the .01 level (ϕ_B=2.92, v_1 =2, v_2 =114).

Table 7 outlines the percentage passing the specific items on the HGSHS:A. The groups are divided into male and female subjects' percent passing, as well as the total percentage passing. Four subjects had to be included in the subject pool who had previous experience with hypnosis. Four left handed and 5 ambidexterous (4 right, 1 left hand predominance) subjects were also included. Table 7 also summarizes the means and standard deviations across groups

over the 12 items and over the 8 items that were observer scored.

Insert Table 7 about here

Multiple Z-test comparisons of two binomial populations were performed to test the experimental hypothesis that subjects' predictions of performance would be significantly different than subjects' actual performance on the experimental items. Table 8 outlines the percent passing the specific items on the pre-inquiry questionnaire and the subject and observer scored percent passing the corresponding items in Gp II, IIA, and III. The 30 Z-test comparisons between predictions of performance and actual performance are also provided.

Insert Table 8 about here

On the average only 25.8% of the subjects reported that they did not flinch at the presentation of a loud noise after the suggestion of deafness. Observers reported, however, that 48.7% of the subjects did not display a startle response. The percentages of subjects' actual performances to the deafness suggestion when compared to the reported percentage of expected subject performance were significant for all comparisons ($p<.025$). The observer scored performances of the Gp III subjects to the suggestion is the only Z score which falls below the critical value at $p<.005$.

The first post-deafness suggestion (P-D #1). "...if you heard me, just raise the index finger of your left hand," resulted in subject and observer scored percentages of actual performance to be 92.3 and 92.5, respectively. When the actual performance percentages are compared to the predicted performance estimate of 37.5%, the Z value is significant well beyond the $p<.005$ level on all comparisons.

The Hidden Observer Question (HOQ, P-D #2), "...perhaps there is some part of you that is hearing my voice...If there is, I should like the index finger of your right hand to rise as a sign that this is the case", resulted in an average of 52.3% passing when subject scored and 53.3% passing when observer scored. The predicted performance percentage of 62.5 was significantly different than the actual performance percentages for Gps II and III. The alternate group II, Gp IIA, subjects did not perform significantly different than expected when subject or observer scored percentages were used. The drop in percentages of actual performance from P-D #1 to the HOQ percentage responding is noteworthy.

Subject scored actual performances, 86.6%, and observer scored performances, 78.3%, were significanty different than the 50% predicted performance in all cases of comparisons in response to P-D #3 ("Raise your right arm directly in front of you").

P-D #4, "...normal hearing is returning. Just nod your head when normal hearing returns", resulted in subject and observer scored percentages of 66.5 and 53.3, respectively. The comparisons of subject scored performance percentages and the predicted performance percentages, 47.5, were significantly different. The observer scored actual performance percentages, however, were not significantly different than the predicted percentage except for the Gp IIA comparison.

The occurance of a significant treatment main effect renders all of the inter-group comparisons, when using the data of Gp II, as exploritory in nature. The comparisons should therefore be viewed as possible trends in the exploration of expected and actual performance differences.

Of those subjects that reported having not flinched (n=30) to the loud noise after the suggestion of deafness, including Gp IIA subjects, none of the subjects responded to only the HOQ of the four post-deafness suggestions [P-D 1, 2(HOQ), 3, & 4]. On the other hand, 46.7% of those passing the suggested deafness reported responding to all the post-deafness suggestions and 26.6% responded to all but the HOQ (P-D #2) suggestion. The remainder of those reporting passing the deafness suggestion also reported responding to; P-D 1, 2, & 3 (10%), P-D 1 & 3 (6.7%), P-D 3 & 4 and P-D 2, 3, & 4 (3.3%). Only 2.5% of the total n,reported not having flinched and not having heard the noise. Furthermore, the

mean susceptability scores of those reporting passing the deafness suggestion (from the 12 items of the HGSHS:A) were 5.7 for Gp II (range, 1-12), 6.99 for Gp III (range, 0-11), and 6.9 for Gp IIA (range, 2-12). Of the thirty subjects passing the deafness suggestion, 7 had susceptibility scores from 0-4, 12 had scores from 5-8, and 11 had susceptibility scores from 9-12. The spread of scores is noteworthy.

Gp I subjects reported expecting 12.5% of experimental subjects to respond only to the HOQ, after not flinching in response to the noise. It was also reported that 37.5% of the experimental subjects were expected, according to the the responses on the pre-inquiry questionnaire, to respond to none of the post-deafness suggestions after initially passing the deafness suggestion. Of the remainder of Gp I subjects predicting that experimental subjects would not exhibit a startle respone at the presentation of the loud noise following the deafness suggestion also predicted; 29.2% to respond positively to P-D 1, 2, 3, & 4, 8.34% to P-D 1, 2, & 3, and 4.2% to P-D 2, & 4, P-D 4 only, and P-D 2, 3, & 4.

The stratification of the subjects in Gp I, into three intervals according to their reported degree of confidence (100-80, 60-40, 20-0 percent confident) towards their responses on the pre-inquiry questionnaire resulted in an n of 11, 23, and 6 respectively, with mean susceptibility scores on the HGSHS:A of 7.45, 7.6, and 7.33. Table 9

presents the mean differences in percentages of subjects' expected performance in response to the pre-inquiry questionnaire and the Z-test comparisons between the three stratified groupings.

Insert Table 9 about here

The comparisons between the least confident (20-0%) and the most confident (100-80%) resulted in very significant differences between all the responses to the five suggestions. Comparing the responses between the most confident and moderately confident, and moderately confident and least confident resulted in significant differences except for the response to the deafness suggestion in the 60-40 to 100-80 comparison.

The results of the subjective appraisal of the experimenters' biases showed that none of the participants, either at pre- or post- experiment, reported the experimental hypotheses or mentioned hypnotic dissociation.

On the pre-experiment questionnaire, the experimenter reported a negative expectation towards the ability of the HGSHS:A to successfully induce hypnosis, and reported the ineffectiveness of the instrument as the experimental hypothesis. Five observers reported that they "really didn't know" what the hypotheses were. The observers' generated hypotheses and their frequencies were: assess factors influencing susceptibility to hypnosis (i.e. sex,

handedness, and prior experience, not expectancies), 5; hypnosis is a state, 2; comparison of subject and observer scored responses, 2; and, interestingly, resultant amnesia after the suggestion of deafness, 5.

On the post-experiment questionnaire the experimenter reversed his initial hypothesis. He now reported that an inexperienced experimenter can administer the HGSHS:A with effective induction of hypnosis. He further reported expecting sex differences, with females being more susceptible than males. Observers reported: deafness effects recall, 4; sex and handedness effect susceptibility, 4; hypnosis is a state, 2; observer scored responses are more reliable than subject scored responses, 2; and, differing lengths of inductions produce proportional differences in susceptibility, 3. Three observers questioned about the contents of the questionnaire, all reported that it told subjects what suggestions were going to subsequently be given to them. Three observers also questioned the exclusion of the deafness suggestion from the one group (control). Only one observer hypothesized a reason for excluding the suggestion, and that was to allow time for the questionnaire to control for the lengths of presentations.

DISCUSSION

A group of subjects were not able to significantly approximate the actual performance of experimental subjects when given explicit written discriptions of the items. The comparisons between subject reported expectancies or predictions of performance (from the pre-inquiry questionnaire) and actual performance percentages (from the response booklets) generally produced very significant differences. The experimental subjects' performance percentages (deafness and rationale plus deafness groups) tended to be greater than was predicted and away from the direction expected from hypnotic "lore". That is, they reported exhibiting an overtly recognizable startle response to a loud noise after the suggestion of deafness and reported hearing, to a much greater degree than was expected or predicted. Specifically, as Hilgard (1977) reported, after a suggestion of deafness subjects usually will not respond to suggestions or questions asked of them. Furthermore, in the current investigation experimental subjects reported that they exhibited an overt startle response twice as often as was observed.

There was a significant difference between the group means on the susceptibility index from the HGSHS:A. Only one group's mean (deafness group) was significantly different when compared to the other two groups' mean (control and rationale plus deafness). When the same

procedures that were presented to the divergent group were used on another sample of subjects and the experimenters' total blindness condition was maintained the resultant mean was not significantly different when compared across groups. It appears that the observed treatment main effect was due to a biased population. The cause of the expected bias might have been the occurrence of an Introductory Psychology midterm on the day following the meeting of the deafness group (Gp II). Aside from the lack of significant main effects when an alternate group was tested, or when observer reported scores were used in the analysis, the identical deafness suggestion was administered to the one group whose mean was not significantly different from the control group. It does not appear that the inclusion of the deafness suggestion and testing criteria adversely effects the reliability of the HGSHS:A (Shor & Orne, 1962) as a measure of susceptibility to hypnosis.

The procedure described here to explore a behavior in the domain of hypnosis appears amenable to further investigation. The major advantage of the procedure is the simple assessment of treatment effects with substantial "power" to reject a false null hypothesis. The use of common dependent measures across groups provides for the ease in comparison. Specifically, the procedure can be described as an extended factorial of "(X) O O, O X O, O [X] O", design, where "O O" is the common dependent measure, "X" is the active treatment or behavior in question, "(X)" is

the explicit description of the treatment (pre-inquiry questionnaire), and "[X]" is the active treatment with the rationale or "set" used in the pre-inquiry questionnaire. The investigator is then provided with percentages of subjects expecting the performance of the behavior, the percentages of subjects actually performing the behavior, and a check to determine the effects of the rationale on the behavior in question.

A major drawback in pre-inquiry questionnaire procedures is the difficulty encountered in communicating the situational variables that will confront the experimental subjects. The low correlations that have been reported (Shor, 1971) between expectancies of being influenced with actual hypnotic performance is therefore not very startling. The research on the "correlational dependancies" usually do no more than report them, and compare global variables. The uniqueness of Shor's investigation was the use of explicit written descriptions of the specific items on the HGSHS:A. An investigator interested in a specific behavior (such as suggested deafness), could shortcut the requested labor of the subjects by providing explicit descriptions of <u>only</u> the "treatment" in question and thereby compare expectancies or predictions to perform with actual performance.

The uniqueness of the current procedure was that the insert which explicitely described the "treatment" and presented the scoring criteria was identical for both the control and experimental groups. Therefore, comparisons between the predictions of performance (from the pre-inquiry questionnaire) or expectancies and actual experimental performance (from the response booklets) could be made. The assessment of expectancies is a necessary requirement to prepare for arguments centering on the behavior being due to artifact. Generally, the situational variables which need the tightest control are those associated with demand or experimenter biases. It is therefore assumed that a totally blind (Rosenthal, 1969) procedure is maintained. Furthermore, investigators should assess the experimenters' biases and perceived role in pre- and post-experiment questionnaires in a "confidential" or unobtrusive manner (Borkovek & Nau, 1972, Orne, 1969; Rosen, 1977).

The current investigation determined that the experimenters were (reportedly) blind to the hypotheses before and after all of the experimental manipulations. The situational factors that the experimental subjects were faced with, however, did not appear to have been adequetly communicated in the present pre-inquiry (expectancy) questionnaire. The questionnaire described the stimulus to assess deafness as, "three loud bangs and screams to "wake up" (underlining included)". The experimental subjects were presented a stimulus exactly as described, except at an

intensity level of approximately 94 dB(A) after 10 seconds of silence. For comparative purposes, subway trains produce a gradual rise in sound intensity which levels off at approximately 90 dB(A). The ear is able to adapt to the gradual rise but an abrupt loud noise is startling. The description of the stimulus on the questionnaire does not convey the sound intensity of the loud noise.

Therefore, it is not surprising that the predicted percentages of performance were so drastically divergent from actual performance percentages. Furthermore, it is not surprising that three quarters of the experimental subjects exhibited a startle response at the presentation of the noise. This includes subjects that were given the pseudo-simulator set of "respond as you think a highly hypnotizable subject would respond", ("[X]"), or not given the rational, ("X"),. Likewise, the percentage of subjects who reported "hearing", in response to the first post-deafness suggestion, was 90% for both groups.

The expectancy questionnaire also contained a Likert-type scale to assess the degree of confidence the subject felt towards his responses. The stratification of subjects into three goups suggested strong trends in different modes of responding to the questionnaire items between high confidence and low confidence subjects. The attributional question (Bowers, 1973) appears to be applicable: Was the response difference an effect of

situational variables or the dispositional factors of the subject? Since all the subjects were naive to hypnosis, the only pre-knowledge that they might have was acquired from "lore". The role that pre-knowledge about hypnosis might have on the behavior, either as an interaction with situational or dispositional factors or alone, requires further investigation. It is generally assumed that subject naivete' minimizes the intrusion of biasing artifacts. However, the lack of exposure to hypnotic-like behavior might dampen the generalizability of the pre-inquiry procedure, as well as, decrease the confidence a subject reports towards his responses. The addition of two experimental groups, to the three groups already described, would appear to provide some of the information that is needed in future investigations. A "(X) O X O" group would provide information of a repeated measures variety. That is, correlational information as to the subjects' preconceptions or expectancies to perform and the subjects' later performance. However, the investigator is plagued with the bias associated with practice effect. A second group, which would provide information on the effects of pre-knowledge, might be of an "O O (X)" type. The subject would have experience with a standard hypnotic procedure and would now have source information about the behavior and phenomenalogical experiences of hypnotic-like behavior to base his predictions of experimental subjects' performance.

A striking disparity between subject reported and observer reported startle response percentages was noted. The consistant disparity might be caused by many variables acting seperately or interdependently. Some of the variables might be that the observers themselves were not able to prepare for the loud noise and did not observe the instantaneous movements of the subjects, but this was not reported when asked. The subjects might have not overtly responded or exaggerated the overtness of their responses (e.g. "I think I twitched my eyebrow", however this type of exaggeration was only reported by one subject). Only in 7 cases (5.8%) did observers report a startle response and the subject did not. Further investigation using videotaped procedures are needed to further assess the disparity.

The current finding that hypnotically suggested deafness is a limited behavior exhibited by subjects in the repertoire of hypnosis does not contradict the literature (Hilgard, 1975, 1977; Watkins, Note 1). The lack of subjects reporting not to have been startled and not having "heard" the experimenter or noise, 2.5% of total n, further suggests the limits of suggested deafness in the analoque population.

Although the current investigation suggested that the vast majority of subjects exhibit a startle response to loud noise, the use of this criteria to screen for deafness would have resulted in a plethora of Type II errors. Only three

subjects (a fourth was randomly ejected from inclusion in the study) out of thirty who reported not having exhibited a startle response also reported not having heard the noise. If observer reported startle was the criteria, the error would have been more than doubled.

Suggested deafness is generally accepted as being related to high levels of susceptibility. If the criteria is overt responding to a loud noise then the current investigation tends to contradict this premise. Sixty-three percent of the subjects who did not exhibit an overt (subject reported) startle had susceptibility scores on the HGSHS:A of less than 9, not a criteria for the selection of highly susceptible subjects. Scores of four or less were obtained by 23% of the subjects. The group means on the HGSHS:A in the current investigation are comparable to the standardized means (Shor & Orne, 1962). With the HGSHS:A producing a heavily weighted top (Hilgard, 1973), the spread of scores that non-startled "deaf" subjects displayed tends to approximate a normal distribution. The criteria of an overt response to the presentation of a loud noise is, by itself, inappropriate to screen for suggested deafness.

Hilgard (1973) and Bowers (1973) have suggested the use of subjective reports to serve as correctives to objective scores and to assess the subjects' attributions towards the situation. Let us first look at the reports of the three, reportedly "deaf" subjects. We find that one (HGSHS:A score

of 6) responded to none of the post-deafness suggestions and stated, "he told us we were deaf". The other (HGSHS:A score of 9) responded to P-D #3 and #4, and reported, "I could still hear a little". The third subject (HGSHS:A score of 10) responded to P-D #2, #3, & #4, and stated, "I didn't hear them at all, just responded to the voice". The ejected fourth "deaf" subject responded to P-D #2, #3, & #4, and reported, "I wasnt deaf and could always hear the voice". When correcting the objective scores with later subjective reports given after "awakening" and reminded of the suggestions, only two subjects might be considered "deaf". Two further subjects did subjectively report "deafness". One reported a startle response (not corroborated by the observer) and responded to all the post deafness suggestion (HGSHS:A score of 7), but reported, "I didn't hear anything as far as I can remember". The other subjects subjectively reported that it "felt as though my head was underwater, I could hear the noices but I wasn't going to pay attention to it." This subject was also not included in the study due to his not fully completing the self-report questionnaire associated with the HGSHS:A. No other subject that was excluded reported deafness. This excluded subject reported not knowing if he exhibited a startle response or if he responded to the first post deafness suggestion, he did report responding to P-D #2, #3, & #4. Observer reported that the subject did not exhibit a startle or respond to <u>any</u> of the post deafness suggestions.

The corrective use of subjective reports further limits the use of "response to loud noise" as the cutoff criteria for suggested deafness. The subjective reports leaves us with four out of 140 subjects (Group II alternate included, only 120 subjects were used in the statistical manipulations) administered a deafness suggestion who either report or exhibit behavior expected of hypnotically suggested deafness. All of the remainder of subjects reported/observed a startle response in connection to the presentation of a loud noise or reported responding to the first post-deafness suggestion and stated that they were able to hear or were not deaf.

Hearing the experimenter but not overtly responding to noise or direct question/suggestions was the precursory set of behaviors that Hilgard (1975) metaphorically labelled the hidden observer phenomena or what Watkins & Watkins (Note 3) refer to as the "hearing" ego state. They report that when the subject is questioned for the "some part of you that hears" and that part is called on, or ego-cathected, the subject reports having heard--the hidden observer. Both theorists, however, emphasized the dissociative quality of the experience. There is said to be a type of communication barrier between the "deaf" part and the "hearing" hidden observer, with information being processed in only one direction. The first post-deafness suggestion appears to be very similar to the questions Hilgard reports were not responded to by his hypnotically deaf subject. Questions

like, "can you hear me", were only answered after the hidden observer had been "activated".

The second post-deafness suggestion was worded identically to Hilgard's, and labelled the hidden observer question. It is important to note that the hidden observer question is directed to "hypnotically deaf" subjects. The investigator expected that there would be a small, but workable, number of subjects who would not exhibit a startle and would not respond to the direct question of "did you hear me" and would consider themselves as hypnotically deaf. Unfortunately, only two (possibly the third who heard "a little"), experimental subjects fell within this catagory. As has been previously mentioned one did not respond and the other responded to the hidden observer question and the next two post-deafness suggestions. The current investigation is therefore ill equiped to ascertain the degree to which demand or expectancies effect the hidden observer or to further delineate the behavior within the domain of hypnosis. The hidden observer phenomena, as related to hypnotic deafness, appears to be an extremely limited behavior exhibited by the analoque population studied.

The subjective reports tend to suggest that the relatively low response percentages to the hidden observer question might have been due to the very fact that most subjects did not experience themselves as hypnotically deaf. Of the subjects who did not flinch, 26.6%, reported this as

the reason for not responding to the hidden observer question. All of the subjects who specifically mentioned P-D #2, the hidden observer question, reported the above mentioned comment.

The current investigation was geared towards asssessing the responses of a large subject population to a specific behavior, hypnotic deafness. If however, future investigators would want to assess the suggestion of hearing impairment, the current investigation affords some suggestions. The deafness suggestion might be lengthened and the subjects given a positive hearing impairment set. This set might be, "you are beginning to experience a decrease in the sound level around you", or a presentation of a "soft" noise, which could be suggested not to be heard. The investigator might also avoid the fear that some subjects report to sensory loss by: 1) Suggesting enhancement of hearing or hearing impairment rather than hearing loss. 2) The suggestion might focus on the subjects ability to hear the experimenters voice, and only his/her voice, and be "deaf" to all other noise.

Thirty-three percent of those subjects that did not overtly respond to the loud noise did, however, subjectively report some form of hearing decrement. Subjects reported that, "ears were a little clogged", "could only hear the voice", "was surprised at my lack of startle", or "I could hear, but it did not scare me."

The results of the current investigation indicate that hypnotically suggested deafness is a limited behavior, with a low frequency of occurrence. The results do not contradict the findings that hypnotically suggested deafness can result in sensory changes (Black & Wigan, 1969; Erickson, 1938; Graham & Schwarz, 1973; Hilgard, 1975, 1977; Kline, Guze & Haggerty, 1954). However, the inadequate communication of the stumulus intensity to assess deafness on the pre-inquiry questionnaire, tends to render the highly significant differences betweeen predictions of performance and actual performance percentages as questionable. Holombo, (Note 2) did find one subject that was tested to be hypnotically deaf in one ear, after the hypnotic suggestion of lateral deafness. Her follow-up investigation did not support this finding even after extended training of highly experienced subjects (Note 5). The finding that one person was able to appropriately respond to a "fool-proof" test for hearing loss (Stenger test) is still very significant. It does not appear feasable to assess thousands of subjects in order to amass a handful of subjects that approximate clinically significant deafness. However, following the work of Graham and Scharz (1973) on signal detection would appear to be a fruitful adventure (Grossberg & Grant, 1978). By obtaining information on the detectability of signals, by motivated non-hypnotized subjects, of varying intensities and probability of occurances, "receiver operating curves" can

be generated. The performance of subjects either susceptible or simulating, can then be quantifiably compared across the ability to discern a stimulus and furthermore, estimate the bias of the subject. The hypotheses would not be deaf or not deaf, but, how and in what direction does a hypnotic suggestion effect behavior.

A number of investigators have discussed the multiple factors that effect a subject's responsiveness to hypnotic suggestion, (Barber, 1969; Orne, 1959, 1969; Shor, 1971) and spoke of the interactive influences of these factors. It is apparent that certain factors are salient and that the factor weightings to a given hypnotic-like behavior requires further investigation. Clearly, the situation, the induction, the suggestions, the subjects' attitude and expectancies and the interactions between any and all of these variables effects subsequent behavior.

The field of hypnosis appears to be best served if a specific behavior, like suggested hearing impairment or attenuation, was studied in pursuit of the weightings of each factor and their interactions on behavior. The goal might be to develop a cybernetic model (McFarland, 1971; Powers, 1973) for a specific hypnotically suggested behavior. The components, or factors, in the system could be labelled and the feedback loops specified. A group procedure to screen large numbers of subjects on a specific behavior in the domain of hypnosis was presented. Deafness

appears to be very limited and it was suggested that hearing impairment or enhancement be further investigated. The results tend to suggest that the use of an overt response to loud and unexpected noise, as the criteria for deafness would be met with considerable numbers of Type II errors. Furthermore, if the "no-startle" criterian were used in the current investigation, the resulting distribution of "deaf" subjects approached a normal distribution. The use of subjective reports as correctives to objective scores was suggested and implemented. It was further suggested that signal detection and the cybernetic model should continue to be investigated as possible procedures for the delineation of behaviors within the domain of hypnosis.

SUMMARY

In an effort to delineate the identified behavior of hypnotically suggested deafness and post-deafness responding within the domain of hypnosis, normative data was presented on 189 undergraduates. Studies dealing with suggested deafness have reported that sensory changes are significantly more apparent for hypnotically suggested deaf subjects than "controls". Only one study reported that hypnotic suggestions did produce deafness when hearing was tested according to clinical criteria or that hypnotically suggested deafness was similar to organic deafness. Discussions that refer to hypnotic deafness tend to focus on the confounding effects of experimental artifacts on subjects' responses. Furthermore, it is generally assumed that suggested deafness is a limited behavior in the domain of hypnosis exhibited only by highly susceptible subjects.

A procedure which attempted to minimize the effects due to artifact and also provide information about the expectancies towards the performance of suggested deafness and post-deafness suggestions, as well as, the frequency of the behavior occuring in an experimental situation was presented. One hundred twenty subjects, balanced for sex, experience with hypnosis, and handedness, were divided in three groups. The procedure could be illustrated as an, "(X) O O, O X O, O [X] O" factorial design. In this design, "O O" is the Harvard Group Scale of Hypnotic

Susceptibility:Form A (HGSHS:A), "X" is the experimental manipulation of a suggestion of deafness followed by "three loud bangs and screams to wake up" and four post-deafness suggestions, "[X]" being the experimental manipulations presented after the simulator rationale ("respond as you think a highly hypnotizable subject would respond") is presented, and "(X)" is the pre-inquiry questionnaire presented to the control group, which explicitely describes the experimental manipulations and provides the scoring criteria to be answered as "they think highly hypnotizable subjects would respond". Subjects self-scored their responses in the HGSHS:A response booklet and in addition, responses to eight of the 12 items were also scored by double blind observers using the same criteria. The description of the experimental manipulations and the scoring criteria had an identical wording and format in both the pre-inquiry questionnaire and response booklet. Therefore, there was a common scale of measurement from which group percentages of predictions for performance and actual experimental performance percentages could be obtained and compared.

As had been predicted the mean differences between predictions of performance and actual performance were generally highly significant. Control subjects, therefore, were not able to accurately predict the performance of experimental subjects responding to a deafness suggestion or post-deafness suggestions. The difficulty in communicating

the situational factors (on a paper-and-pencil questionnaire) that the experimental subjects face, was offered as a possible explanation for the current findings, as well as, for the small correlations of predictions with later hypnotic performance reported in the literature. For example, the pre-inquiry questionnaire reported that the experimental subjects were presented with "three loud bangs and screams to wake up". The experimental subjects were presented exactly that but at a decible level (94 dB[A]) comparable to a subway train entering a quiet living room.

Another hypothesis was that the inclusion of the experimental manipulation would not adversely effect the mean susceptibility obtained from another common scale of measurement, the HGSHS:A. This hypothesis was partially supported in that the experimental group which received the simulator set and experimental manipulations, "[X]", was not significantly different from the control group when the mean susceptibility scores were compared. However, the group that received the experimental manipulation, (deafness group, "X"), had a mean susceptibility score that was significantly different than both the control group and the other experimental group. In order to explore the findings, an alternate group was run while maintaining the "blindness" of the experimenters and balancing for sex, experience, and handedness. This alternate group received the experimental manipultations, "X", and the mean susceptibility score was not significantly different than either of the other two

groups. It would therefore appear that factors outside of the experimental manipulations (namely, the biasing effect of an Introductory Psychology midterm on the day following the meeting of the first experimental group) effected the mean susceptibiltiy scores of the subjects in the initially divergent group.

The normative findings of the current investigation seem to confirm the assumption that hypnotically suggested deafness is a limited behavior exhibited within the domain of hypnosis. However, the findings strongly suggest that subjective reports are required as correctives for objective scores. If the criteria for "deafness" had been solely based on the subjects reports of no startle in response to the loud noise, over 90% of these subjects would have been Type II errors. Thirty of the 140 experimental subjects reported that they did not exhibit a startle response (observers reported over twice as many). After correcting with subjective reports only two (2) subjects exhibited/reported hypnotically suggested deafness. The criteria of no startle reaction to loud noise does not appear to be a reliable determinant of suggested deafness. The distribution of susceptibility scores for the thirty subjects reporting a lack of startle response approached a normal curve and the susceptibility scores of the two "suggested deaf" subjects were 6 and 10.

The very small number of subjects who were reportedly "deaf" rendered the discussion of the hidden observer phenomena and post-deafness suggestions as exploritory in nature.

The findings are discussed in terms of the application of the present procedure to the collection of normative information on a specific behavior in the domain of hypnosis. Furthermore, the study of hypnosis appears to be best served by experimentation aimed at delineating the interactive factors associated with any specified behavior. The determination and weighting of the factors could be approached through a cybernetic model.

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TABLES

Table 1

Analyses of Variance
Summary Table
CRF 2(sex) X 3(groups)

using
HGSHS:A Susceptibility Scores

Error terms

	Sums of Squares	Mean Square	df
1	996.200	8.7385	114

Sources of Variance	Sums of Squares	Mean Square	df	F ratio	prob
A (sex)	0.83333	0.83333	1	0.095	0.75618
B (groups)	92.1500	46.0750	2	5.273	0.00659**
AB	20.5167	10.2583	2	1.174	0.31285

Total Sum of Squares = 1109.7

**$p < .01$

FMAX = 2.75 For Females Group I and Males Group III

Table 2

Newman-Keuls
Pairwise Comparisons of Group Means
Summary Table

GROUPS	means	Gp II	Gp III	Gp I
Gp II	5.4		1.325*	2.125**
Gp III	6.725			1.200
Gp I	7.525			

** $p<.01$
* $p<.05$

Table 3

Analyses of Variance
Summary Table
Revised CRF 2(sex) X 3(groups)
Gp 2A data inserted

using
HGSHS:A Susceptibility Scores

Error terms

	Sums of Squares	Mean Square	df
1	1107.45	9.71447	114

Sources of Variance	Sums of Squares	Mean Square	df	F ratio	prob
A (sex)	6.07500	6.07500	1	0.625	0.56340
B (groups)	48.0667	24.0333	2	2.474	0.08678
AB	1.40000	0.7000	2	0.072	0.93008

Total Sum of Squares = 1162.99

FMAX = 2.75 For Females Group I and Males Group III

Table 4

Analyses of Variance
Summary Table
CRF 2(sex) X 3(groups)

using
Subject scored responses
to eight items on the HGSHS:A

Error terms

	Sums of Squares	Mean Square	df
1	536.000	4.70175	114

Sources of Variance	Sums of Squares	Mean Square	df	F ratio	prob
A (sex)	7.50000	7.50000	1	1.595	0.20648
B (groups)	38.8500	19.4250	2	4.131	0.01812*
AB	26.1500	13.0750	2	2.781	0.06445

Total Sum of Squares = 608.500

*$p < .05$

FMAX = 1.87 For Females Group I and Males Group III

Table 5

Analyses of Variance
Summary Table
CRF 2(sex) X 3(groups)

using
Observer scored responses
to eight items on the HGSHS:A

Error terms

	Sums of Squares	Mean Square	df
1	432.799	3.79648	114

Sources of Variance	Sums of Squares	Mean Square	df	F ratio	prob
A (sex)	1.20000	1.20000	1	0.316	0.58201
B (groups)	6.65600	3.32800	2	0.877	0.57807
AB	1.77800	0.88900	2	0.234	0.79441

Total Sum of Squares = 442.433

FMAX = 1.98 For Males Group I and Males Group II

Table 6

Analyses of Variance
Summary Table
SPF 2(sex) X 3(groups) * 2(repeated measure)

using
Subject and Observer scored responses
to eight items on the HGSHS:A
as the repeated measure

Error terms

	Sums of Squares	Mean Square	df
1	803.230	7.04587	114
2	165.569	1.45236	114

Sources of Variance	Sums of Squares	Mean Square	df	F ratio	prob
A (sex)	7.35000	7.35000	1	1.043	0.31004
B (groups)	38.59300	19.2965	2	2.739	0.06713
AB	20.64400	10.3220	2	1.465	0.23396
J (repeated measure)	12.9735	12.9735	1	8.933	0.00375**
AJ	1.3500	1.3500	1	0.930	0.66134
BJ	6.9130	3.4565	2	2.380	0.09511
ABJ	7.2840	3.6420	2	2.508	0.08398

**$p < .01$

Total Sum of Squares = 1063.91

FMAX = 1.78 For Males Group I and Males Group II
CHI SQUARE 1 = 8.1997, df 15
CHI SQUARE 2 = 2.2752, df 1

Table 7

Percentage Passing
Items from the HGSHS:A

N=20	Gp I			Gp II			Gp IIA			Gp III		
ITEMS	m	f	T	m	f	T	m	f	T	m	f	T
AMNESIA	85	55	70	70	20	45	60	40	50	45	35	40
*HEAD FALL												
S-scored	90	85	87.5	65	70	67.5	70	60	65	85	75	80
O-scored	50	65	57.5	40	40	40	45	40	42.5	45	65	55
EYE CLOSURE	70	65	67.5	70	35	52.5	55	40	47.5	85	35	60
*HAND LOWERING												
S-scored	75	75	75	60	85	72.5	65	70	67.5	85	80	82.5
O-scored	75	70	72.5	70	75	72.5	55	75	65	85	75	80
*ARM IMMOBILE												
S-scored	60	55	57.5	25	65	45	50	45	47.5	60	65	62.5
O-scored	40	50	45	60	35	47.5	50	50	50	55	35	45
*FINGER LOCK												
S-scored	65	70	67.5	50	60	55	65	70	67.5	80	75	77.5
O-scored	70	80	75	85	85	85	75	65	70	85	75	80
*ARM RIGIDITY												
S-scored	65	65	65	20	50	35	60	50	55	60	65	62.5
O-scored	55	50	52.5	30	40	35	50	45	47.5	60	65	62.5
DEAFNESS SUGGESTION												
FOUR POST-DEAFNESS SUGGESTIONS												
*MOVING HANDS TOGETHER												
S-scored	70	80	75	50	65	57.5	55	65	60	75	55	65
O-scored	75	60	67.5	40	75	57.5	60	50	55	60	50	55
*COMMUNICATION INHIB.												
S-scored	65	55	60	30	65	47.5	45	60	52.5	65	60	62.5
O-scored	30	40	35	35	35	35	50	40	45	40	50	45
*FLY HALLUCINATION												
S-scored	30	40	35	10	20	15	20	25	22.5	15	15	15
O-scored	45	45	45	15	30	22.5	20	30	25	20	15	17.5
EYE CATALEPSY	50	60	55	20	55	37.5	60	40	50	50	50	50
POST-hypnotic	30	45	37.5	10	15	12.5	20	15	17.5	0	10	5
MEAN	7.6	7.45	7.525	4.75	6.05	5.4	6.25	5.7	5.975	7.05	6.4	6.72
S.D	3.32	2.65		2.14	3.55		3.46	2.87		2.7	3.15	
*S-scored Means	5.2	5.25	5.22	3.05	4.85	3.95	4.3	4.45	4.375	5.25	4.9	5.07
*O-scored Means	4.45	4.6	4.525	3.75	4.22	3.96	4.05	3.9	3.87	4.4	4.33	4.36

* comprise the eight items that are subject and observer scored

Table 8

Percentages and Comparisons
of Subjects' Predictions of Performance and
Actual Experimental Performance on the
Deafness Suggestion and Four Post-Deafness (P-D) Suggestions

Group I	Items	Group II	Group IIA	Group III
	deafness			
	% did not flinch			
60	subject scored---	25	27.5	25
	observer scored---	42.5	50	52.5
	Z--S	11.114**	10.359**	11.194**
	Z--O	5.535**	3.178**	2.390*
	P-D #1			
	% lift finger			
37.5	subject scored---	90	97.5	90
	observer scored---	90	92.5	95
	Z--S	17.268**	20.254**	17.268**
	Z--O	17.268**	18.232**	19.227**
	P-D #2			
	(HOQ)			
	% lift finger			
62.5	subject scored---	50	57.5	50
	observer scored---	42.5	67.5	50
	Z--S	3.984**	1.614	3.984**
	Z--O	5.332**	1.657	3.984**
	P-D #3			
	% lift arm			
50	subject scored---	85	87.5	87.5
	observer scored---	82.5	90	62.5
	Z--S	11.815**	12.791**	12.791**
	Z--O	12.875**	13.802**	4.264**
	P-D #4			
	% nod head			
47.5	subject scored---	67.5	65	67.5
	observer scored---	50	57.5	52.5
	Z--S	6.397**	5.578**	6.397**
	Z--O	0.791	3.166**	1.581

** $p<.005$
* $p<.025$

Table 9

Mean Differences
and Z-test comparisons
in response to the pre-inquiry questionnaire's
Degree of Confidence Scale

reported % of confidence	80-100%	40-60%	0-20%
100-80		n=34	n=17
dfns		3.55	31.82
#1		6.32	-21.22
H0		5.53	10.61
#3		- 6.32	-12.12
#4		-15.42	-21.22
60-40			n=29
dfns	1.51		28.26
#1	2.21*		-27.54
H0	2.24*		- 5.08
#3	2.21*		- 5.80
#4	5.33**		- 5.80
20-0			
dfns	16.94**	11.74**	
#1	10.31**	10.29**	
H0	6.07**	2.33*	
#3	5.98**	2.22*	
#4	10.31**	2.22*	

**$\underline{p}$<.01
*$\underline{p}$<.05

APPENDIX A: Dependent Measures

HGSHS:A Response booklet
Pre-inquiry Questionnaire

(HGSHS:A)

RESPONSE BOOKLET

PLEASE SUPPLY THE INFORMATION REQUESTED BELOW

NAME:_____ DATE:_____

AGE:_____ SEX: _____ CLASS:_____

PRESENT ADDRESS:_____

_____

PHONE:_____

HANDEDNESS: ( ) Right, ( ) Left, ( ) Both
If Both, ( ) right, most of the time
( ) left, most of the time

HAVE YOU EVER BEEN HYPNOTIZED? ( ) yes, ( ) no

If yes, please cite the circumstances and describe your experiences.

Would you be interested in participating in any further research in hypnosis?
( )YES, ( ) NO

DO NOT OPEN THIS BOOKLET until the examiner specifically instructs you to do so.

DO NOT OPEN THIS BOOKLET

Please write down in your own words a list of the things that happened since you began looking at the target. Please try to mention all the different things you were asked to do. You have three minutes to write out this information.

Please DO NOT TURN THIS PAGE until the examiner specifically instructs you to do so

"Now you can remember everything."

Write down a list of anything else that you remember now that you did not remember previously. You have two minutes to write out this information.

Please DO NOT TURN THIS PAGE until the examiner specifically instructs you to do so

PLEASE DO NOT RETURN TO EARLIER PAGES

Listed below in chronological order are the specific happenings which were suggested to you during the standard hypnotic procedure.

Please answer the questions in the remainder of the booklet. Use your own judgement where the questions seem ambiguous. We wish you to estimate whether or not you objectively responded to these suggestions. Note that the questions are worded in an objective manner on how you think someone else would have observed your response to the specific suggestions. Please answer every question.

You were asked to think of your head falling forward. That when thinking of your head falling forward you would experience a tendency to make the movement.

Would an observer have noted that your head fell forward, two (2) or more inches from the upright position?

( ) Yes, ( ) No

You were then suggested that your eyelids were getting heavy as you continued to look at the target. That they would seem so heavy and your eyes be so tired that they would close of themselves.

Would an observer have noted that your eyes closed, and remained closed, (before the examiner instructed you "to just let your eyes close")?

( ) Yes, ( ) No

You were then instructed to extend your left arm straight out in front of you and that it was beginning to feel as heavy as lead. That your arm was becoming so heavy as though a weight were pulling the hand and the arm down.

Would an observer have noted that your hand and arm fell down six (6) or more inches from the extended position, (before you were told to let your arm down)?

( ) Yes, ( ) No

GO TO THE NEXT PAGE

You were then suggested that your arm was heavy, as heavy as lead. That you would not be able to lift your arm, even if you tried.

Would an observer have noted that you did not raise your arm one (1) inch or more from the resting position, (before you were told to stop trying)?

( ) Yes, (✓) No

You were then asked to interlock your fingers tightly together. It was suggested that your fingers and hands were so tightly interlocked that you couldn't take your hands apart even if you tried.

Would an observer have noted that you did not completely separate your hands and your fingers (before you were told to stop trying to take them apart)?

(✓) Yes, ( ) No

You were then instructed to extend your left arm straight out in front of you and that it was beginning to become stiff as a bar of iron. That your arm was so stiff that it was impossible to bend, even if you tried.

Would an observer have noted that you did not bend your arm two (2) or more inches from the extended, straight position, (before you were told to stop trying)?

(✓) Yes, ( ) No

GO TO THE NEXT PAGE

You were then suggested that your ears would soon begin to feel plugged as the experimenter began to count. Your ears would become more and more plugged and you would momentarily loose your hearing until you were touched on the shoulder. When you were touched on the shoulder normal hearing was to return. He then began to count and total deafness was suggested.

Three loud bangs and screams to "wake up" were then presented.

Would an observer have noted that you did not flinch or respond in a startled manner to the shouts or the pounding?
( ) yes, ( ) no

Answer the following questions in the boxes provided. Your shoulder had not been touched.

The experimenter then stated: "Not being able to hear is a very alarming experience, and I can appreciate that. You've done a fine job and I thank you. Now, if you heard me, just raise the index finger of your left hand."

Would an observer have noted that the index finger of your left hand had lifted, or made a noticible movement, in response to the suggestion?
( ) yes, ( ) no

He then said: "Although you are hypnotically deaf, perhaps there is some part of you that is hearing my voice and processing the information. If there is, I should like the index finger of your right hand to rise as a sign that this is the case."

Would an observer have noted that the index finger of your right hand had lifted, or made a noticible movement, in response to the suggestion?
( ) yes, ( ) no

He then said: "Raise your right arm directly in front of you."

Would an observer have noted that your right arm had lifted from the resting position, or made a noticible movement, in response to the suggestion?
( ) yes, ( ) no

The experimenter then stated: "That's fine, normalhearing is returning. Just nod your head when normal hearing returns."

Would an observer have noted that your head "nodded", or made a noticible movement, in response to the suggestion?
( ) yes, ( ) no

please
TURN THE PAGE

You were then instructed to hold both hands, palms facing toward each other, straight out in front of you about a foot apart; and to imagine that a force was pulling your hands together. That your hands would be moving closer and closer together.

Would an observer have noted that your hands were not over six (6) inches apart, (before you were told to return your hands to their resting position)?

( ) Yes, ( ) No

You were then suggested that it might be very difficult to communicate while so deeply relaxed. You were asked to try to shake your head "No".

Would an observer have noted that you did not shake your head in a recognizable "NO", (before being instructed by the examiner to "shake your head easily now ")?

( ) Yes, ( ) No

You were then asked to be attentive to a fly buzzing around the room, buzzing annoyingly nearer and nearer to you. That you would like to shoo it away so as to get rid of it.

Would an observer have noted that you made a movement (twitched, shook your head, arm or hand movement) in response to the suggested annoyance of the fly, (before you were instructed to do so)?

(✓) Yes, ( ) No

You were then suggested that your eyes were tightly closed shut, as if they were glued together. That you would not be able to open them, even if you tried.

Would an observer have noted that you did not open your eyes , (before you were told to stop trying)?

( ) Yes, ( ) No

You were then instructed that when you heard a tapping noise, like the one illustrated, you would reach down and touch your left ankle.

Would an observer have noted that you made a movement (hand or arm, body, leg) towards or in reference to your left ankle in response to the tapping noise,

( ) Yes, ( ) No.

CONTINUE ON NEXT PAGE

(used with the experimental groups)

YOU MAY NOW REFER TO EARLIER PAGES
BUT PLEASE DO NOT WRITE ANYTHING FURTHER ON THEM

SECTION ON INNER, SUBJECTIVE EXPERIENCES

Regarding the suggestion of Experiencing a Fly- how real was it to you? How vividly did you hear and feel it? Did you really believe at the time that it was there? Was there any doubt about its reality?

Regarding the suggestions of Deafness- how real was it to you? Was there any doubt about your being deaf? For what reasons did you respond they way you did to the suggestions given after deafness was suggested?

On the remainder of this page please describe any other of your inner, subjective experiences during the procedure which you feel to be of interest.

Any comments or suggestions?

THANK YOU FOR YOUR COOPERATION

(used with the 'control' group)

YOU MAY NOW REFER TO EARLIER PAGES
BUT PLEASE DO NOT WRITE ANYTHING FURTHER ON THEM

SECTION ON INNER, SUBJECTIVE EXPERIENCES

REGARDING THE SUGGESTION OF EXPERIENCING A FLY-- how real was it to you? How vividly did you hear and feel it? Did you really believe at the time that it was there? Was there any doubt about its reality?

REGARDING THE TWO SUGGESTIONS OF HAND LOWERING (LEFT) AND HANDS MOVING TOGETHER-- was it subjectively convincing each time that the effect was happening entirely by itself? Was there any feeling either time that you helping it along?

On the remainder of this page please describe any other of your inner, subjective experiences during the procedure which you feel to be of interest.

Any comments or suggestions?

THANK YOU FOR YOUR COOPERATION

(Pre-inquiry Questionnaire)

NAME:_____ RESPONSE BOOKLET NO.:_____

SEX: ( ) Male, ( ) Female

PLEASE READ CAREFULLY

Use your imagination and try to consider that the following conditions exit. Ready?

You are an individual who has had experience with hypnosis. That is, you know how a person would respond, or act, when hypnotized and given different suggestions. In an experiment, a specialist in hypnosis proceeds to administer those instructions commonly used when hypnotizing someone. He presents a number of suggestions that you respond to in a way that a hypnotized person would respond.

Now respond to the following suggestions as you think you would respond if you were in the situation that was just described.

please
TURN THE PAGE

You were then suggested that your ears would soon begin to feel plugged as the experimenter began to count. Your ears would become more and more plugged and you would momentarily loose your hearing until you were touched on the shoulder. When you were touched on the shoulder normal hearing was to return. He then began to count and total deafness was suggested.

Three loud bangs and screams to "wake up" were then presented.

Would an observer have noted that you did not flinch or respond in a startled manner to the shouts or the pounding?
( ) yes, ( ) no

Answer the following questions in the boxes provided. Your shoulder had not been touched.

The experimenter then stated: "Not being able to hear is a very alarming experience, and I can appreciate that. You've done a fine job and I thank you. Now, if you heard me, just raise the index finger of your left hand."

Would an observer have noted that the index finger of your left hand had lifted, or made a noticible movement, in response to the suggestion?
( ) yes, ( ) no

He then said: "Although you are hypnotically deaf, perhaps there is some part of you that is hearing my voice and processing the information. If there is, I should like the index finger of your right hand to rise as a sign that this is the case."

Would an observer have noted that the index finger of your right hand had lifted, or made a noticible movement, in response to the suggestion?
( ) yes, ( ) no

He then said: "Raise your right arm directly in front of you."

Would an observer have noted that your right arm had lifted from the resting position, or made a noticible movement, in response to the suggestion?
( ) yes, ( ) no

The experimenter then stated: "That's fine, normalhearing is returning. Just nod your head when normal hearing returns."

Would an observer have noted that your head "nodded", or made a noticible movement, in response to the suggestion?
( ) yes, ( ) no

please
TURN THE PAGE

PLEASE DO NOT RETURN TO EARLIER PAGES

How confident do you feel about your answers, in respect to your answers reflecting the responses of a hypnotized person?

(Place an x in the box that most appropriately represents your confidence.

( )	( )	( )	( )	( )	( )
0%	20%	40%	60%	80%	100%
not confident		moderately confident			very confident

YOUR SHOULDER IS TAPPED AND NORMAL HEARING RETURNS.

Please use the remainder of this page to tell of the reasons WHY you responded the way you did.