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HYPNOSIS, PRIMARY PROCESS, AND THE RETENTION OF SUGGESTIBILITY

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ABSTRACT

HYPNOSIS, PRIMARY PROCESS, AND THE RETENTION OF SUGGESTIBILITY

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This study investigated four hypotheses relevant to the relationship between hypnosis, primary process (i.e. wish-oriented mentation), and the retention of suggestibility after the hypnotic trance. It was hypothesized that: 1. hypnotizability is a function of the degree to which waking mentation is dominated by primary process; 2. primary process is still in effect after the hypnotic trance has been formally ended; 3. suggestibility is still in effect after the hypnotic trance has been formally ended; and 4. the ability to experience a hypnotically induced dream is a function of the degree to which waking mentation is dominated by primary process.

The study utilized the Stanford Hypnotic Susceptibility Scale (Form C) for the purposes of hypnotizing the subjects and measuring hypnotizability. The Rorschach test was used to measure primary process. Suggestions for possible ink blot percepts were used to measure waking suggestibility. Forty subjects were divided into two groups. One group (the hypnosis group) first received hypnosis (SHSS:C) and then the

Rorschach and suggestions for blot percepts. The second group (the Rorschach group) first received the Rorschach and suggestions and then the hypnosis.

The first hypothesis failed to be corroborated. Contrary to expectations, results of the second hypnosis revealed that the Rorschach group manifested significantly greater primary process than the hypnosis group. Results for the third hypothesis showed that suggestibility does increase after hypnosis, but this increase is related to hypnotic depth rather than hypnosis per se. The unexpected results for the fourth hypothesis revealed that subjects who were able to experience having a hypnotically induced dream had a lower percentage of waking primary process than those who were unable to have a hypnotically induced dream. Additional findings concerning correlational analyses, card order, and experimenter gender were also observed. The findings are discussed primarily from a psychoanalytic perspective.

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INTRODUCTION

The question of hypnotizability and individual differences in hypnotic susceptibility is a perplexing and challenging area for theorists and researchers. Freud concluded that "we can never tell in advance whether it will be possible to hypnotize a patient or not, and the only way we have of discovering is by the attempt itself" (1891/1966). Likewise, Gill and Brenman (1959) later asserted that one "still cannot predict with any reliability who will be a good and who will be a poor hypnotic subject."

Reviewing the literature, Hilgard (1965) divided research on personality and hypnotizability into studies that have utilized personality inventories, behavioral tests, and projective tests. Results from personality inventories have been somewhat disappointing. Hilgard examined hypnotic susceptibility, using the Stanford Hypnotic Susceptibility Scale, Form A (SHSS:A), and results from the California Personality Inventory. Almost all correlations between personality factors and hypnotic susceptibility were nonsignificant. Hilgard concluded that it would be prudent to assume that the few significant correlations "show nothing until some way is found to raise them or to combine them

sensibly." Correlations between hypnotic susceptibility (SHSS, Form C) and factors on the Myers-Briggs Type Indicator yielded similar results, producing no significant correlations.

More positive results were reached using the Minnesota Multiphasic Personality Inventory (MMPI). The Sum-True scale was found to be significantly correlated with hypnotic susceptibility (SHSS:C) beyond the .01 level. The Sum-True scale reveals the number of statements with which the subject agreed. Hilgard explains this correlation by proposing that the hypnotically susceptible person may have a tendency to acquiesce. However, this correlation was not significant when another form (A) of hypnotic susceptibility was used. Other positive findings were discovered using the Motoric-Ideational Activity Preference Scale (MIAPS), in which a significant negative correlation was found between susceptibility (SHSS:C) and motoric/competitive interests. In addition, a significant positive correlation was discovered between susceptibility (SHSS:C) and the excess of ideational over motoric interests. The most promising results were obtained from the Hypnotic Characteristic Inventory (HCI), in which significant positive correlations were obtained between hypnotizability (SHSS:C) and role-involvement, trancelike experiences, and impulsivity.

When examining behavioral tests of hypnotizability, suggestion tests have been found to be related to successful hypnosis. Hilgard cites Stukat (1958) and Moore (1964), who both found that primary (hypnotic-like) suggestibility is a

consistent factor in the ability to be hypnotized. However, as Hilgard notes, these correlations may be the result of merely sampling the same order of behavior. In other words, suggestion tests and scales of hypnotic susceptibility may both be measuring the suggestibility of the subject.

Behavioral tests of attention and cognitive style in relation to hypnotizability have been largely inconclusive, although Hilgard does report an investigation in which highly susceptible persons were deficient in vigilance. This finding has also been reported by Smyth and Reyher (1971), who found that high suggestible subjects did poorly on two vigilance tasks, suggesting that attention is diffuse rather than concentrated during high suggestibility.

Using projective tests to discern hypnotizability has produced a lack of meaningful results. Sarbin and Madow (1942) attempted to predict the depth of hypnosis by means of the Rorschach test, but only found one ratio (W:D) that successfully differentiated hypnotizable from nonhypnotizable subjects. Sarbin and Madow concluded that hypnotizable subjects may be more abstract-minded, generalizing people as opposed to those who are more practical, shrewd, and matter-of-fact. Brenman and Reichard (1943) also looked at the use of the Rorschach in relation to hypnotizability. The only statistically reliable trend they found was a positive relation between "free-floating anxiety" and hypnotizability. However, both of these studies suffer from low numbers of subjects. Using Card 12M of the Thematic Apperception Test

(TAT) (which can be interpreted as a hypnotic interaction) has been used to measure attitudes towards hypnosis, with a favorable attitude being positively correlated with susceptibility (White, 1937). However, as Hilgard (1965) states, this finding is not very revealing, given that a verbal report of attitude towards hypnosis is also correlated with susceptibility.

Examining the evidence for personality correlates to hypnotic susceptibility, Hilgard concludes that "enough thoughtful people have tried one thing after another with such paucity of results that some new approach appears to be desirable" (p. 340). Hilgard suggests that global tests of personality may not be sensitive enough to correlate with the highly specialized ability to be hypnotized. More importantly, Hilgard proposes that hypnotic susceptibility may rest on a deeper or more unconscious realm of the personality than personality tests (especially self-report measures) tap. However, from the few significant findings, Hilgard describes the hypnotically susceptible person as follows:

> a kind of personality description emerges of the hypnotizable person as one who has rich subjective experiences in which he can become deeply involved; one who reaches out for new experiences and is thus friendly to hypnosis; one who is interested in the life of the mind, and not a competitive activist; one who accepts impulses from within and is not afraid to relinquish reality testing for a time (p. 342).

Ernest Hilgard's description of the hypnotically susceptible person was further examined in Josephine Hilgard's (1970) extensive study on imaginative involvement and hypnosis. J. Hilgard's research focused on several

personality factors and their relation to hypnotic susceptibility. The Stanford Hypnotic Susceptibility Scale, Form C, was used as the criterion of hypnotic susceptibility. This scale was chosen over Form A because it provides a richer and wider range of content. Personality factors were determined through a two hour interview. This interview consisted of inquiring about each subject's familial composition, developmental or family crises, participation in activities, attitudes toward play activities, religion, peer relationships, personal characteristics, relationship to parents, personal problems, and other areas. Hilgard found that hypnotic susceptibility is frequently correlated with imaginative involvement, which is characterized by impulse and feeling rather than critical thought. In other words, the hypnotizable person was frequently found to be able to immerse herself or himself in a deep imaginative-feeling area of experience. For example, Hilgard found that a significantly higher number of subjects that were involved in drama were also susceptible to hypnosis. Likewise, those not involved in drama were rarely high in hypnotic susceptibility. Hilgard relates hypnosis to role enactment; in both phenomena there is a temporary departure from normal reality orientation.

Hilgard also found a positive relationship when studying the degree of a subject's involvement in reading and hypnotizability. Hilgard likens reading involvement to a temporary departure from reality to a life of impulse and fantasy. She discovered that involved readers often cherish

immediate rather than postponed pleasure. In addition, involved readers were found to suspend reality-testing properties and engage in vivid imagery. For several involved readers, Hilgard found that reading has a visually hallucinatory quality.

When examining aesthetic visual appreciation of nature and involvement in music, Hilgard established that "those who have had these deeply involved experiences, where affect and sensory stimulation have led to enjoyed and savored responsiveness to stimulation, have these experiences stored in such a manner that they are accessible to redintegration in imagination" (p. 86). She concludes that those who have kept alive their primitive impulses associated with sensory gratification may be among the more hypnotizable. These significant relationships between imagination and hypnotic susceptibility were usually instigated by stimuli outside the person (e.g. reading a book, admiring nature, or listening to music).

Hypnotizability and Primary Process

When surveying Hilgard's results, her descriptions of the hypnotically susceptible person are remarkably similar to what Freud described as primary process. In The Interpretation of Dreams, Freud (1900/1965), Freud described primary process as a primitive, illogical, and sometimes perceptually vivid mode of thought. Freud distinguished primary process from secondary process, which refers to a more logical, reality-oriented type of thought process. In Freud's words,

> we are driven to conclude that two fundamentally different kinds of psychical process are concerned in the formation of dreams. One of these produces perfectly rational dream-thoughts...the other treats these thoughts in a manner which is the highest degree bewildering and irrational...all that I insist upon is the idea that the activity of the first system is directed towards securing the free discharge of the quantities of excitation, while the second system, by means of the cathexes emanating from it, succeeds in inhibiting this discharge and in transforming the cathexis into a quiescent one...As a result of the unpleasurue principle, then, the first system is totally incapable of bringing anything disagreeable into the context of its thought. It is unable to do anything but wish...The primary process endeavours to bring about a discharge of excitation in order that...it may establish a 'perceptual identity' with the experience of satisfaction. The secondary process, however, has abandoned this intention and taken on another in its place - the establishment of a 'thought identity' (p. 636-641).

Freud believed that primary process is composed of unconscious wishful impulses which often have a visual, pictorial, or hallucinatory quality to them. In addition, primary process genetically precedes and has priority over secondary process. Freud believed that the infant is under the sway of primary process; however, as the infant matures, secondary process gradually assumes regnance. The distinction between reality and wish does not take place in primary process. In sum, primary process is distinguished by the primacy of drives, wish fulfillment, imagery, and illogical thought.

Although Josephine Hilgard's approach is largely atheoretical, her findings are easily conceptualized within the perspective of Freudian psychoanalysis. Primary process seems to hold many characteristics of the hypnotically susceptible person, including suspension of reality testing, a tendency to engage in vivid imagery, and impulse

gratification.

Supporting Research

Research subsequent to Hilgard's study has also implicated primary process in the role of hypnotic susceptibility. Erica Fromm (1979, 1984) conceptualizes the depth of the hypnotic trance on a continuum ranging from secondary to primary process. According to Fromm, light hypnosis is closer to secondary process, while deep hypnosis is closer to primary process. Fromm agrees with Hilgard in that imagery is an integral component in hypnosis. In the hypnotically susceptible person, a shift occurs from secondary process, reality-oriented, logical type of thinking to thinking in fleeting pictures, indicative of primary process. Fromm also contends that hypnosis accompanies a diminishment of ego activity in the sense of reality perception. As in Hilgard's work, a connection is made between hypnosis and primary process.

Diment et al. (1981) examined the response to poetry in hypnosis and the waking state. Diment et al. hypothesized that responses to poetry in deep hypnosis would involve greater imaginative involvement. Using hypnosis and waking control groups, Diment et al. matched all subjects for scores on the Harvard Group Scale of Hypnotic Susceptibility (HGSHS). Diment et al. found that responses to poetry in deep hypnosis contained more responses reflecting subjective and imaginative involvement, fewer responses reflecting abstract rational thought, a fading of the realistic focus on the poem, and more

instances of primary process thought. The results support J. Hilgard's concepts of imaginative involvement and shifts in control systems of consciousness.

Another corroboration of Hilgard's findings has come from Wilson and Barber (1981, 1983). They found that hypnotically responsive subjects often exhibit personality characteristics that imply their involvement in fantasy. These traits include mystical and religious experiences and intense imaginative involvement in reading. Subjects reported that their imaginative involvement was often vivid, having a hallucinatory quality. Nevertheless, Wilson and Barber's study were limited due to several methodological shortcomings, including the absence of a comparison group of subjects who were low in hypnotizability and the failure to clearly standardize the administration of hypnotic suggestions. Upon noting these criticisms, Lynn and Rhue (1986) attempted to improve and expand Wilson and Barber's study by examining characteristics of the fantasy-prone person. Again, many of their results hinted at a relationship between primary process and hypnotizability. Lynn and Rhue found that subjects with high fantasy proneness had significantly greater hypnotic susceptibility than subjects with both medium and low fantasy proneness. The Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) was used to determine hypnotizability while the Inventory of Childhood Memories and Imaginings (ICMI) was used to determine fantasy proneness. The ICMI is a dichotomous, paper-pencil questionnaire that

correlates significantly with vividness of imagery and fantasy. Nearly 80% of Lynn and Rhue's sample of fantasizers scored in the high-susceptible range, once again suggesting a positive relationship between hypnotizability and primary process.

In a similar study, Kihlstrom et al. (1989) examined possible dispositional correlates of hypnosis. The researchers constructed a questionnaire to assess normal, everyday experiences of several personality variables. Using the HGSHS:A, Kihlstrom et al. found that susceptibility was significantly and positively correlated with absorption, trance, vividness of imagery, access to the unconscious, and archaic involvement. When examining the researchers' definitions of these factors, primary process is implicated as playing a significant role in hypnotizability. To illustrate, Kihlstrom et al. defined trance as the extent to which one can temporarily eliminate or suspend reality orientation; absorption was defined as the extent to which the subject can become attentively engrossed in experiences; archaic involvement was the extent to which a transference of core attitudes originally formed early in life in regard to parents occurs; access to the unconscious referred to the extent to which there was an availability to consciousness of usually unconscious, primary process content and modes of thought. Many of Kihlstrom et al.'s definitions relate to different aspects of primary process, such as imagistic and fantastic thought modes, access to and revivification of repressed

drives, and a reduction of realistic thinking. His findings corroborate earlier investigations of hypnotizability, such as Sheehan (1982), who found significant correlations between hypnotizability and measures of vividness of mental images, and P. Bowers (1982), who found significant correlations between hypnotizability and the degree to which involvements, images, or creative ideas occur effortlessly.

Hypnotizability and personality correlates has also been investigated in neuropsychology. Reviewing the literature, Kihlstrom (1985) cites Gur & Gur (1974), Graham (1977), and Sackeim et al. (1979), all of whose results revealed "a preference for processing information in the right hemisphere that is related to hypnotizability and/or hypnosis" (p. 390). Likewise, MacLeod-Morgan & Lack (1982) found an apparent shift in cortical activation from left to right hemisphere when hypnotizable individuals enter hypnosis. Graham & Pernicano (1979) discovered that hypnotized individuals showed more autokinetic shifts to the left than unhypnotized subjects, again implicating the role of the right hemisphere in hypnosis. Elsewhere, Galin (1974) examines cerebral specialization from a psychoanalytic context. Galin concludes that the role of the right hemisphere has significant connections with psychoanalytic theory:

> Certain aspects of right hemisphere functioning are congruent with the mode of cognition psychoanalysts have termed primary process...The right hemisphere primarily uses a nonverbal mode of representation, presumably images...The right hemisphere reasons by a nonlinear mode of association rather than by syllogistic logic...Because it deals more effectively with complex patterns taken as

> a whole than with the individual parts taken serially, we might expect [the right hemisphere to express itself in] metaphors, puns, double-entendre and rebus, i.e., word-pictures. This is the sort of language that appears in dreams and slips of the tongue (p. 574).

When taken in the context of Galin's observations, neuropsychological evidence suggests that hypnosis and hypnotizability may be related to primary process modes of thought by virtue of being connected with right hemisphere functioning.

Decay of the Hypnotic Trance

If hypnosis does indeed involve a regression to primary process thinking, there is the possibility of increased primary process manifestations following the formal cessation of the hypnotic trance. In order for this heightened exhibition of primary process thinking to occur, there must be a gradual transition from the hypnotic state to the normal waking state. Early research in hypnosis and suggestibility has shown that there is in fact a gradual rather than instantaneous transition. In other words, evidence has shown that the hypnotic state lingers for a period of time following the formal termination of the trance. Krueger (1931) demonstrated that hypnotic subjects retain the increased suggestibility, or hypersuggestibility, for a period following the formal end of the hypnotic trance. Krueger's investigation examined the suggestion time required to produce lid-closure in a following hypnotic induction. To determine the length of time that hypersuggestibility persisted, Krueger tested subjects at six time intervals following the

termination of the original trance: 5 seconds, 30 seconds, 60 seconds, 5 minutes, 20 minutes, and 60 minutes. As predicted, subjects took less time for lid-closure in a following trance; in other words, Krueger found that hypersuggestibility gradually decreases rather than immediately ends after the trance termination. Secondary trance time, even after so long as an hour, is less than primary trance time, implicating a retention of suggestibility. Nevertheless, there are flaws in Krueger's study. As Hull (1933/1968) points out, subject fatigue from gazing at the fixation object may have produced the decreased time for lid-closure. Krueger also used a very small number of subjects (N=5). But despite these shortcomings, other observations have supported the gradual decay of the hypnotic state. Hull cites Binet and Fere's (1888) observation derived from experimentation that "after awaking, the subject is still sensitive to suggestion; this fact has long been known, and is mentioned by Braid among other writers...he [the hypnotic subject] has not returned to his normal state" (p. 300). Hull, drawing from his own experiments, concludes that the hypnotic subject's state of heightened suggestibility persists after the hypnotic trance and that the period immediately following the hypnotic trance is very different than the period preceding it. Little research (if any) has been done since Hull to attempt to replicate these findings.

Present Investigation

The present investigation has four purposes. The first

objective is to test Josephine Hilgard's observations on personality and hypnotic susceptibility using a psychoanalytic frame of reference. As mentioned above, several studies have shown the positive relationship between hypnotizability and primary process thinking. However, most of these studies have not directly measured primary process; instead, they have examined one or more variables that are indicative of primary process such as suspension of reality testing, vivid imagery, etc. The present investigation will examine Hilgard's theory from a psychoanalytic perspective by using a direct measure of primary process (Holt, 1977). In addition, most studies examining hypnotizability and personality correlates (including Hilgard's) have used interviews, questionnaires, or self-report inventories. This method of data collection is incompatible with the psychoanalytic frame of reference, often falling prey to social desirability and impression management strategies of the subject (DePaulo et al., 1987; Goffman, 1959). Hence, the Rorschach will be used to provide a more compatible dependent measure for the underlying psychoanalytic theory.

The second purpose of the present investigation is to test the possibility that primary process thinking is greater immediately following hypnosis as compared to a normal waking state preceding hypnosis. Given that primary process seems to be an integral part of the hypnotic experience and that the hypnotic state may persist after the formal termination of the trance, primary process should be higher immediately following

hypnosis than preceding hypnosis.

The third purpose of the present investigation is to test the possibility that suggestibility is greater immediately following hypnosis as compared to a normal waking state preceding hypnosis. This portion of the experiment will utilize indirect or virtual suggestions (Reyher et al., 1979) to attempt reliably to corroborate the findings of Hull, Krueger, Binet and Fere, and others. If primary process or suggestibility is indeed found to be affected immediately following hypnosis, support will be gained for the state theory of hypnosis. Reyher (1973), Fromm (1979), and others contend that hypnosis is a distinct altered state of awareness. Freud's topographic theory accommodates this assertion; specifically, suggestibility is a feature of a topographic regression which is accompanied by increasing primary process. Primary process is characterized by imagistic mentation, wish-fulfillment, condensation, displacement, and symbolization. The fourth purpose of the present investigation is to test the possibility that primary process is greater for those who are able to experience a hypnotically induced dream. In Freudian theory, dreams are inherently tied to primary process; the symbolization, displacement, condensation, vivid imagery, and drive primacy that characterize dreams is what Freud conceptualized as primary process. Therefore, the ease with which one is able to produce a dream on command may be related to the degree to which one is able to engage in primary process. Furthermore,

this theoretical formulation entails four hypotheses/predictions:

Hypothesis 1: Hypnotizability is a function of the degree to which waking mentation is under the sway of primary process.

Hypothesis 2: Regression to primary process is still in effect after the hypnotic trance has been formally ended.

Hypothesis 3: Heightened suggestibility is still in effect after the hypnotic trance has been formally ended.

Hypothesis 4: The ability to experience a hypnotically induced dream is a function of the degree to which waking mentation is under the sway of primary process.

If neither hypothesis two nor three is corroborated, two explanatory possibilities will exist. The first explanation would be that hypnosis is not an altered state of consciousness. According to this explanation, neither suggestibility nor primary process would be affected after the hypnotic trance because there is no significant difference between the trance and the waking state. The second explanation would be that even though hypnosis is an altered state of consciousness, the transition from the hypnotic to the waking state is immediate. In this explanation, hypnosis is still considered an altered state of awareness, but the progression or shift from the hypnotic state to a normal waking state is occurs instantaneously.

Experimental Design

The experimental design of this study consisted of two separate groups. One group received the Rorschach

administration and virtual suggestions before being hypnotized; this group is hereafter referred to as the Rorschach group. The other group received the hypnosis before the Rorschach administration; this group is hereafter referred to as the hypnosis group.

METHOD

Subjects and Experimenters

After obtaining approval from UCRIHS, 40 subjects were obtained from introductory psychology classes at Michigan State University who had signed up to participate in an experiment entitled "Experiment in Hypnosis." Of the 40 subjects, 20 were male and 20 were female. The subjects were randomly assigned to one of the two groups. Each subject was tested individually by one of the two experimenters. The experimenters (one female, one male) were upper level undergraduate students who were trained by the researcher. Subjects were equally distributed across gender of experimenter, gender of subject, and condition membership.

Materials

Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C). The Stanford Hypnotic Susceptibility Scale, Form C (Weitzenhoffer and Hilgard, 1962) was used for hypnotizing the subjects and measuring hypnotic susceptibility. The SHSS:C was used because it provides a wide range items in determining the degree of suggestibility. The scale contains twelve items, which are scored on a pass-fail basis. These items include hand lowering, moving hands apart, mosquito

hallucination, taste hallucination, arm rigidity, dream induction, age regression, anosmia, arm immobilization, hallucinated voice, negative visual hallucination, and posthypnotic amnesia.

Rorschach Ink Blot Test & Holt Scales for Primary Process. Primary process was obtained using Holt's (1977) system of scoring Rorschach responses; this system incorporates several different categories of primary process manifestation. The first category (Content Variables) is concerned with evidences of libidinal and aggressive wishfulness in the content of the subject's response. The second category (Formal Variables) examines deviations in response structure. These variables include the formal characteristics of dreams, including condensation, displacement, and symbolization. The formal variables "are an attempt to measure deviations from the logical, orderly thinking grounded in experience with the real world that characterizes the secondary process" (Holt, 1977; pp. 392-393). In addition, each primary process response is given a rating of Level 1 or Level 2. Level 1 responses represent direct, intense, or blatant manifestations of primary process, while Level 2 response are concerned with more socialized, civilized manifestations of primary process. From these scores, percentages are calculated for total primary process and each one of the aforementioned categories. Holt's scale was also used to calculate the degree of primary process in the hypnotically induced dreams.

Virtual Suggestions. Suggestibility was measured using a scale of indirect or virtual suggestions. According to Reyher et al. (1979), a virtual suggestion is "the legitimization of false statements of fact, i.e. the room is getting warm when, in fact, it is not" (p. 178). The compliance to these suggestions was scored on a pass-fail basis, with the experimenter allowing a 5 second response time. The suggestions were incorporated into the Rorschach administration. The experimenter suggested certain percepts that could be found in the ink blots. There were three suggestions for each blot, making a scale of thirty virtual suggestions. For each blot, the experimenter first suggested a popular response (or an ordinary response if the subject had already verbalized the popular percepts), then an unusual form quality response, and finally a negative form quality response. If the subject had already used one of the percepts in his or her response, an alternate suggestion was be used. The responses for each card required an increasing level of subject suggestibility. After the subject completed his or her responses to each card, the experimenter said "There are many other things that this blot can form." The experimenter then proceeded to make the virtual suggestions by saying "This blot also forms a _____. Can you see that?" The following are the specific percepts that were used:

Card	Suggested Percept & Location if other than Whole	Alternate Suggested Percept
I	Bat	Butterfly, Winged Bug
I	Crow	Robot
I	Fern	Lamp

II	Dog (D1)	Elephant, Lamb (D1)
II	Gorillas	Mask
II	Heart	Bat
III	Human (D9)	Doll, Witch (D9)
III	Bowl	Vase
III	Spider	Flower
IV	Giant	Animal Hide, Tree
IV	Bell	Kite
IV	Lettuce	Snowflake
V	Bat	Butterfly, Dracula
V	Angel	Ostrich
V	Flag	Propeller
VI	Animal Skin	Rug, Totem
VI	Guitar	Bird
VI	Bee	Pan
VII	Child's Face (D1)	Shrimp, Statue (D1)
VII	Canyon	Crown
VII	Skull	Plant
VIII	Cat (D1)	Dog, Wolf (D1)
VIII	Garden	Helmet
VIII	Pyramid	Tree
IX	Witch (D3)	Ghost, Flower (D3)
IX	Candle	Hat
IX	Ant	Leaf
X	Crab (D1)	Spider, Octopus (D1)
X	Fireworks Display	Pom Pom
X	Christmas Tree	Web

Percepts taken from Exner (1990).

Setting and Procedure

Subjects were tested in a room containing a computer, a desk, a cabinet, a straight-backed chair, and an easy chair. Subjects were seated in the easy chair and given an informed consent form to sign. After the subject had signed this form, the experimenter either administered the SHSS:C or the Rorschach and the virtual suggestions, depending on group membership.

For the Rorschach group, the procedure was as follows. After obtaining informed consent, the Rorschach was administered in the fashion set forth by Exner (1990), with

the experimenter asking "What might this be?" upon the presentation of every card. However, unlike the Exner administration system, subjects were not limited to five responses per card. If the subject gave only one response to Card I, the experimenter said "Take your time and look some more. I'm sure you'll find something else too." If the subject did not respond to a card, the experimenter said, "Take your time. We're in no hurry. Everyone can find something." After the subject completed her or his responses to each card, the experimenter made the virtual suggestions as previously described.

After the performance proper, the experimenter proceeded to the inquiry by saying:

> Now we are going to go back through the cards again. It won't take very long. I want to see the things that you said you saw and make sure that I see them like you do. We'll do them one at a time. I'll read what you said and then I want you to show me where it is in the blot and then tell me what there is there that makes it look like that so that I can see it too, just like you did. Is that clear? (Exner, p. 13)

As suggested by Holt (1977, p. 381), the additional inquiry of "How did you feel about it?" was asked for each response. If necessary, the experimenter expanded this question by explaining that "I am interested in your reactions to each thing you saw in the blots, whether seeing it was pleasant, unpleasant, or a matter of indifference." After the inquiry, the experimenter then hypnotized the subjects, using the Stanford Hypnotic Susceptibility Scale, Form C.

For the hypnosis group, hypnosis (SHSS:C) preceded the

administration of the Rorschach and virtual suggestions. Between the first and second item (hand lowering and hands moving apart), all subjects were tested for ability to generate percepts from ink blots. The experimenter said the following: "In a moment I am going to ask you to open your eyes, and you will be able to do so without awakening in the slightest. I am going to show you an ink blot and I want you to tell me what it looks like to you. Go ahead and open your eyes. [Experimenter shows ink blot to subject.] What might this be?" Giving the subject 30 seconds to respond, the experimenter made note of whether the subject was able to generate a percept, then saying to the subject, "That's fine. Now close your eyes again and continue to relax and concentrate on my voice. Just let yourself become drowsy, as you feel yourself sinking deeper and deeper into a comfortable state of body and mind." All subjects were able to generate a percept, thereby indicating a sufficient degree of task involvement. The Rorschach administration period began five seconds after the command for waking was given. Because of the delay the post-hypnotic amnesia item would have caused between the hypnosis termination and the Rorschach, this item was eliminated so that suggestibility and primary process could be measured immediately after the command for waking was given.

RESULTS

Inter-rater Reliability

The researcher and one experimenter independently scored each Rorschach protocol for primary process. Both scorers were blind to condition membership. A Pearson correlation of $r=.94$, $p<.01$ was obtained for inter-rater reliability. The researcher and experimenter then reviewed each Rorschach protocol and conjointly resolved the points of difference that arose in scoring the protocols. The points of differences between the experimenter and researcher were miscellaneous. A possible artifact in the conjoint decisions was the perceived power differential between the experimenter and the researcher favoring the latter.

Experimental Hypotheses

Before the experimental hypotheses were evaluated, each of the distributions was examined and found to be highly skewed. Consequently, the distributions were subjected to a square root and logarithm transformation. These transformations did not satisfactorily remove skewness; therefore, for the hypotheses that compared two independent samples, a non-parametric test (Mann-Whitney U) was used in place of the t-test. Furthermore, when obtaining

correlations, percentages were subjected to an arcsine transformation as recommended by Cohen and Cohen (1983) to reduce variation in interval size. This transformation opens the scale up and "stretches the tails" to increase its linearity and relationship to other variables.

Hypothesis 1. Hypothesis 1 stated that hypnotizability is a function of the degree to which waking mentation is under the sway of primary process. A Pearson correlation was used to evaluate the degree of relationship between hypnotic susceptibility (total score on the SHSS:C) and the degree of primary process in the Rorschach. A nonsignificant correlation of -.13 was obtained, thereby failing to corroborate the first hypothesis. One potential weakness of the first hypothesis is that all subjects were included in the correlational analysis; given that hypnosis may affect primary process and thereby differentially affect the primary process in each group, grouping all subjects together had the potential to confound the findings of the first hypothesis. However, the nonsignificant between-group correlational differences of hypnosis and primary process eliminated this possibility (see Tables 4 and 5).

Hypothesis 2. Hypothesis 2 stated that regression to primary process is still in effect after the hypnotic trance has been formally ended. A Mann-Whitney U test was used to examine the experimental manipulation of Rorschach-manifested primary process between the hypnosis group and the Rorschach group (Table 1). Contrary to expectations, the Rorschach

group manifested significantly greater overall primary process than the hypnosis group. The average percentage of primary process responses for the Rorschach group was 63.8%, contrasted to an average primary process of 54.6% for hypnosis group. Likewise, the Rorschach group manifested significantly greater primary process content than the hypnosis group. Reasons for these findings will be explored later.

Table 1

Mann-Whitney U test comparing primary process between groups

Variable	Hypnosis Grp	Rorschach Grp	U	p
Total Primary Process	.546	.638	122.5	.035
Level 1 Prim. Proc.	.159	.183	172.5	.461
Level 2 Prim. Proc.	.470	.537	129.5	.056
Content Prim. Proc.	.449	.521	120.0	.030
Formal Prim. Proc.	.199	.236	165.5	.355

Entries for the hypnosis and Rorschach groups are means.

Hypothesis 3. Hypothesis 3 stated that heightened suggestibility is still in effect after the hypnotic trance has been formally ended. A Mann-Whitney U test was used to examine the experimental manipulation of suggestibility between groups. The hypnosis group affirmed an average of 17.5 of the possible 30 virtual suggestions, while the Rorschach group affirmed an average of 17.45 virtual suggestions. To further investigate this hypothesis, correlations were obtained between the virtual suggestibility scale and the hypnosis scale for both groups to test the degree of relation between these scales. The correlation for

the hypnosis group was .48 ($p<.05$), while the correlation for the Rorschach group was surprisingly only .04 ($p>.05$). A Fisher Z ($Z=1.41$, $p=.079$) revealed that the difference between these correlations approached significance. The significant positive correlation for the hypnosis group suggests that the experimental manipulation did in fact increase suggestibility. This increase occurred not on the basis of hypnosis per se, but on the basis of hypnotic depth (i.e. hypnotic susceptibility).

Hypothesis 4. Hypothesis 4 stated that the ability to experience a hypnotically induced dream is a function of the degree to which waking mentation is under the sway of primary process. A Mann-Whitney U test was used to compare Rorschach-manifested primary process of those able to experience a hypnotically induced dream with those unable to experience a hypnotically induced dream (Table 2). The outcome of primary process for this variable (hypnotic dream ability) was potentially confounded by overall hypnotic susceptibility; however, the nonsignificant correlation of hypnotic susceptibility with primary process eliminated this concern. Unexpectedly, subjects who were able to experience or report having a hypnotically induced dream had a lower percentage of primary process in their responses than those who were unable to have a hypnotically induced dream. Subjects who were able to have a dream averaged 54.6% primary process in their Rorschach responses, while those who were unable to have a dream averaged 64.3%. Those who were able to experience a

hypnotically induced dream also manifested significantly less Level 1 responses (i.e. direct, intense, or blatant manifestations of primary process) than those who were unable to have a hypnotically induced dream (Table 2). The former had an average of 14.0% of their responses manifesting Level 1 primary process, in contrast with the latter who had an average of 20.5% Level 1 responses. When interpreting these results, one must be mindful that the recording of the ability to experience a hypnotically induced dream depended upon the subject's ability or willingness to report the dream.

Table 2

Mann-Whitney U test comparing primary process on the basis of hypnotic dream ability

Variable	Dream Grp	No Dream Grp	U	p
Total Primary Process	.546	.643	116.5	.023
Level 1 Prim. Proc.	.140	.205	114.5	.020
Level 2 Prim. Proc.	.472	.539	148.0	.169
Content Prim. Proc.	.444	.531	113.5	.074
Formal Prim. Proc.	.187	.250	131.5	.065

Entries for the dream and no dream groups are means.

Table 3

Correlation matrix for both groups combined

	HYP	HYPDPP	VSUG	RPP	L1PP	L2PP	CONPP	FORMPP
HYP	----	.51**	.19	-.13	-.29	-.01	-.05	-.24
HYPDPP		----	.10	-.23	-.40**	-.02	-.02	-.51**
VSUG			----	-.32*	-.13	-.38*	-.37*	-.09
RPP				----	.49**	.85**	.77**	.59**
L1PP					----	.15	.23	.73**
L2PP						----	.93**	.22
CONPP							----	.12
FORMPP								----

*p<.05, **p<.01

HYP=Total score on hypnotic scale (SHSS:C)
HYPDPP=Degree of primary process in the hypnotically induced dream
VSUG=Total score on virtual suggestibility scale
RPP=Total primary process on the Rorschach
L1PP=Level 1 primary process on the Rorschach
L2PP=Level 2 primary process on the Rorschach
CONPP=Content primary process on the Rorschach
FORMPP= Formal primary process on the Rorschach

Table 4

Correlation matrix for the hypnosis group

	HYP	HYPDPP	VSUG	RPP	L1PP	L2PP	CONPP	FORMPP
HYP	----	.58**	.48*	-.11	-.56*	-.20	.09	-.33
HYPDPP		----	.65**	-.21	-.39	-.08	-.07	-.49*
VSUG			----	-.33	-.50*	-.13	-.18	-.58**
RPP				----	.40	.83**	.77**	.67**
L1PP					----	-.03	.12	.73**
L2PP						----	.93**	.31
CONPP							----	.22
FORMPP								----

*p<.05, **p<.01

HYP=Total score on hypnotic scale (SHSS:C)
HYPDPP=Degree of primary process in the hypnotically induced dream
VSUG=Total score on virtual suggestibility scale
RPP=Total primary process on the Rorschach
L1PP=Level 1 primary process on the Rorschach
L2PP=Level 2 primary process on the Rorschach
CONPP=Content primary process on the Rorschach
FORMPP= Formal primary process on the Rorschach

Table 5

Correlation matrix for the Rorschach group

	HYP	HYPDPP	VSUG	RPP	L1PP	L2PP	CONPP	FORMPP
HYP	----	.59**	.04	-.28	-.10	-.25	-.22	-.22
HYPDPP		----	-.34	-.09	-.41	-.20	.18	-.51*
VSUG			----	-.35	.06	-.55*	-.49*	.17
RPP				----	.55*	.85**	.74**	.49*
L1PP					----	.26	.27	.72**
L2PP						----	.93**	.10
CONPP							----	-.02
FORMPP								----

*p<.05, **p<.01

HYP=Total score on hypnotic scale (SHSS:C)
HYPDPP=Degree of primary process in the hypnotically induced dream
VSUG=Total score on virtual suggestibility scale
RPP=Total primary process on the Rorschach
L1PP=Level 1 primary process on the Rorschach
L2PP=Level 2 primary process on the Rorschach
CONPP=Content primary process on the Rorschach
FORMPP= Formal primary process on the Rorschach

Additional Findings

Tables 3, 4, and 5 show correlation matrices for all measures and their specific components. Several noteworthy correlations were obtained. Significant positive correlations were obtained for both groups between level 2 primary process (L2PP) and content primary process (CONPP). This correlation may be due to a scoring artifact in the Holt system, as content responses usually are automatically assigned a level 2 designation unless they are extraordinarily blatant. Also, positive correlations were obtained for both groups between level 1 primary process (L1PP) and formal primary process (FORMPP). Again, these correlations may be the result of a scoring artifact; in the Holt system, many formal primary process responses (e.g. inappropriately mixing color with form) are automatically assigned a level 1 designation.

High positive correlations were obtained between the overall score of Rorschach primary process (RPP) and each subcomponent of Rorschach primary process. These correlations indicate that each subscale is positively contributing to the overall primary process score, which lends construct validity to the Holt scoring system. These correlations also indicate that overall Rorschach primary process is a representative indication of all sub-categories of primary process; hence, this variable was given the most weight when interpreting the relation between Rorschach primary process and other variables.

Significant positive correlations were obtained for both

groups between the degree of primary process in the hypnotically induced dream (HYPDPP) and the total score on the hypnotic susceptibility scale (HYP). These correlations imply that the ability to engage in primary process during hypnosis may be a reliable indicator for hypnotic susceptibility; similarly, on Freud's account, the higher degree of primary process as hypnotic depth increases indicates that the state of hypnosis is accompanied by a regression. As Gill and Brenman (1959) state, "the ready inducibility of dreams in hypnosis is an indication of the regressive nature of the hypnotic state." In sum, hypnotic depth seems to be marked by a regression, which is consistent with the theory put forth by Freud.

An unexpected difference in sign was found for the correlation between virtual suggestibility (VSUG) and primary process in the hypnotically induced dream (HYPDPP) for the two groups: -.34 for the Rorschach group and .65 for the hypnosis group. The two correlations were significantly different (Fisher Z = 3.29, p=.0005). The obtained correlation of .65 for the hypnosis group indicates that for subjects initially receiving hypnosis, hypnotic primary process in the induced dream was related to increased waking suggestibility. If hypnosis is in fact a regression characterized by primary process, this regression should subsequently affect suggestibility by reinforcing the subject's identification with the experimenter (Freud, 1921). The identification may thereby increase the willingness of the subject to affirm

suggestions made by the experimenter. This finding is consistent with the possibility that the heightened suggestibility is still present after the formal hypnotic termination. Moreover, this large correlational difference lends strong support to the state theory of hypnosis. Proponents of this theory such as E. Fromm contend that hypnosis is an altered state of consciousness. Fromm asserts that in hypnosis, primary process, fantasy, and ego receptivity gain greater dominance (1979). The fact that an opposite between-group difference was obtained implies a categorical difference in the state of consciousness between hypnosis and the waking state, with hypnosis being characterized by greater regression. Furthermore, the state theory is bolstered by the between group correlational difference for virtual suggestibility (VSUG) and hypnotic susceptibility (HYP): .04 for the Rorschach group and .48 for the hypnosis group. If hypnosis does accompany greater ego receptivity as Fromm contends, then one would expect that subjects in the hypnosis group would be more receptive to suggestions made immediately after hypnosis.

Also supporting the state theory of hypnosis are the negative correlations found in both groups between overall Rorschach primary process (RPP) and the hypnosis variables. While primary process during hypnosis (HYPDPP) was positively related to hypnotic depth (HYP), primary process during the waking state (RPP) was negatively related to hypnotic depth. Moreover, the correlation between primary process during the

dream (HYPDPP) and primary process during the waking state (RPP) was negative. These findings again imply that hypnosis is a distinct state of consciousness, as contended by Reyher, Fromm, and others. This support for the state theory of hypnosis is strengthened by the fact that the same method (i.e. the Holt primary process scoring system) was used to determine primary process in hypnosis and on the Rorschach.

The average card to card manifestations of virtual suggestibility were calculated and graphed for each group (Figure 1). There were no significant between group differences for any of the cards. Response percentages were subsequently averaged for each virtual suggestion according to suggestion type (popular, unusual, or negative form quality). The popular suggestions had the highest percentage of affirmative responses (.825), followed by the unusual suggestions (.558) and the negative form quality suggestions (.347). These findings lend reliability to the virtual suggestion scale as this was the expected order of suggestion affirmation. Furthermore, there was a remarkable and uniform decrease in suggestibility after the virtual suggestion of "lettuce" was given for Card IV. Virtual suggestibility thereafter decreased for all three suggestion types on Card V. Reasons for this finding will be discussed below.

Gender effects were also evaluated for subjects and experimenters (Table 6). There were no significant sex of subject effects. However, there were significant experimenter effects for several of the primary process variables.

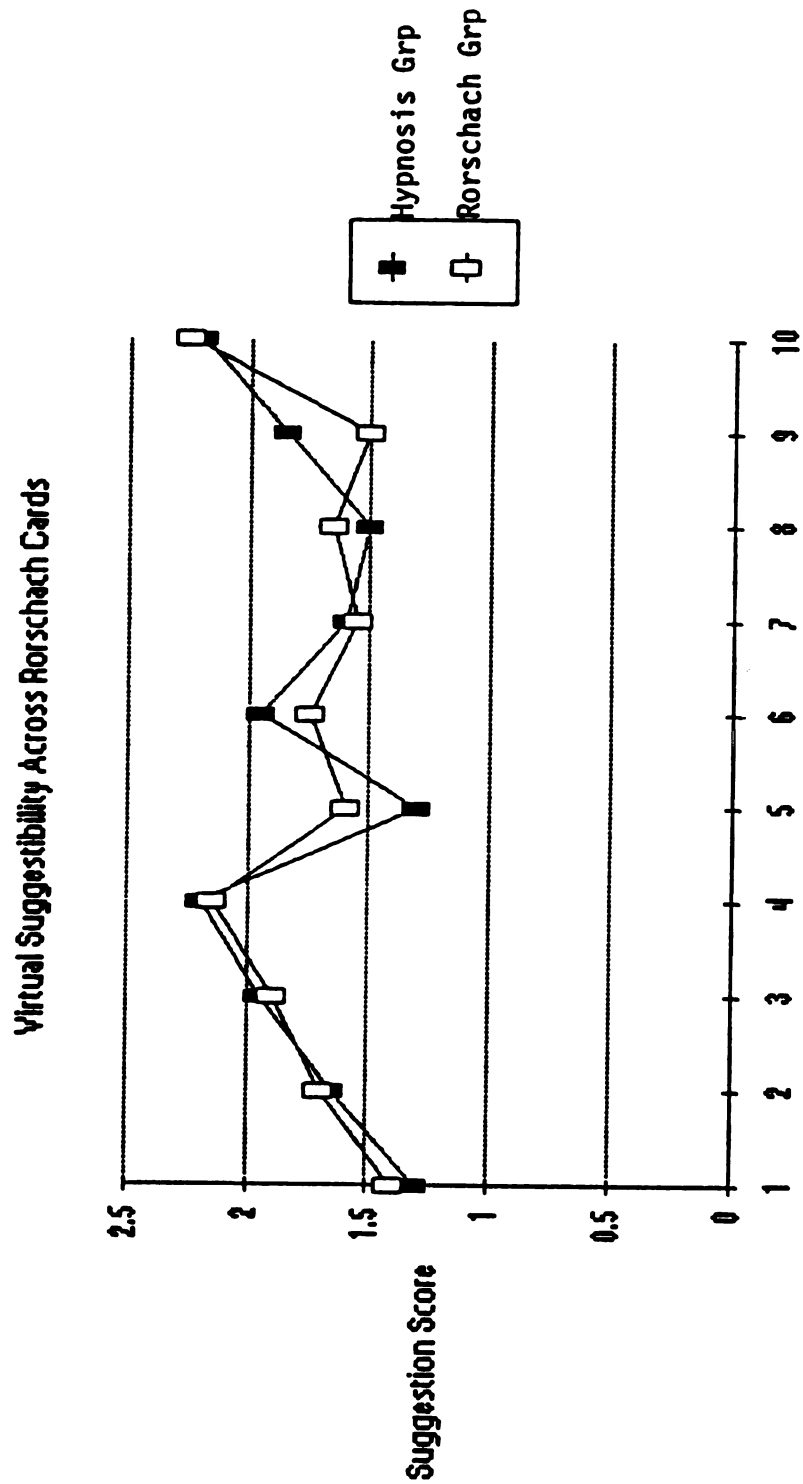

Figure 1 Virtual Suggestibility Across Rorschach Cards

Subjects having the male experimenter manifested an average of 64.6% primary process responses on the Rorschach, while subjects having the female experimenter manifested an average of 53.9% primary process responses (U=106.5, p=.01). Likewise, subjects having the male experimenter had greater Level 1 primary process than those having the female experimenter (U=76, p=.001). Finally, subjects having the male experimenter also had greater formal primary process than subjects having the female experimenter (U=94.5, p=.004).

Table 6

Mann-Whitney U test comparing primary process on the basis of sex of experimenter

Variable	Female	Male	U	p
Total Primary Process	.539	.646	106.5	.010
Level 1 Prim. Proc.	.121	.221	076.0	.001
Level 2 Prim. Proc.	.475	.532	160.0	.289
Content Prim. Proc.	.452	.519	151.5	.192
Formal Prim. Proc.	.169	.265	094.5	.004

Entries for the male and female groups are means.

The average card to card manifestations of primary process were calculated and graphed for each group (Figure 2). Two cards elicited significant between-group differences. For Card II, the hypnosis group had an average of 43% primary process responses, while the Rorschach group had an average of 69% primary process responses. Similarly, for Card IX, the hypnosis group had an average of 53% primary process responses, while the Rorschach group had 83% primary process responses. It is also noteworthy that the four largest between group differences were all color cards (Cards II,

VIII, IX, and X); for each of these cards, the hypnosis group consistently had less primary process than the Rorschach group. Finally, frequency distributions for the SHSS:C scores are shown in Figures 3, 4, and 5.

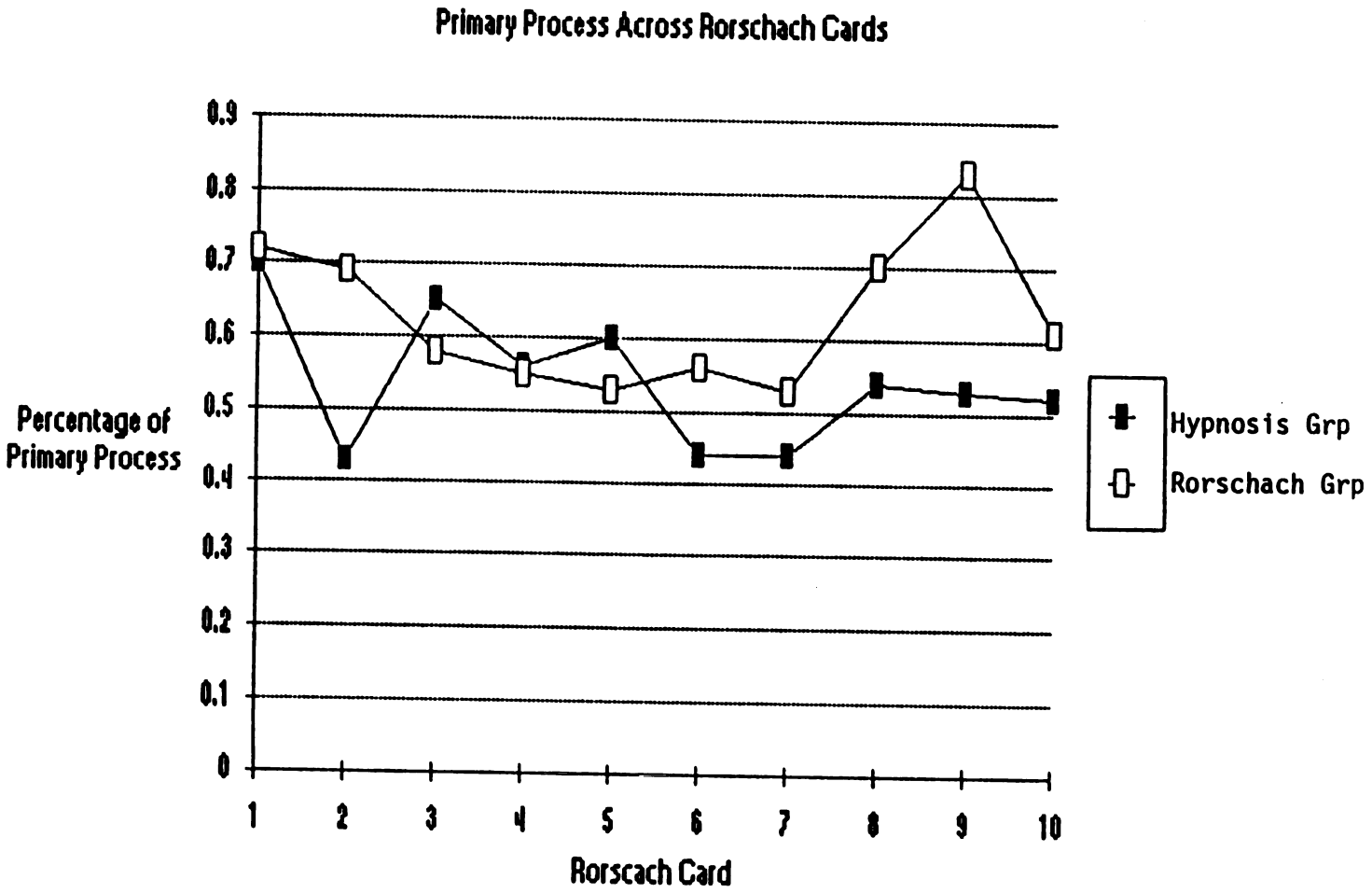

Figure 2 Primary Process Across Rorschach Cards

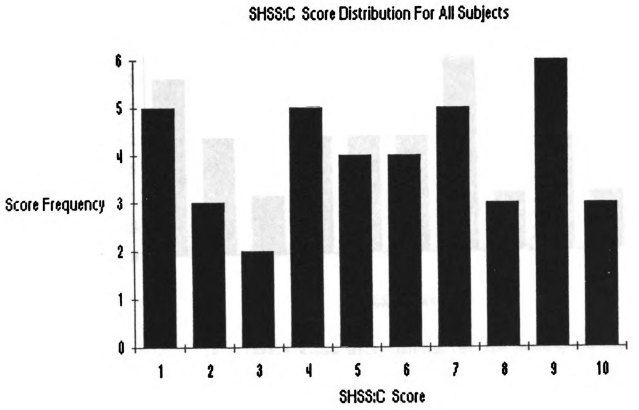

Figure 3 SHSS:C Score Distribution For All Subjects

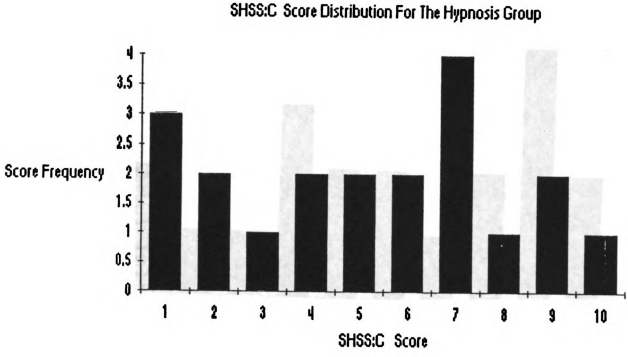

Figure 4 SHSS:C Score Distribution For The Hypnosis Group

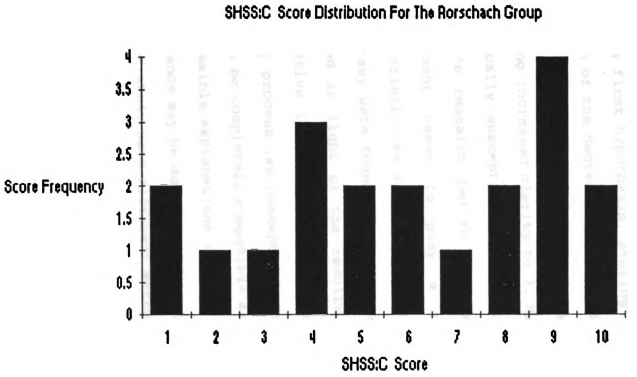

Figure 5 SHSS:C Score Distribution For The Rorschach Group

DISCUSSION

The first hypothesis, stating that hypnotizability is a function of the degree to which waking mentation is under the sway of primary process, was not corroborated. This finding may bring increased clarity to J. Hilgard's conception of the hypnotically susceptible personality. As mentioned above, Hilgard's research led to the conclusion that imaginative involvement seems to play a role in hypnotizability; characteristics such as being deeply imaginative and absorbed in fantasy were found to be related to susceptibility. When examined in light of the results of the first hypothesis, imaginative involvement (as conceptualized by Hilgard) and primary process (as conceptualized by Freud and Holt) do not seem to be completely compatible and synonymous. There may be two possible explanations for this discordance. Firstly, the difference may be due to the fact that Hilgard's study and the present study used different methods. While Hilgard utilized the interview format, the present study utilized the Rorschach. As noted by Kazdin (1980, p. 248), using different methods of assessment has the distinct possibility of leading to divergent results, given that "an individual's performance on a given measure is partially a function of the precise

method in which assessment is conducted." Kazdin notes that factors such as "the contribution of method variance of different assessment devices" and "the multifaceted nature of personality and behavior" can lead to a lack of correspondence among methods of measurement.

The second possible reason for the discord is that imaginative involvement and primary process simply may not connote the same underlying concept. Even though Hilgard speaks of suspension of reality testing and an engagement in vivid fantasy, these concepts are necessary but not sufficient characteristics for primary process. Primary process seems to be a more precise concept, referring to regression and ideational wish-fulfillment of aggressive and sexual strivings. Freud's concept seems more specific in that it refers to a very definite process of the dream-work rather than just fantasy in general. In sum, the results from hypothesis one suggest that imaginative involvement and primary process cannot be used interchangeably.

The unexpected result for hypothesis 2 showed that subjects in the Rorschach group manifested greater primary process than the hypnosis group. Perhaps this result is due to hypnosis being a state of regression which allows for greater gratification of an unconscious fantasy. One index of this fantasy is libidinal investment (cathexis) in the hypnotist, which may thereby reduce the need for subsequent gratification in the Rorschach. If one considers hypnosis as an opportunity for libidinal cathexis or primary process

manifestation, then the need for primary process expression after hypnosis may be reduced. This possibility seems to fit in well with Freud's as well as Gill and Brenman's theory of hypnosis. In The Interpretation of Dreams, Freud (1900) likens self-observation to the mental process of falling asleep and hypnosis; in these states of mind, the critical faculty of the mind is relaxed, allowing involuntary ideas to emerge. This emergence, Freud states, accompanies a shift toward primary-process functioning. Freud (1921) later explained the hypnotic state and its relation to being in love in Group Psychology and the Analysis of the Ego: "Hypnosis resembles being in love in being limited to these two persons, but it is based entirely on sexual impulsions that are inhibited in their aim, and puts the object in the place of the ego ideal" (p. 96). Freud expands on this statement by comparing neurosis to hypnosis: "it [neurosis] resembles hypnosis and group formation in having the character of a regression, which is absent from being in love" (p. 97). If hypnosis has "the character of a regression," then this state should be marked by increased primary process mentation. Gill and Brenman (1959) also view hypnosis as involving regression. In elaborating on the regressed state, Gill and Brenman describe the manner in which primary process gains dominance: "A regressive process [such as hypnosis] is one in which the balance of forces shifts so that freer and more primitive impulses come to expression, while the control system likewise becomes more primitive and relatively less stringent and

determining of the course of psychic life vis-a-vis the impulses" (p. 106). Again, when hypnosis is conceptualized as involving regression, then this state of mind may provide an increased opportunity for mental drive gratification and wish fulfillment. This psychoanalytic approach has been corroborated by recent research. In a comprehensive review of studies on hypnosis and regression, Nash (1988) concluded that "there is evidence that hypnosis enables subjects to elicit more imagistic, primary process, and affect-laden material (topographic regression)" in addition to a relaxation of defenses (p. 383). From this perspective, the hypnosis group may have had lower primary process on the Rorschach because of the regnance of primary process which immediately preceded the Rorschach; because of the regressive nature of hypnosis, subsequent manifestations of primary process may have been reduced, given that hypnosis had already provided the possibility of wish-fulfillment.

Congruent with this explanation is the finding that the Rorschach group had significantly greater primary process than the hypnosis group on two of the color cards. Similarly, the four largest between group differences were all for color cards, with the uniform trend of the Rorschach group expressing greater primary process than the hypnosis group. Perhaps these findings can be understood from Shapiro's (1977) theory of the Rorschach color response. Shapiro reviews past research and theories concerning color perception, concluding that color perception and color experience is primarily a

passive and immediate process, requiring less complex psychological organization. Shapiro notes the "compelling, gripping quality" of the color cards, stating that there is often "an increase in the significance of color under circumstances of disorganization or primitivization of thought" (p. 262). From Shapiro's perspective, color can provide the opportunity for the experience of primary process; given the passivity and decreased psychological organization that often accompanies color perception, the color cards of the Rorschach may have set the stage for greater primary process manifestations. Moreover, when color is conceived as being conducive to primary process expression, the findings concerning the group differences corroborate the aforementioned view that hypnosis is an opportunity for regressive or primary process mentation. In other words, the Rorschach group had greater primary process on four of the color cards because they provided the catalyst for primary process, which had already been experienced by the hypnosis group and perhaps was not as pressing.

The results for the third hypothesis revealed no significant between group difference for the virtual suggestions. However, a significant positive correlation was obtained for between the virtual suggestibility scale and the hypnotic susceptibility scale in the hypnosis group, but not the Rorschach group. This finding necessitates a modification of the notion that "hypersuggestibility" persists after hypnosis has been formally terminated. As Krueger and Hull

contended, heightened suggestibility does seem to remain in effect after hypnosis, but the degree of this post-hypnotic suggestibility is connected to the degree of the subject's hypnotic depth. As the results of the present study suggest, the more susceptible a subject is, the more suggestibility will be heightened during the period immediately following hypnosis. Hypnotic depth, not merely the act of being hypnotized or taken through a hypnotic procedure, seems to be the factor related to post-hypnotic hypersuggestibility. Despite the analogous results in the present study and Krueger and Hull's studies, the two sets of findings cannot be cogently compared because of the widely divergent methodology. While Krueger and Hull used eye closure as a measure for "hypersuggestibility," the present study used Rorschach suggestion affirmation to determine suggestibility. Because of this difference, the two studies cannot be reliably compared. Furthermore, of the five subjects that Krueger used, "all had been previously used in hypnotic experiments" (1931, p. 135). From this statement one could possibly surmise that Krueger's subjects were all capable of significant hypnotic depth and had a more established transference with the experimenter. Again, these differences between studies preclude their comparison. Moreover, more research is needed to corroborate the possibility that post-hypnotic suggestibility increases as hypnotic susceptibility increases.

The unexpected result for the fourth hypothesis revealed

that subjects who were able to experience a hypnotically induced dream had lower Rorschach-manifested primary process than those unable to experience a hypnotically induced dream. Perhaps this finding can be understood when viewing both the hypnotically induced dream and the Rorschach as opportunities for primary process expression. From this perspective, those unable or unwilling to experience a dream would be expected to have greater primary process manifestations on the Rorschach. In other words, for those able to experience the dream, the motivation for Rorschach-manifested primary process expression may have been reduced because the dream had offered an opportunity for regression and mentation marked by wish-fulfillment. Likewise, for the Rorschach group, those subjects having high primary process manifestations may have experienced a reduced need or motivation to have a hypnotically induced dream, again because a chance had already arisen (in the Rorschach) for wishful mentation. In conclusion, the fact that the no dream group had higher Rorschach-manifested primary process than the dream group may highlight the possibility of viewing both the Rorschach and hypnotic dreams as opportunities for wish-fulfillment.

Concerning the additional findings of the present study, an inspection of the virtual suggestions given during the Rorschach revealed a remarkable and uniform decrease in suggestibility after the virtual suggestion of "lettuce" was given for Card IV. Freud's conception of the counter-will can be used to understand this finding. Freud (1893, 1921)

conceptualized the counter-will as a psychic mechanism containing antithetical ideas that are opposed to conscious ideas. According to Freud, the counter-will acts as follows: "In all renunciations and limitations imposed upon the ego a periodical infringement of the prohibition is the rule...the abrogation of the [ego] ideal would necessarily be a magnificent festival for the ego, which might then once again feel satisfied with itself" (1921, p. 81). Applying Freud's concept to the present study, if one conceives the virtual suggestions as "renunciations and limitations imposed upon the ego," then the counter-will is instrumental in abrogating the prohibitions by temporary suggestion negation. In other words, the virtual suggestion of "lettuce" may have been such an excessive request (imposition) that the counter-will rebelled by negating the subsequent suggestions. One can also apply Brehm's (1966) theory of psychological reactance to better understand this finding and provide a reinterpretation of Freud's counter-will concept. Briefly stated, Brehm contended that "when a person believes himself free to engage in a given behavior, he will experience psychological reactance if that freedom is eliminated or threatened with elimination. Psychological reactance is defined as a motivational state directed toward the re-establishment of the threatened or eliminated freedom, and it should manifest in increased desire to engage in the relevant behavior and actual attempts to engage in it" (pp. 15-16). Applied to the present study, subjects' "freedom" to perceive what they did and did

not see in the ink blots was constantly being challenged and compromised by the experimenter's virtual suggestions. Perhaps subjects were willing to confirm the experimenter's suggestions, but this willingness was limited. When subjects' realized that their freedom of individual perception was being threatened, they may have become temporarily motivated to reestablish their freedom in the form of negating the virtual suggestions. Perhaps this realization was provoked by the somewhat outrageous suggestion on Card 4 that the "blot also forms lettuce." After this suggestion was made, not only was a sharp decline in suggestibility found for the lettuce suggestion, but there was also a decline for the three suggestions following the lettuce item. At no other time was this tendency of decline found for the suggestibility scale. From Brehm's perspective, the suggestion of seeing lettuce in Card 4 posed too much of a threat to the subjects' freedom, and was thereby followed by psychological reactance in the form of suggestion negation. Nevertheless, these post hoc conjectures must be verified by future research. One possible way to test this finding would be to utilize the lettuce suggestion as well as other suggestions that are extremely inconsistent with the perceptual possibilities of blot's form. Suggestion order should be randomized to help assure that psychological reactance is taking place.

Concerning the gender difference found for the experimenters, subjects having the male experimenter expressed greater primary process on the Rorschach than subjects having

the female experimenter. There are at least two possible explanations for this finding. One explanation involves the divergent personality styles of the two experimenters. The male experimenter seemed comfortable, confident, and non-threatening. When observed, he executed the experimental protocol the calm, self-assured style. The female experimenter, while competent, seemed nervous, self-conscious, and displayed a lack of confidence when performing the experiment. Although these descriptions are derived from the researcher's own impressions rather than scientific data, they may provide an explanation for the differences in primary process manifestations. Subjects having the male experimenter may have felt more relaxed, secure, and candid in expressing their perceptions of the ink blots. These feelings seem to have accompanied a relaxation of defenses and a greater engagement in primary process mentation. Subjects having the female experimenter may have been more reluctant to engage in primary process because of her nervousness. This explanation may be supplemented when considering a Freudian analysis of the results. In Totem and Taboo, Freud (1918) investigated the dynamics of primitive societies. In this work, Freud frequently spoke of the tribal chief or ruler, who was regarded with great reverence. Freud noted that primitive societies believed the chief to possess enormous, almost super-human power. Furthermore, the chieftain rouses envy and wishful thinking over his people; "everybody would perhaps like to be king" (p. 45), because "these savage kings are

endowed with a wealth of power and an ability to bestow happiness which only gods possess" (p. 59). In other words, Freud contended that the tribal kings acted as a source of gratification. These emotions, claims Freud, "arise from the infantile attitude of the child to its father" (p. 68), as omnipotence is regularly attributed to the father in the imagination of the child. But these dynamics not only occurred in primitive societies, but may also become manifest in regressive processes (p. 24), such as hypnosis. Gill and Brenman (1959) support this connection: "one important aspect of the transference which emerges in hypnosis is the fantasy of the limitless power of the hypnotist" (p. 74). Furthermore, this position has been supported by recent research; Nash (1988) found that the perceived power of the hypnotist and a fear of negative appraisal correlate significantly with hypnotic susceptibility. Keeping these statements in mind, the fantasy of the hypnotist's omnipotence may elicit greater wish-oriented mentation (i.e. primary process). Furthermore, the gender difference found for the experimenters may be due to the fact that the male experimenter acted with more authority, command, and control, thereby eliciting these fantasies to a greater extent. And from Freud's viewpoint, the male experimenter would be more likely to resurrect infantile fantasies concerning the omnipotent father, thereby eliciting greater primary process.

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