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Computerized Content Analysis: A comparison of the Verbal Productions of High Hypnotizable, Low Hypnotizable and Simulating Subjects

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To the Graduate Council:

I am submitting herewith a dissertation written by Edeltraud Elter-Nodvin entitled "Computerized Content Analysis: A comparison of the Verbal Productions of High Hypnotizable, Low Hypnotizable and Simulating Subjects." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Michael R. Nash,, Major Professor

We have read this dissertation and recommend its acceptance:

John C. Malone, Wesley Morgan, Michael K. Smith

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Accepted for the Council:

Anne Mayhew
Interim Vice Provost and
Dean of the Graduate School.

Original signatures are on file in the Graduate Admissions and Records Office.

Computerized Content Analysis:

A Comparison of the Verbal Productions

of High Hypnotizable, Low Hypnotizable and Simulating Subjects

A Dissertation

Presented for the

Doctor of Philosophy Degree

The University of Tennessee, Knoxville

Edeltraud Elter-Nodvin

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To my father, Peter Elter and my grandmother, Theresia Elter,

with much love.

Sabette

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ABSTRACT

This research was designed to investigate the domain of hypnosis and to explore how the "state" of hypnosis, along with the susceptibility to hypnosis relate to lexical choice in verbal productions as well as to primary/secondary process mentation. The hypothesis that hypnosis facilitates primary process mentation has held a central place in numerous psychoanalytically oriented theories of hypnosis (Gill & Brenman, 1959; Fromm, 1992; Nash, 1991).

College students were screened for level of hypnotic susceptibility employing the following two hypnotic susceptibility scales: The Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS: A; Shor & Orne, 1962) [Appendix D] and The Computer-Assisted Hypnosis Scale (CAH; Grant & Nash, 1995) [Appendix E].

A total of 89 subjects were identified: 32 high hypnotizable subjects and 57 low hypnotizable subjects. Via random selection about half of the 57 low hypnotizable subjects were assigned to be "Simulators" (Orne, 1979). Three groups were obtained: 32 high hypnotizable subjects, 29 low hypnotizable subjects and 28 low hypnotizable simulating subjects.

Responses to six Thematic Apperception Test (TAT) cards and responses to five free speech story-openings were collected and tape-recorded during both the waking state (baseline) and the "state" of hypnosis. The standard induction procedure of the Stanford Hypnotic Susceptibility Scale, Form C (Weitzenhoffer & Hilgard, 1962) [Appendix F] was utilized to hypnotize the subjects. The waking state and the "state" of hypnosis were counterbalanced. All tape-recordings of verbal productions were transcribed and analyzed by way of two computer content analysis programs: The Dartmouth Adaptation

of The General Inquirer with the "Harvard III Psycho-Sociological Dictionary (Oxman *et al.*, 1988) further referred to as "DAGI-III," which analyzes a text for 105 lexical choice variables of verbal productions and COUNT with the Regressive Imagery Dictionary, a PL/I program for content analysis of natural language, further referred to as "COUNT-RID" (Martindale, 1973) which analyzes a text for 99 categories, among other variables, for level of primary and secondary process mentation.

Summary of the results:

1) Results of 2x3 ANOVA for *a priori* selected variables of the "DAGI-III" content analysis program indicate: For the main effect of condition (baseline to hypnosis), a significant decrease in THOUGHT, a significant increase in EMOTION and a significant increase in SOCIAL was found.
2) Results of 2x3 ANOVA for *a priori* selected variables of the "COUNT-RID" content analysis program indicate: For the main effect of condition (baseline to hypnosis), a significant decrease in SECONDARY PROCESS and a significant increase in EMOTION was found. For the interaction (condition and group), a significant decrease in SECONDARY PROCESS was found. For DRIVE high and low hypnotizable subjects showed a decrease and simulators showed an increase.
3) Auto-correlation analysis for the COUNT-RID showed, as would be expected, strong positive correlation between PRIMARY PROCESS and its components DRIVE, SENSATION, REGRESSIVE COGNITION, DEFENSIVE SYMBOLIZATION and ICARIAN IMAGERY. PRIMARY PROCESS showed a strong negative correlation with SECONDARY PROCESS. Finally SECONDARY PROCESS was strongly negatively correlated with EMOTION.

4) Auto-correlation analysis for the DAGI-III showed as would be expected that PSYCHOLOGICAL PROCESSES show high positive correlation with its components EMOTION, EVALUATE and THOUGHT.
5) Inter-correlation analysis between the DAGI-III and the COUNT-RID variables showed very strong positive correlation between the DAGI-III-EMOTION and the COUNT-RID-EMOTION, the DAGI-III-THOUGHT showed a strong negative correlation with the with the COUNT-RID-EMOTION; the DAGI-III-THOUGHT showed a strong positive correlation with the COUNT-RID-SECONDARY PROCESS.

To summarize, findings suggest that the changes in SECONDARY PROCESS and THOUGHT, as well as the DAGI-III-variable EMOTION and the COUNT-RID-variable EMOTION, may be a result other than hypnotic ability or the hypnotic experience. The possibility has been raised, that subjects who had been instructed to simulate hypnosis were successful in discerning the experimental, implicit demands to respond with decreased SECONDARY PROCESS and THOUGHT as measured by the DAGI-III and COUNT-RID respectively and to present the appearance of a genuinely hypnotized subject. The same was true for the increase in EMOTION as measured by the DAGI-III as well as by the COUNT-RID. The interaction between the condition (baseline vs. hypnosis) and the group (level of hypnotic susceptibility) would have provided the strongest support for the assertion that hypnosis changes a dimension (e.g. enhances primary process responding or decreases secondary process mentation) in highly hypnotizable subjects.

The likelihood that the hypnotic main-effect can be attributed at least to some extent to demand characteristics has been supported by the current results. The hypnotic "state", even though it can be measured through behavioral measures such as the HGSHS and the CAH, cannot be measured by content measures of verbal productions.

Findings are discussed in regard to previous literature suggesting a link between primary process and hypnosis and suggestions for future research are made. In addition, theoretical and practical implications are discussed.

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PART 1. INTRODUCTION

Problem Statement

A plethora of research exits in the field of hypnosis. Provoked by Clark Hull (1933) and his definition of hypnosis "The difference between the hypnotic state and the normal state is, a quantitative rather than a qualitative one. No phenomenon whatever can be produced in hypnosis that cannot be produced to lesser degrees by suggestions given in the normal waking condition", a series of controlled experimental investigations of the "hypnotic state" were launched and started the modern era of hypnosis research.

There has been much debate as to whether hypnosis is a "special state" (Hilgard 1973) due to "special processes" or if hypnosis is a variation of "role-play" and "self-deception", hence mainly a result of demand characteristics (Spanos & Coe, 1992; Kirsch & Council, 1992; Lynn & Sivec, 1992). Some theorists close to the "special" or "altered state" theory have resorted to Freud's psychoanalytical formulations of hypnosis, such as "regression" (Freud, 1916-1917/1963) including increase in "primary process" ideation (Gill and Brenman, 1959; Fromm, 1992, Nash, 1991) to explain the domain of hypnosis. Fromm (1992) and Nash (1991), have advanced closely related psychoanalytical contentions to describe essential features of hypnosis.

Nash (1991) in his theory of the hypnotic state, highlights Freud's construct of "topographic regression" and a shift in ego functioning: This shift embodies greater access to primary process mentation, increased availability of affect, experiences in body distortion, subjective feelings of non-volition, and transference in the relationship with the hypnotist (Nash, 1991).

Fromm (1992) defines hypnosis as an "altered state of consciousness, a cognitive-perceptual state qualitatively different from the waking state ". Fromm also emphasizes the concept that hypnosis produces an alteration in ego functioning. Fromm appeals to

the idea of "ego receptivity" as a special mode of awareness, characterized by a reduction in critical, reality-oriented thinking. As a result, primary process material is able to flow more easily into awareness.

However empirical support for the hypothesis that hypnosis facilitates primary process mentation has been quite limited.

Rationale for the study

Kirsch & Lynn (1996) asserted that the debate as to whether hypnosis is or is not a "special state" has faded. They maintain that any prevailing differences all "cut across" the "state"-"non-state" controversy. Chaves (1997) however pointed out that "the prevailing paradigms in hypnosis exert an enormous influence on the choice of research topics, the manner in which those topics are investigated, and how the resulting data are analyzed and interpreted. In other words our ontology dictates our epistemology".

Ultimately it is the obligation of the "special state" theorists to explore features of the hypnotic state that are unique, qualitatively and/or quantitatively distinct from the waking state. The present research study was directed toward an exploration of the "state" and "trait" of hypnosis, utilizing technologically sophisticated methods of linguistic analysis to profile the lexical choices of verbal productions and to investigate possible differences in primary as compared to secondary process mentation during the in the hypnotic and the non-hypnotic state.

Research Questions

This research was designed to investigate hypnosis and hypnotic susceptibility and how they relate to lexical choice in verbal productions as well as to primary and secondary process mentation. Questions to lexical choice in verbal productions and questions to primary and secondary process mentation will be listed separately:

Questions to lexical choice of verbal productions:

[1] Do the waking state and the state of hypnosis differ in lexical choice of verbal productions?

[2] Is there an interaction effect between the group (high hypnotizable, low hypnotizable and simulating subjects) and the condition (baseline and hypnosis) in lexical choice of verbal productions?

[3] Do the groups: high hypnotizable, low hypnotizable and simulating subjects differ in lexical choice of verbal productions?

Questions to primary and secondary process differences:

[1]Do the waking state and the state of hypnosis differ in primary and/or secondary process mentation?

[2] Is there an interaction effect between the group (high hypnotizable, low hypnotizable and simulating subjects) and the condition (baseline and hypnosis) in primary and/or secondary process mentation?

[3] Do the groups: high hypnotizable, low hypnotizable and simulating subjects differ in primary and/or secondary process mentation?

Hypotheses

The following null hypotheses were tested:

Hypotheses to lexical choice of verbal productions:

[1] No condition effect

No difference in lexical choice of verbal productions exists between the waking state and the state of hypnosis.

[2] No interaction effect

No interaction effect exists in lexical choice of verbal productions between groups (high hypnotizable, low hypnotizable and simulating subjects) and condition (baseline and hypnosis).

[3] No group effect

No difference in lexical choice of verbal productions exists between the groups (high hypnotizable, low hypnotizable and simulating subjects.

Hypotheses to primary and secondary process differences:

[1] No condition effect

No difference in primary and/or secondary process mentation exists between the waking state and the state of hypnosis.

[2] No Interaction effect

No interaction effect in primary and/or secondary process mentation exists between the groups (high hypnotizable, low hypnotizable, simulating subjects) and the condition (baseline and hypnosis).

[3] No group effect

No difference in primary and/or secondary process mentation exists between high hypnotizable, low hypnotizable, simulating subjects).

Overview of the Study

A review of the literature is found in Chapter II. Participants, measures and procedures for data collection are included in Chapter III. Results of the data analysis performed to examine the research questions are reported in Chapter IV. The findings, limitations of this study, and implications for future research are discussed in Chapter V.

Review of the Literature

Hypnosis has been associated with numerous phenomena: animal magnetism, artificial somnambulism, a form of sleep, a condition of increased suggestibility, and hysteria. It has been defined to be a special state, due to dissociation or regression along with an increase in primary process ideation, however it also has been circumscribed to be role-play or goal directed fantasy. This chapter will discuss relevant historical literature, as it serves as meaningful background to the current study.

The field of hypnosis was brought into the arena of science by Franz Anton Mesmer with his theory of animal magnetism, later referred to as *mesmerism* (Mesmer, F. A., 1779). Mesmer described the human body as having poles, much like a magnet, and illnesses according to Mesmer were the result of a defective distribution of the patient's "magnetic fluid" moving between these poles. By moving his hands over the ill person's body, Mesmer believed to realign the patient's magnetic fluid, and to bring about cure. As Mesmer's practices became more popular, Mesmer's claims were investigated with early scientific scrutiny by a Royal commission led by Benjamin Franklin, the American ambassador to France. The investigation could not detect "magnetic healing" and concluded that there was no scientific proof of magnetism. Nevertheless, the investigation failed to observe that some of Mesmer's patients did show healing effects, if not through magnetic healing then maybe through another undetected mechanism such as "suggestion". Nonetheless, Mesmer's reputation was greatly diminished. Still, he accepted the lack of findings for "magnetic healing" and started to focus on the importance of the magnetizer himself as therapeutic instrument. He began to elaborate on the importance of the relationship between the magnetizer and the patient, which he

called “rapport”. Consequently, the understanding of “rapport” led later to the concept of the psychotherapeutic importance of transference and counter-transference, one of Sigmund Freud’s great contributions (Freud, 1916/17).

One of Mesmer’s most renowned colleagues, the Marquis de Puységur, performed experiments which involved animal magnetism as well. During those experiments Puységur encountered, that some of his patients entered a state, which he called “artificial somnambulism” (Puységur, A. M. J. de Chastenet, Marquis de., 1784). Furthermore, Puységur emphasized the relationship between the magnetizer and the patient, which he called “intimate rapport”, which promoted the development of a deep dependence of the patient upon the magnetizer. This was the precursor of the therapeutic tool of “working through transferential issues”. Likewise Puységur and his followers stressed the importance of suggestion, positive anticipation, and mutual feelings of trust between the magnetist and the patient. This enlightenment led to the modern theories of “expectancy set” in the field of experimental psychology and “transference” in the field of psychodynamic psychotherapy.

Moreover in France José Custodio da Faria highlighted the significance of the subject’s own stimulus, which he named “lucid sleep” and it’s importance to the magnetizing experience (Faria, 1819). It was Faria who brought to light the existence of individual response differences (Faria, 1819) and it’s relevance to the magnetic experience. After all the science of magnetic healing recovered from the earlier criticisms of mesmerism and eventually continued its activity in France.

Jean Martin Charcot, a prominent neurologist and Director of the Salpêtriére, a hospital in Paris for the mentally ill, developed curiosity in hypnosis and became the

leader of the Paris school of hypnosis. His somatic description of hypnosis brought hypnosis back as an area for investigation and practice. He proposed three stages of hypnosis: “lethargy”, “catalepsy”, and “somnambulism” (Charcot, J. M., 1882). In addition he compared hypnosis to hysteria and had great influence on Freud’s later career path.

To attract a large number of subjects for hypnotherapy, Auguste Ambroise Liébeault offered his patients hypnotherapy at no cost. He was able to demonstrate numerous successful treatments employing hypnosis effectively. He compared hypnosis to natural sleep, with the difference that hypnosis is brought on by suggestion of and concentration upon the idea of sleep along with the ingredient of “rapport” (Liébeault, 1866). With Hypnotherapy alone, Liébeault successfully treated one of Hypolyte Bernheim’s patients, whose ailments had not been alleviated through Bernheim’s traditional care. This successful treatment resulted in Liébeault’s gain of respect by his colleagues and Bernheim’s acceptance of becoming Liébeault’s student. Bernheim, who already was a professor at the school of Nancy, concluded that suggestion was the essence to hypnosis. However, Bernheim later changed his theory and postulated that suggestion without hypnotic ritual was equally effective. This hypothesis started a lengthy intellectual battle between the school of Nancy and the school of Paris.

In England, James Braid elaborated on magnetism in both psychological and physiological terms and was credited to have given magnetism its new and more accepted name of “hypnotism”. His explanation for hypnotism was based on concepts including concentration and sleep, as well as belief and suggestion. He promoted the idea that the mind and the body influenced each other. However it was his emphasis on the

physiological explanation for hypnosis, which was more so than "animal magnetism" in line with the status quo of scientific thought, that helped him to achieve acceptance in the field (Braid, 1843).

In light of this opulent but by no means exhaustive early history of hypnosis, one must highlight the importance of Clark Hull's work as grand contribution to the field of hypnosis. In the 1930s, Hull, a professor at Yale University, began a systematic series of controlled experiments, which were designed to test some of the fundamental questions of hypnosis. Subjects were exposed to the same experimental conditions during the waking state and the "state" of hypnosis, thus one could determine which differences were due to hypnosis or the induction process. Hull published this discussion of various controlled scientific laboratory experiments, however he was quite pessimistic as to whether any advances within the study of hypnosis could ever be achieved. Hull claimed that the difficulties of hypnosis research, which he called "pseudo-difficulties" were inherent in the fundamental ambiguity of the phenomena of hypnosis itself. He stated that "These difficulties are so great that to enter seriously on a program of investigation in this field is a little like tempting fate; it is almost to court scientific disaster. Small wonder that orthodox scientists have usually avoided the subject!".(p.403). In 1933 Hull published a book called *Hypnosis and Suggestibility*, in which he concluded that the only significant difference between the waking state and the hypnotized "state" is that subjects during hypnosis are more suggestible. Further he embraced the idea that dissociation was an essential feature of hypnosis, however not dissociation into two "minds", one conscious and the other subconscious, but rather that specific suggestions for dissociation, make some memories inaccessible to voluntary recall. The inaccessibility

of certain memories during hypnosis could reduce the responsiveness of the subject to painful stimuli. Therefore, Hull referred to hypnosis as a state of hypersuggestability (Hull,1933). Hull stated " All sciences alike have descended from magic and superstition but none has been so slow as hypnosis in shaking off evil association of its origin" (such as the occult). Hull noted "the nonphysical notions of the nature of mind fostered by metaphysical idealism, probably favored hypnotism's mystical affinities, and mysticism is notoriously incompatible with controlled experiment" (p.18). Despite such criticism and appeal for caution, Hull's work started the modern era of hypnosis research and theory development.

From that point further hypnosis research has been driven by a debate as to whether hypnosis is or whether it is not an altered state of consciousness. The following two main "camps" of hypnosis theories emerged:

1. The "special state" theory of hypnosis, which progressed from the Dissociation theory of hypnosis, to the "Neo-dissociation theory" of hypnosis. (Hilgard, 1987)

- Dating back to Freud's early assertions of hypnosis as playing a facilitative role to accessing the more primitive aspects of personality, some proponents of the special state theory have described hypnosis in psychoanalytical terms and propose the concept of "regression" to explain the domain of hypnosis. (Gill & Brenman, 1959; Fromm, 1992; Nash, 1991).

2. The "non-state" theory of hypnosis also named the "social-psychological", "sociocognitive", or the "cognitive-behavioral" theory of hypnosis (Sarbin 1950; Spanos & Barber1974).

To get a better understanding of the historical origins and theoretical background of each of the two major contemporary "camps" of hypnosis, a brief summary will follow:

In 1919, Pierre Janet had developed a theory of dissociation, which he alleged could be studied by hypnosis (Janet, 1919). According to the dissociation theory of hypnosis, ideas or behavioral patterns, which normally occurred together or in sequence, could become separated or dissociated from one another. Dissociation could be a result of trauma, but could also be produced by suggestions from the hypnotist. The concept of dissociation and hypnosis was furthered by Ernest R. Hilgard (Hilgard, 1987).

Hilgard reintroduced and advanced Janet's theory of dissociation and asserted that dissociation between cognitive systems were often incomplete. His theory has been named the "Neo-Dissociation Theory". He observed that memories, dissociated by subjects through suggestions for hypnotic amnesia, further could influence behavior. Hilgard called the dissociated part of the hypnotic subject the "hidden observer". Psychological dissociation, according to Hilgard is the most important component in hypnotically induced pain reduction: a separation of the pain from conscious awareness by an amnesia-like barrier. Dissociation is not a conscious process, rather something occurring automatically to hypnotically responsive subjects. Hilgard argued that dissociation of cognitive functions are not the direct result of suggestion but exist during hypnosis even though they have not been directly suggested. The Neo-dissociation perspective de-emphasizes contextual factors in hypnotic responding. It asserts that hypnotic experiences happen to hypnotic subjects when specific cognitive subsystems become separated or dissociated from one another and therefore are not goal directed.

This perspective postulates that subjects are passive observers rather than active participants of their experiences during hypnosis. Hence, the Neo-dissociation theory defines hypnosis as a "special state", a state that is fundamentally different from the waking state encompassing unique distinguishing features. (Hilgard, 1977).

Psychoanalytical theories of hypnosis are closely linked with the "special state" or "altered state" theory of hypnosis and likewise describe hypnosis as having features that are unique and qualitatively distinct from the waking state. Moreover psychoanalytical theories of hypnosis resort to Freud's early hypnosis theory to explain additional aspects of the domain of hypnosis:

In 1885 Sigmund Freud came to Paris to study at the Salpêtriére. Impressed by Charcot's theory of mental disorder and hypnosis, Freud changed his profession from neurology to Psychopathology. Together with Joseph Breuer, Freud developed his psychoanalytic theories, which were partly based on his discoveries surrounding hypnosis:

Freud asserted that hypnosis is able to facilitate freer access to more primitive unconscious aspects of personality (Freud, 1916-1917/1963). Freud defined primary process mentation and secondary process mentation as distinct modes of cognition, that define the limits of a continuum along which states of consciousness vary. Freud described secondary process thought as the logical, reality oriented, abstract thought of waking adults. He described primary process ideation as a more primitive form of cognition, which is irrational, autistic, free associative and concrete. Freud proposed that primary process mentation is the principal form of awareness in young children and in adults. Primary process, according to Freud takes place in dreams, preoccupation such

as daydreams, meditation or states of trance, drug-induced altered states, and psychotic episodes.

Freud postulated that symptoms could appear as a result of repressed emotions. He explained hypnosis as having the ability to uncover emotions that are repressed below the level of consciousness. After uncovering such repressed material, the feelings associated with the patient's problematic situation would be ventilated (catharsis or" talking cure") and the symptoms would disappear. He described hypnosis as an eroticized dependent relationship. It was this part of his theory of hypnosis that led Freud to develop his ideas of transference, counter-transference, and resistance. Revelations of symptoms during hypnosis, whether true or fantasies, had to be exposed and interpreted. Therefore interpretation and insight-directed therapy developed and evolved as byproduct to hypnotherapy. However in the later stages of his career Freud abandoned hypnosis and it's use and focused on psychoanalytic treatments such as free association and dream interpretation to uncover the unconscious part of the mind. Freud's abandonment of hypnosis caused many of his colleagues to do the same and by the end of the nineteenth century the field of hypnosis once again seemed to face a downfall.

Dating back to Freud's aforementioned declarations about hypnosis, more recent researchers have summoned the concepts of psychological regression and primary process to explain the shift in mentation and experience of affect during hypnosis (Gill & Brenman, 1959; Fromm, 1992; Nash, 1991). Gill and Brenman (1959) build upon Freud's earlier notions of hypnosis, and added the conception that one of the defining features of the hypnotic state is the relative ease with which primary process modes of thought enter into consciousness.

Nash (1991) in his theory of the hypnotic state, highlights Freud's construct of "topographic regression" and a shift in ego functioning: This shift includes greater access to primary process mentation, increased availability of affect, experiences in body distortion, subjective feelings of non-volition, and transference in the relationship with the hypnotist (Nash, 1991). Nash offers a concise yet integrative definition of hypnosis, in which he states hypnosis to be what takes place after a hypnotic induction with a willing and responsive subject. Furthermore, Nash concludes, that the hypnotic situation is defined by the person's changes in behavior, cognition, and experience.

Fromm (1992) defines hypnosis as an "altered state of consciousness, a cognitive-perceptual state qualitatively different from the waking state." Fromm also calls attention to the concept that hypnosis produces an alteration in ego functioning. Fromm appeals to the concept of "ego receptivity" as a special mode of awareness, characterized by a reduction in critical, reality-oriented thinking (also referred to as "secondary process thinking"). As a result of the ego receptivity, primary process material is able to flow more easily into awareness. In the 1970's Fromm and her colleagues studied Rorschach responses of subjects during both the waking and the hypnotic state to examine whether hypnosis could be illustrated as a regression-in-the-service of the ego. Findings for high susceptible subjects during the hypnotic state showed no increase in response adaptability but did show a significant shift toward primary process ideation (Fromm, Oberlaender & Gruenewald, 1970; Levin and Harrison, 1976).

On the other end of the hypnosis spectrum, are the "non-state", the "sociocognitive", the "social-psychological", or the "cognitive behavioral" theorists of hypnosis:

Theorists in the "non-state league" reject the idea that hypnosis is an altered state of consciousness or that hypnosis is due to a cognitive change. Sociocognitive theorists have emphasized that attitudes, expectancies, and perceptual processes can interact in powerful ways and modify subjects' behavior during the hypnotic condition. They argue that hypnosis is mainly role-play and self-deception (Lynn & Rhue, 1991)

Sarbin (1950) described hypnotic behavior as "role-enactment". Sarbin's theory put heavy weight on the importance of contextual information or social demands, which create expectations of the hypnotic "act". Influenced by Sarbin's theory, and in a similar manner, T. X. Barber asserted that a special "state" of hypnosis does not exist. Barber and Spanos maintained that hypnosis was mainly role-play and goal directed fantasy (Spanos & Barber 1974). However, Barber (1969) asserted that a hypnotic induction is sufficient for a subject to fully experience hypnosis. According to Barber, a hypnotic trait and attitudes toward the hypnotic situation are not pertinent for a subject to become hypnotized.

Kihlstrom (1998) and Woody & Sadler (1998) contend that all current theories of hypnosis are provisional and incomplete, and each has something of value to offer. Each draws attention to aspects of the experience of hypnosis that the other neglects.

On a similar note, Kirsch & Lynn (1996) proposed that: the notion that hypnosis can be illustrated as an ongoing fight between two camps divided on whether hypnosis is or is not a special state has faded. They maintain that any prevailing differences all "cut across" the "state"-"non-state" controversy.

Chaves (1997) however cautioned, that "the prevailing paradigms in hypnosis exert an enormous influence on the choice of research topics, the manner in which those

topics are investigated, and how the resulting data are analyzed and interpreted. In other words our ontology dictates our epistemology".

Ultimately, it is the responsibility of the "special state" theorists of hypnosis to explore possible unique features of the hypnotic state, features that are qualitatively and quantitatively different from the waking state.

Serving this purpose enormously, numerous scales of hypnotic responsiveness have evolved. With the development of standardized and normed scales such as the Stanford Hypnotic Susceptibility Scales, Forms A, B, and C (SHSS: A, B, C; Weitzenhoffer & Hilgard, !959, 1962) or the Computer Assisted Hypnosis Scale (CAH; Grant & Nash, 1995), as well as the development of group hypnosis scales such as the Harvard Group Scale of Hypnotic Susceptibility, Form: A (HGSHS: A; Shor & Orne, !962; based on SHSS:A and SHSS:B), observations that people vary in their level of hypnotic responding can now be quantified and studied scientifically.

As Nash summarizes, all of these scales contain rigorously standardized induction procedures (a set of instructions administered by a hypnotist inviting the subject to become hypnotized and which usually include suggestions for relaxation and for the full experience of various suggestions during the hypnosis session). The assumption is made that hypnotic responsiveness can be measured by hypnotizing a subject, offering an array of suggestions, which are either passed or failed, and by adding the number of passed suggestions the experimenter then arrives at the score of hypnotic responsiveness. Group scales of hypnotic responsiveness such as the HGSHS: A (Shor & Orne, 1962) usually produce "approximate" or "rough" scores of hypnotic responsiveness. Individual measures of hypnotic responsiveness such as the CAH (Grant & Nash, 1992) are very

rigorous and reliable measures. Thus, it has been established that individuals greatly differ in their ability to experience hypnotically produced phenomena (Woody, Bowers, & Oakman, 1992)

In this regard, it is important to determine if in fact differences in hypnotic effects are due to the trait of hypnotizability alone or if the differences in hypnotic effects are the result of an interaction between the state of hypnosis and the trait of hypnotizability. Incidentally most studies in quest of support for psychoanalytic theories of hypnosis have used within subject designs, hence subjects serve as their own controls. These studies have been able to reveal that for subjects that are highly hypnotizable, hypnosis engenders an increase in primary process ideation during the hypnotic context as compared to the waking state. Conclusions of these findings have to be made with caution, since without a low hypnotizable control group, one does not know how much of this shift in primary process or any other dimension of interest is due to the hypnotic condition and how much can be accounted to by demand characteristics (Lynn & Rhue, 1991).

If high-hypnotizable subjects and low-hypnotizable subjects show identical dimensional effects to the hypnotic context, then those effects cannot be attributed to the hypnotic "state". Equally, if high hypnotizable subjects and low hypnotizable subjects show the same dimensional effects during the hypnotic context, but different dimensional effects during the waking state, then demand characteristics (or variables other than hypnosis) must be accountable for the particular dimensional change.

In light of these methodological obstacles Orne designed what has come to be known as the real-simulator design (Orne, 1959/1979): With the real-simulator design, it

has been repeatedly demonstrated that being hypnotized can easily be faked. If simulators are properly motivated, they do not have to be formally trained and even experienced hypnosis researchers are unable to detect the simulating subjects.

For experimental purposes, special instructions can be given to "simulators" to simulate hypnosis to the experimenter: "Today we would like you to act as you think an excellent hypnotic subject would act while being awake and while being hypnotized. Your task will be to convince the experimenter that you are an excellent hypnotic subject, and become deeply hypnotized. The experimenter will not know that you are pretending, though she will be aware that some individuals may be faking. If she becomes aware of the fact that you are not really hypnotized and are only pretending, she will immediately stop the experiment. So long as she goes on, you know that you are successful in your task. I cannot tell you anything about what she will be doing with you today nor can I tell you anything about how a hypnotized individual might act in this situation. You will just have to use your own judgment and do the best you can. This is a difficult task, but we have found that intelligent subjects have been able to carry it out successfully" (Orne, 1979).

In light of the previously discussed methodological concerns and possible limited conclusions that as a result could be drawn, the present research study elicited verbal productions from three subject groups: high hypnotizables, low hypnotizables, and simulators, during two counterbalanced conditions: the waking state and the hypnotic condition.

With the compilation of verbal productions the current study was able to explore the domain of hypnosis employing technologically sophisticated methods of linguistic

analyses. These linguistic analysis programs, also referred to as content analysis programs, are techniques for classifying lexical output to profile individual verbal productions and lexical choices.

There are three categories of content analysis programs:

1.) Individual word count systems, such as the General Inquirer Program with the Harvard III Psycho-Sociological Dictionary (Stone *et al.*, 1966), the Dartmouth Adaptation of the General Inquirer with the Harvard III psycho-Sociological Dictionary (Oxman *et al.*, 1988) and COUNT with the Regressive Imagery Dictionary (Martindale, 1986).

2.) Computerized systems incorporating artificial intelligence features consider both syntax and lexicon. These approaches go beyond a mere dictionary search operation, rather they locate a word or phrase within syntax that specifies the word's meaning. An example is the Revised General Inquirer with the Harvard IV Psycho-Sociological Dictionary (Kelly & Stone, 1975) which can accurately distinguish the specific meaning of polysemous words.

3.) Human scored, phrase-based content analysis systems such as the Gottschalk and Gleser (1969) method.

Human scored content analysis programs and computerized content analysis programs have been compared and results have shown that in addition to time and cost benefits, computerized methods are more accurate than human-scored methods (Rosenberg *et al.*, 1990).

The aforementioned list has been referred to as increasing in validity but decreasing in reliability (Deffner, 1986). However, contrary to these assumptions,

empirical results dictate high reliability and validity in all computerized systems (Schnurr *et al.*, 1986).

Thereupon, all groups of content analyses have been applied to assess personality dimensions and affective states. Computer content analysis has been used to make inferences about psychological states and traits of the speaker or writer. With these methods, researchers have been able to differentiate thinkers from feelers (determined by Myers-Briggs type Indicator scores; Seegmiller & Epperson, 1987), schizophrenics from other psychotic and personality-disordered inpatients (Rosenberg & Tucker, 1979; Tucker & Rosenberg, 1975) and somatization-disorder patients from depressed and medically ill patients (Oxman, Rosenberg, Schnurr, & Tucker, 1982). In addition, Oxman and his colleagues (1988), showed that systematic quantification of lexical choice can be used to classify patients into their respective diagnostic groups, and that this classification compares favorably with that done by psychiatric raters. Moreover, other researchers were able to distinguish "cancer" patients from "false alarm" patients before biopsy results were known, by analyzing verbal productions through computer content analysis. "Cancer" patients used more words related to death and hopelessness, and "false alarm" patients used more words related to hope (Spence, *et al.*, 1978).

Nevertheless, critics have raised concerns about dictionary size, applicability across populations, the complexity of dealing with meaning at a sentence or phrase level, with meaning often being determined by context (Viney, 1983). Even though intuition would dictate that context-sensitive systems would be more accurate than context-independent systems, no empirical evidence has been found to support this assumption (Rosenberg *et al.*, 1990). As Merleau-Ponty (1945/1962) argued in his Phenomenology of Perception:"

Words even when they finally achieve the ability to carry referential and conceptual levels of meaning, never lose that primitive level of affective meaning" (Merleau-Ponty, 1962).

With regard to the discussed literature of various content analysis programs, I elected to analyze the verbal productions by two single-word-count computer content analysis programs, procedures that ignore context:

1. The Dartmouth Adaptation of the General Inquirer content analysis program and the Harvard III Psycho-Sociological Dictionary, (Oxman *et al.*, 1988).

2. COUNT with the Regressive Imagery Dictionary, a PL/I program for content analysis (Martindale, 1973).

Computerized speech content analysis of each sample was used to explore whether the two conditions and/or the three groups can be differentiated by their narrative content or lexical choice.

As previously discussed, The Dartmouth Adaptation of the General Inquirer content analysis program and the Harvard III Psycho-Sociological Dictionary {DAGI-III}(Oxman *et al.*, 1988), which classifies a text for lexical choice in 105 variables has been proven effective in differentiating affective states and psychopathology (Rosenberg, *et al.*, 1990; Oxman *et al.,*1988). The program COUNT, a PL/I program for content analysis with the Regressive Imagery Dictionary {COUNT-RID}, has previously been used to distinguish creative from non-creative texts (Martindale, 1973).

PART 2. METHODS

Participants

The participants of the study were Undergraduate college student volunteers at the University of Tennessee, who received extra credit for participating in the study.

The experimental design called for subjects that have extreme high or extreme low scores of hypnotic susceptibility. With scales such as the Harvard Group Scale of Hypnotic Susceptibility Form: A (HGSHS: A; Shore & Orne, 1962) and the Computer Assisted Hypnosis Scale (CAH; Grant & Nash, 1995) observations that people vary in their level of hypnotic responding can be quantified: These scales contain standardized induction procedures (a set of instructions administered by a hypnotist inviting the subject to become hypnotized, which usually include suggestions for relaxation and for the full experience of various suggestions during the hypnosis session). The assumption is made that hypnotic responsiveness can be measured by hypnotizing a subject, offering an array of suggestions, which are either passed or failed, and by adding the number of passed suggestions the experimenter then arrives at the score of hypnotic responsiveness. Group scales of hypnotic responsiveness such as the HGSHS: A (Shor & Orne, 1962) usually produce "approximate" or "rough" scores of hypnotic responsiveness. Individual measures of hypnotic responsiveness such as the CAH (Grant & Nash, 1992) are very rigorous and reliable measures.

To obtain the 89 subjects that participated in the experimental procedure of this study, about 1500 Students of several undergraduate class sections including Introductory Psychology, Abnormal psychology, Motivation and Emotion, and Social Psychology officially consented to participate in the Harvard Group Scale of Hypnotic Susceptibility, Form: A (HGSHS: A; Shore & Orne, 1962). Students in this pool were assigned HGSHS: A scores ranging between 0 and 10. Roughly screening for the extreme low and

extreme high groups of hypnotic responsiveness and eliminating subjects with middle scores of hypnotic responsiveness, the HGSHS: A identified 238 possible subjects:

- Low hypnotizable subjects who had a HGSHS: A score that ranges between 0 and 3
- High hypnotizable subjects who had a HGSHS: A score that ranges between 7 and 10

To confirm these extreme low or high HGSHS: A scores, the identified possible subjects were then asked to participate in the rigorous Computer Assisted Hypnosis Scale (CAH; Grant & Nash, 1995). Only the subjects with confirmed scores of low hypnotizability (0-3) and high hypnotizability (7-12) were eligible for the study. A total of 89 subjects were identified: 32 high hypnotizable subjects and 57 low hypnotizable subjects.

Through random selection about half of the 57 low hypnotizable subjects were assigned to be "Simulators" (Orne, 1979). With what is known as the real/simulator design (Orne, 1972), it has been repeatedly demonstrated that being hypnotized can easily be faked. If simulators are properly motivated, even though they do not have to be formally trained, even experienced hypnosis researchers are unable to detect the simulating subjects (Spanos, 1986). With the inclusion of a group of low hypnotizable simulators, the design allows one to discount with greater certainty that demand characteristics could account for the relative change in any dependent variable.

Three groups were obtained: 32 high hypnotizable subjects, 29 low hypnotizable subjects and 28 low hypnotizable simulating subjects (Figure 1).

Prior to the experimental session, all three groups met with the assistant to the principle experimenter for ten minutes. The low hypnotizable group received no instructions; the low hypnotizable simulators (quasi-control group) received simulating instructions; the high hypnotizable group received no instructions.

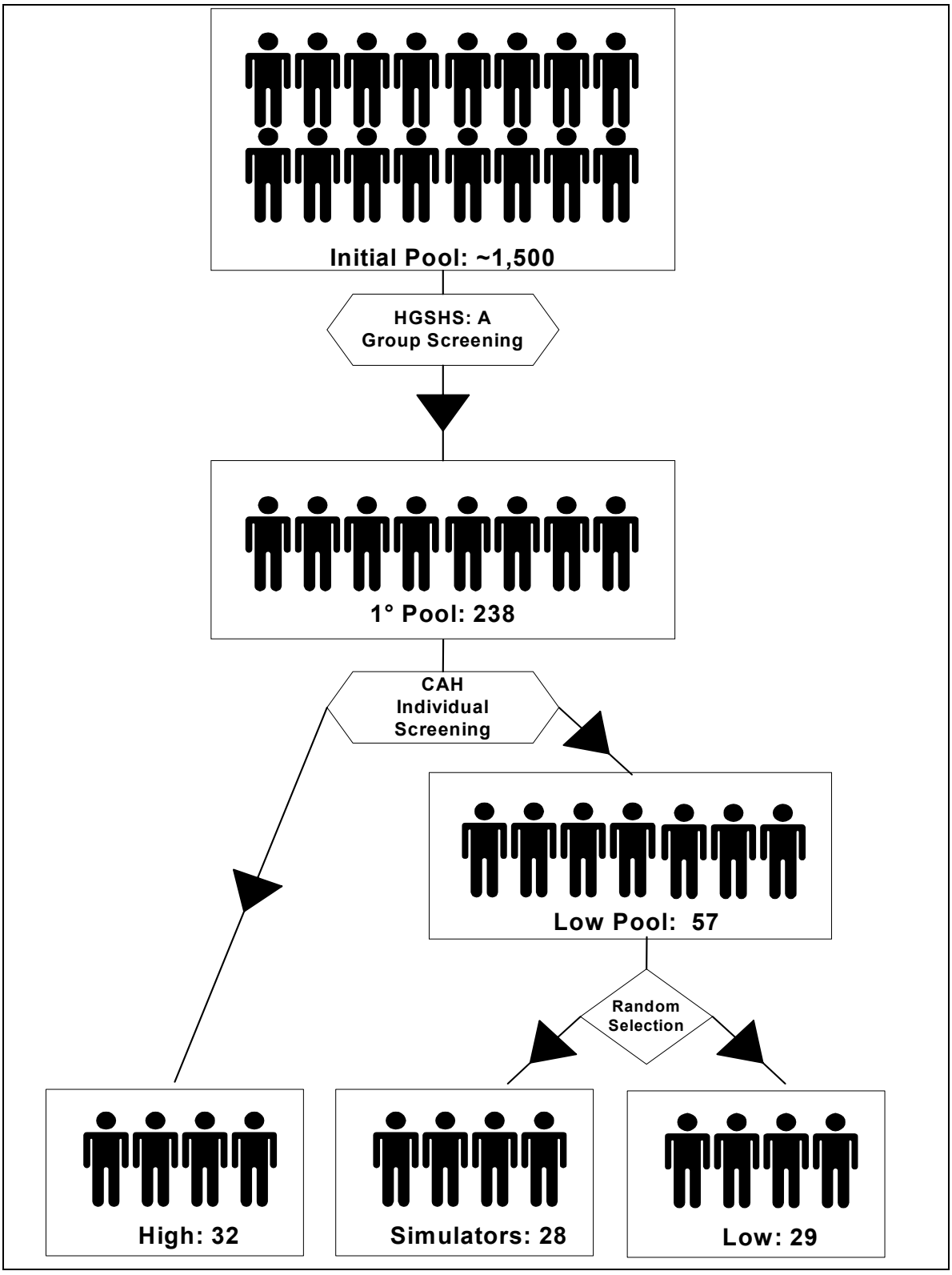


Figure 1. Screening process used to obtain subject groups

The principal experimenter was blind to each subject's score of hypnotizability and did not know which of the low hypnotizable subjects were previously selected to be simulators.

Measures

Hypnotic susceptibility scales

1. The Harvard Group Scale of Hypnotic Susceptibility Form: A (HGSHS: A; Shore & Orne, 1962)
2. The Computer Assisted Hypnosis scale (CAH; Grant & Nash, 1992)

With scales such as the Harvard Group Scale of Hypnotic Susceptibility Form: A (HGSHS: A) (Shore & Orne, 1962) and the Computer Assisted Hypnosis Scale (CAH) (Grant & Nash, 1995) observations that people vary in their level of hypnotic responding can be quantified: These scales contain standardized induction procedures (a set of instructions administered by a hypnotist inviting the subject to become hypnotized, which usually include suggestions for relaxation and for the full experience of various suggestions during the hypnosis session). The assumption is made that hypnotic responsiveness can be measured by hypnotizing a subject, offering an array of suggestions, which are either passed or failed, and by adding the number of passed suggestions the experimenter then arrives at the score of hypnotic responsiveness. Group scales of hypnotic responsiveness such as the HGSHS: A (Shore & Orne, 1962) usually produce "approximate" or "rough" scores of hypnotic responsiveness. Individual measures of hypnotic responsiveness such as the CAH (Grant & Nash, 1992) are very rigorous and reliable measures.

Computer content analysis programs

Computer content analysis is a technique for classifying texts. Computerized speech content analysis of each sample was used to explore whether the two conditions and/or the three groups can be differentiated by their narrative content or lexical choice.

Two computer content analysis programs were used.

The first is called the Dartmouth Adaptation of the General Inquirer content analysis program and the Harvard III Psycho-Sociological Dictionary (DAGI-III) (see Table 1). The DAGI-III, which classifies a text for lexical choice has been proven effective in differentiating affective states and psychopathology (Rosenberg, *et al.*, 1990; Oxman *et al.*, 1988). The DAGI-III classifies over 95% of words in a text. It parses a 1,000-word text in less than 60 seconds (Oxman *et al.*, 1988).

The General Inquirer arranges the words of a text sample in alphabetical order, removes suffixes, and allows these words then to be sorted according to a dictionary. When a match is found, a counter is incremented for the category or categories to which the word has been assigned. Unclassifiable words are also counted. The output of this program is listed as the proportion of words in each of the Harvard-III 83 thematic categories for each subject. The Harvard-III is more analogous to a thesaurus than to a dictionary. Words of similar meaning are arranged under conceptual headings. The DAGI-III groups 4300 words that are used in everyday speech into 83 categories (Stone *et al*. 1988). The categories were derived from a variety of theoretical perspectives such as psychoanalytic psychology and functionalist social psychology. When a word has more than one meaning it is assigned to the most commonly used meaning and as such

Table 1. Harvard III Psycho-Sociological Dictionary Summary categories and sample words (after Stone et al., 1966)

Summary Category	Category (sample words)
Social Realm	
Persons	
Self	I, me, mine
Selves	We, us, ours
Others	You, yours, they
Roles	
Male role	Actor, boy, brother
Female role	Actress, aunt, bride
Neuter role	Baby, American, anybody
Collectives	
Small group	Agency, band, board
Large group	Administration, army, church
Psychological processes	
Emotions	
Arousal	Attitude, awaken, felt
Urge	Dream, eager, incentive
Affection	Admire, affection, charm
Pleasure	Cheer, delight, funny
Distress	Afraid, alarm, break
Anger	Angry, boil, burn
Thought	
Sense	Appear, attend, aware
Think	Assume, choice, doubt
If	Almost, chance, else
Equal	Alike, same, consist
Not	Cannot, not, differ
Cause	Affect, cause, result
Evaluation	
Good	Admirable, clean, fair
Ought	Duty, ought, proper

recognized by the system. Words are assigned to one of 55 mutually exclusive first-order categories and to one or more of 28 second-order categories (summations of two or more second-order categories). Hence rather than measuring one specific attribute, the DAGI-III measures a diversity of content categories. After the selection of a content analysis dictionary the relative frequencies of thematic word categories are cumulated (Oxman *et al*. 1988).

The second program used is called COUNT with the Regressive Imagery Dictionary, a PL/I program for content analysis (COUNT-RID) (Martindale, 1973) (see

Table 2). The program COUNT-RID has previously been used to distinguish creative from non-creative texts (Martindale, 1973).

COUNT-RID contains 2900 words assigned to 43 categories. COUNT searches a text for dictionary words and computes the percentage of the occurrence of words within a category, such as for example the category Primary-Process. COUNT uses a suffix-removal procedure similar to the one in the General Inquirer. The Regressive Imagery Dictionary was assembled by searching the theoretical literature for aspects of primary-process and secondary process cognition, which might be indicated by word usage. Twenty-nine of the categories measure primary process content, seven measure secondary process content and seven measure content related to emotion.

Procedure

The design of this study was a 2 x 3 mixed factorial (Figure 2). There were three experimental groups:

1) High Hypnotizable subjects who were attempting to experience hypnosis to the best of their ability
2) Low Hypnotizable subjects who were trying their best to experience hypnosis despite their low hypnotizable status
3) Low hypnotizable simulating subjects who were trying to fake being highly hypnotizable

The simulating, low hypnotizable subjects, served as a quasi-control group, in that even though they were coming from the same subject-pool as the low hypnotizables, were given special instructions to simulate hypnosis to the experimenter: "Today we would like you to act as you think an excellent hypnotic subject would act while being awake and while being hypnotized. Your task will be to convince the experimenter that

Table 2. Regressive Imagery Dictionary summary categories and sample words
(after Martindale, 1973)

Summary Category	Category (sample words)
Primary Process	
Drives	
Oral	Breast, drink, lip
Anal	Sweat, rot, dirty
Sex	Lover, kiss, naked
Sensation	
General Sensation	Fair, charm, beauty
Touch	Touch, thick, stroke
Taste	Sweet, taste, bitter
Odor	Breath, perfume, scent
Sound	Hear, voice, sound
Vision	See, light, look
Cold	Cold, winter, snow
Hard	Rock, stone, hard
Soft	Soft, gentle, tender
Defensive Symbolization	
Passivity	Die, lie, bed
Voyage	Wander, desert, beyond
Random Movement	Wave, roll, spread
Diffusion	Shade, shadow, cloud
Chaos	Wild, crowd, ruin
Regressive Cognition	
Unknown	Secret, strange, unknown
Timelessness	Eternal, forever, immortal
Consciousness Alteration	Dream, sleep, wake
Brink-passage	Road, wall, door
Narcissism	Eye, heart, hand
Concreteness	At, where, over
Icarian Imagery	
Ascend	Rise, fly, throw
Height	Up, sky, high
Descend	Fall, drop, sink
Depth	Down, deep, beneath
Fire	Sun, fire, flame
Water	Sea, water, stream
Secondary Process	
Abstraction	Know, may, thought
Social behavior	Say, tell, call
Instrumental Behavior	Make, find, work
Restraint	Must, stop, bind
Order	Simple, measure, array
Temporal References	When, now, then
Moral Imperatives	Should, right, virtue

	Low Hypno-tizeable	High Hypno-tizeable	Simula-tors
Baseline			
Hypnosis			

Figure 2. 3 x 2 Factorial Design

you are an excellent hypnotic subject, and become deeply hypnotized. The experimenter will not know that you are pretending, though she will be aware that some individuals may be faking. If she becomes aware of the fact that you are not really hypnotized and are only pretending, she will immediately stop the experiment. So long as she goes on, you know that you are successful in your task. I cannot tell you anything about what she will be doing with you today nor can I tell you anything about how a hypnotized individual might act in this situation. You will just have to use your own judgment and do the best you can. This is a difficult task, but we have found that intelligent subjects have been able to carry it out successfully" (Orne, M. T., 1979).

The principal experimenter elicited narrative samples from all three groups in two counterbalanced conditions:

1) The waking condition
2) The hypnotic condition

The standard induction procedure of the Stanford Hypnotic susceptibility scale [Appendix F] was employed to hypnotize the subjects (Weitzenhoffer & Hilgard, 1962). Subject's were not told that the experiment would be a two part experiment, in which responses would be elicited during both the non-hypnotic and the hypnotic condition.

In each conditions, subjects were asked to respond to two tasks:

- Thematic Apperception Test - TAT cards:

The six TAT cards were chosen to evoke a range of affective responses (Barends et al, 1989) and were presented in random order:

1) Card # 1: rated neutral
2) card # 4: rated neutral
3) card # 3BM: rated negative
4) card # 13MF: rated negative
5) card # 2: rated neutral or positive
6) card #10: rated neutral or positive

Subjects were asked to look closely at the picture, then close their eyes, and tell a story. They were invited to tell what happened, what led up to the event shown in the picture, what happened at the moment, what happened as a result, and what the characters were thinking and feeling. Subjects were further asked to speak their thoughts as they come to

mind, and to take about five minutes to tell their story. The same six TAT cards were used in both experimental conditions.

- Standard imagination task: Ten creative story openings (Appendix G)

(Five different story openings were offered in each of the two experimental conditions). Subjects were requested to close their eyes, to listen to the story-openings and to make their own stories.

To prevent accidental hypnosis during the waking condition, subjects were required to complete an arithmetic task after each TAT card and each creative story telling task [Appendix H]

To assure that during hypnosis the hypnotic state would not diminish in depth between tasks, subjects were presented with a standard hypnotic deepening technique {Appendix H], which reemphasizes deep relaxation in a state of trance. The deepening technique was presented between each of the TAT tasks and each of the creative story telling tasks. In addition white noise was used to deflect any disturbing outside noises.

Thus given 89 subjects and two conditions, a total of 178 narrative samples were generated, tape recorded during the experimental session and later transcribed verbatim. The transcriptions of the narrative samples were then submitted to the two computer content analysis programs:

1. The Dartmouth Adaptation of the General Inquirer content analysis program and the Harvard III Psycho-Sociological Dictionary (DAGI-III) (Oxman *et al.*, 1988). The DAGI-III analysis was conducted at the Dartmouth Psychiatric Research Center by Dr. Stanley Rosenberg and his assistant Robinette Berry.

2. The program COUNT, a PL/I program for content analysis and the Regressive Imagery Dictionary (COUNT-RID) (Martindale, 1973). These analyses were conducted in Knoxville using COUNT-RID on a Pentium computer.

For each of the 178 transcriptions of narrative samples the DAGI-III generated scores (tags) for the percentage of words in 105 categories and the COUNT-RID generated scores (tags) for the percentage of words or sentences in 99 categories. Hence the total data production for all 178 transcriptions of narrative samples and 204 categories was 36,312 tags.

The tags for the DAGI-III are listed in Appendix I.

The tags for the COUNT-RID are listed in Appendix J

I *a priori* selected categories that have been documented to be highly germane to my hypotheses by a number of psychoanalytic theories to hypnosis (cf. Freud, 1916-1917/1963, Gill & Brenman, 1959; Fromm, 1992; Nash, 1991):

For the DAGI-III, I *a priori* selected the categories: SOCIAL, PSYCHOLOGICAL PROCESSES and its components EMOTION, THOUGHT, EVALUATE.

For the COUNT-RID, I *a priori* selected the categories: EMOTION, PASSIVE, TIMELESS, SECONDARY PROCESS, PRIMARY PROCESS and its components DRIVE, SENSATION, DEFENSIVE SYMBOLIZATION, REGRESSIVE COGNITION, ICARIAN IMAGERY.

The calculated frequencies of lexical choice and affective state categories were imported into SPSS databases and a repeated measures analysis of variance (ANOVA) was performed to explore:

1. Significant order effect for the condition (waking or hypnosis) during the experimental procedure (If no order effect for the condition during the experimental procedure will be found, the results will be presented by just comparing group and condition effects).
2. Significant condition effect between baseline (waking) and hypnosis
3. Significant group effect by comparing: high hypnotizable subjects, low hypnotizable subject, and simulating subjects. However the focus will be to explore possible significant group differences by comparing the high hypnotizable with the low hypnotizable group and the high hypnotizable with the simulating group.
4. To test for condition and group differences a-repeated-measures ANOVA was conducted. Appropriate post-hoc analyses were performed for any significant differences.

   All statistical analyses were conducted with two-tailed tests of significance.
5. Correlation analyses were applied to compare the variables of the two computer content analyses.

PART 3. RESULTS

Results to lexical choice in verbal productions: DAGI-III and results to primary and secondary process mentation: COUNT-RID will be discussed in separate sections:

Results For the DAGI-III Content Analysis

The *a priori* selected lexical choice DAGI-III variables were: PSYCHOLOGICAL PROCESSES, THOUGHT, EMOTION, EVALUATE, and SOCIAL. The DAGI-III variable PSYCHOLOGICAL PROCESSES, is a sum of three lower order DAGI-III content analysis tags: THOUGHT, EMOTION and EVALUATE.

To test if there was any significant order effect for the condition (baseline-first/hypnosis-second, hypnosis-first/baseline second) in any of the *a priori* selected DAGI-III variables, I ran a repeated measures Analysis of Variance (ANOVA). No significant order effects were found among any of the *a priori* selected DAGI-III variables, therefore order was thereafter ignored as a potential factor of the results.

Research questions regarding lexical choice of verbal productions: DAGI-III:

The first research question addressed was the investigation of a possible significant relationship between the condition (baseline vs. hypnosis) and subjects' lexical choices in verbal productions. The second question was directed toward a possible significant interaction effect, between subjects' condition (baseline vs. hypnosis) and subjects' group (high hypnotizable, low hypnotizable and simulating subjects), in lexical choice of verbal productions. The third research question examined a possible significant relationship between subjects' group (high hypnotizable, low hypnotizable and simulating subjects) and lexical choice of verbal productions. Level of significance was determined and computed using alpha = 0.05.

Null Hypothesis One: no condition effect

No difference in lexical choice of verbal productions exists between the waking state and the state of hypnosis.

To test for significant condition differences between baseline and hypnosis, I performed a repeated-measures ANOVA for all of the *a priori* selected DAGI-III variables.

From baseline to hypnosis, results showed a significant decrease in THOUGHT (p=0.000*; power=0.992); a significant increase in EMOTION (p=0.001*; power=0.938), a significant decrease for PSYCHOLOGICAL PROCESSES, (p=0.013*; power =0.710), and a significant increase in SOCIAL (0.037*; power=0.555) [Table 3] (Figures 3-7). No significant condition effect was found for EVALUATE. [Table 3] .

Null Hypothesis Two: No Interaction effect

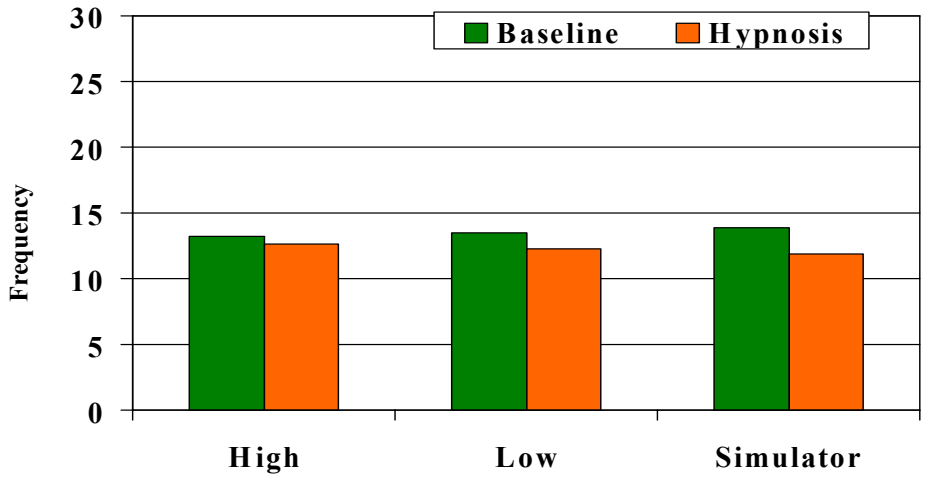
No interaction effect exists in lexical choice of verbal productions between group (high hypnotizable, low hypnotizable and simulating subjects) and condition (baseline and hypnosis) .

To detect any possible significant interaction effects between subjects' condition (baseline vs. hypnosis) and subjects' group (high hypnotizable, low hypnotizable and simulating subjects), in lexical choice of verbal productions, I performed a repeated-measures ANOVA for all of the *a priori* selected DAGI-III variables.

No significant interaction effects were found for any of the DAGI-III variables [Table 3]..

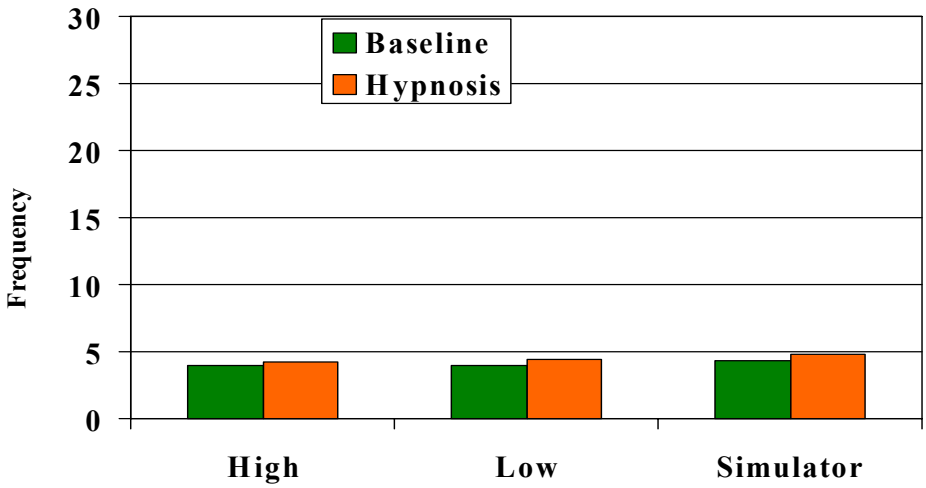
Table 3. Dartmouth Adaptation of General Inquirer / Harvard III Dictionary

Dependent Variable	Effect	2 by 3 Anova High/Low/Simulator		2 by 2 Anova High/Low		2 by 2 Anova High/Simulator	
		p-value	power	p-value	Power	p-value	Power
Social	CONDITION	**0.037***	0.555	0.395	0.135	**0.013***	0.715
	COND*GRP	0.154	0.387	0.309	0.173	0.267	0.197
	GRP	0.400	0.205	0.327	0.164	0.224	0.227
Emotions	CONDITION	**0.001***	0.938	**0.003***	0.853	**0.014***	0.707
	COND*GRP	0.696	0.107	0.424	0.125	0.474	0.109
	GRP	0.280	0.280	0.942	0.051	0.165	0.283
Thought	CONDITION	**0.000***	0.992	**0.008***	0.773	**0.000***	0.955
	COND*GRP	0.112	0.446	0.337	0.158	**0.040***	0.541
	GRP	0.998	0.050	0.949	0.050	0.955	0.050
Evaluate	CONDITION	0.864	0.053	0.980	0.050	0.786	0.058
	COND*GRP	0.975	0.054	0.910	0.051	0.898	0.052
	GRP	0.776	0.089	0.672	0.070	0.769	0.060
Psyproc	CONDITION	**0.013***	0.710	0.215	0.234	**0.020***	0.650
	COND*GRP	0.280	0.273	0.633	0.076	0.109	0.360
	GRP	0.961	0.056	0.908	0.051	0.781	0.059



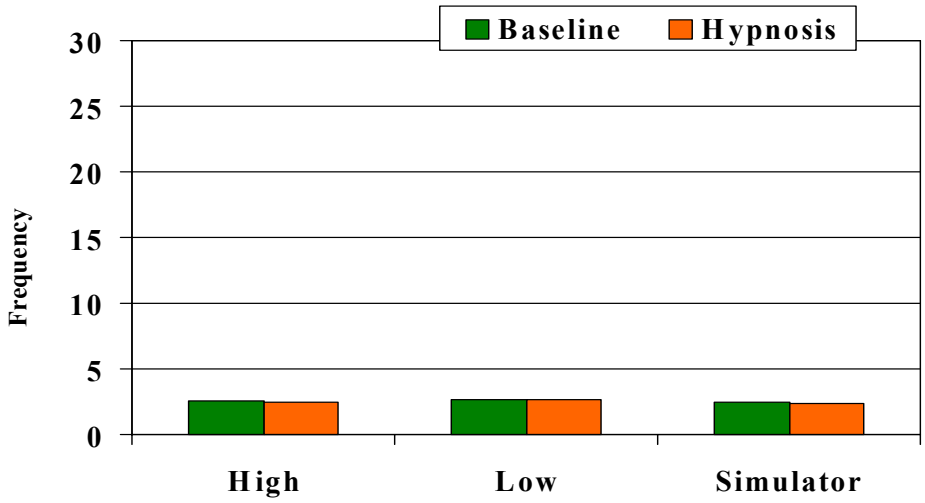
	p value	power
Condition	**0.000***	**0.992**
Cond*Grp	0.112	0.446
Group	0.998	0.050

Figure 3. Group and Condition Effects: DAGI-III Thought



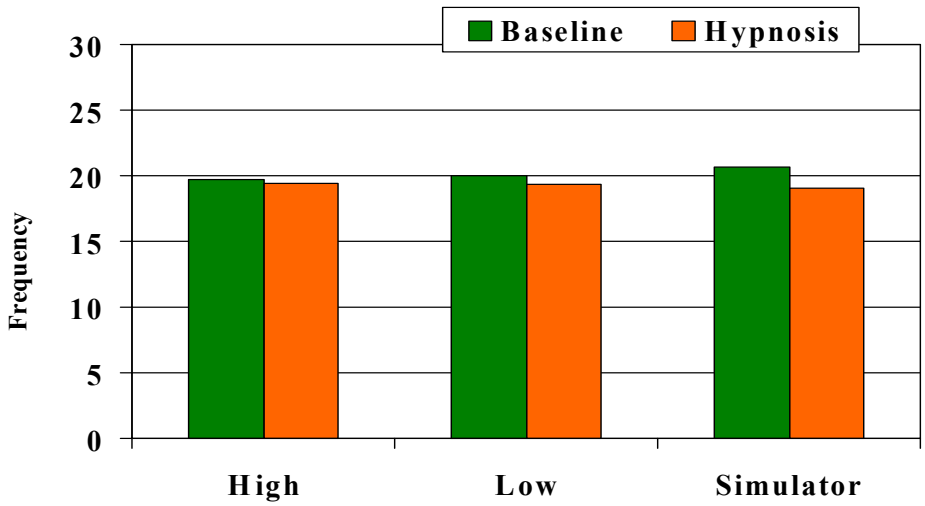
	p value	power
Condition	**0.001***	**0.938**
Cond*Grp	0.696	0.107
Group	0.280	0.273

Figure 4. Group and Condition Effects: DAGI-III Emotion



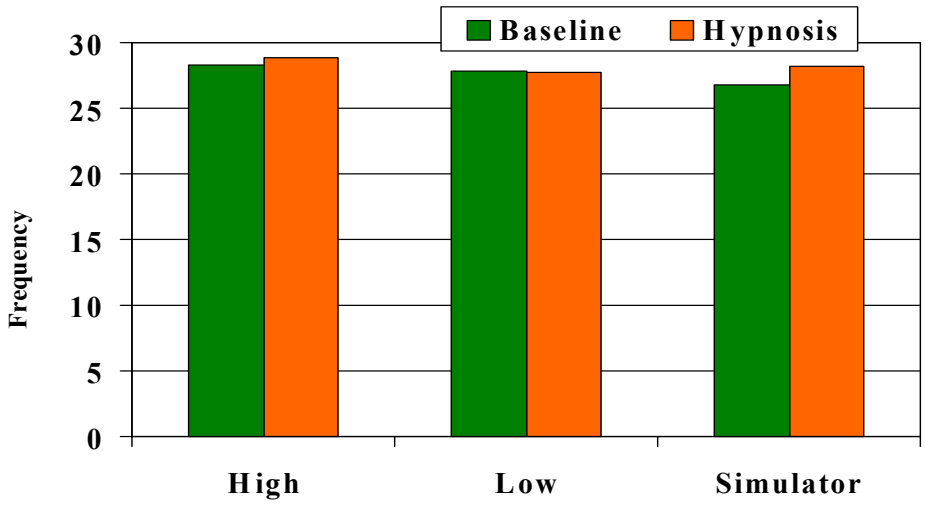
	p value	power
Condition	0.864	0.053
Cond*Grp	0.975	0.054
Group	0.776	0.089

Figure 5. Group and Condition Effects: DAGI-III Evaluate



	p value	power
Condition	**0.013***	**0.710**
Cond*Grp	0.280	0.273
Group	0.961	0.056

Figure 6. Group and Condition Effects: DAGI-III Psyproc



	p value	power
Condition	**0.037***	**0.555**
Cond*Grp	0.154	0.387
Group	0.400	0.205

Figure 7. Group and Condition Effects: DAGI-III Social

Null Hypothesis Three: No group effect

No difference in lexical choice of verbal productions exists among the groups: high hypnotizable, low hypnotizable and simulating subjects.

To detect any possible significant relationship between subjects' group (high hypnotizable, low hypnotizable and simulating subjects) and lexical choice of verbal productions, I performed a repeated-measures ANOVA for all of the *a priori* selected DAGI-III variables.

No significant group effects were found for any of the DAGI-III variables [Table 3].

Results for COUNT-RID Content Analysis

The *a priori* selected COUNT-RID variables were: SECONDARY PROCESS, EMOTION, PRIMARY PROCESS, DRIVE, SENSATION, DEFENSIVE SYMBOLIZATION, REGRESSIVE COGNITION, ICARIAN IMAGERY, PASSIVE and TIMELESSNESS. The variable PRIMARY PROCESS is a sum of the variable components: DRIVE, SENSATION, DEFENSIVE SYMBOLIZATION, REGRESSIVE COGNITION, and ICARIAN IMAGERY.

To test if there was any significant order effect for the condition (baseline-first/hypnosis-second, hypnosis-first/baseline second) in any of the *a priori* selected COUNT-RID variables, I ran a repeated measures Analysis of Variance (ANOVA). No significant order effects were found among any of the *a priori* selected COUNT-RID variables, therefore order was further ignored as a potential factor of the results.

Research questions to primary and secondary process differences:

The first research question addressed was the investigation of a possible relationship between the condition (baseline vs. hypnosis) and subjects' level of primary and/or secondary process mentation. The second question was directed toward a possible interaction effect, between subjects' condition (baseline vs. hypnosis) and subjects' group (high hypnotizable, low hypnotizable and simulating subjects), in level of primary and /or secondary process mentation. The third research question examined the relationship between subjects' group (high hypnotizable, low hypnotizable and simulating subjects) the level of primary and / or secondary process mentation. Level of significance was determined and computed using alpha = 0.05.

Null Hypothesis One : No condition effect

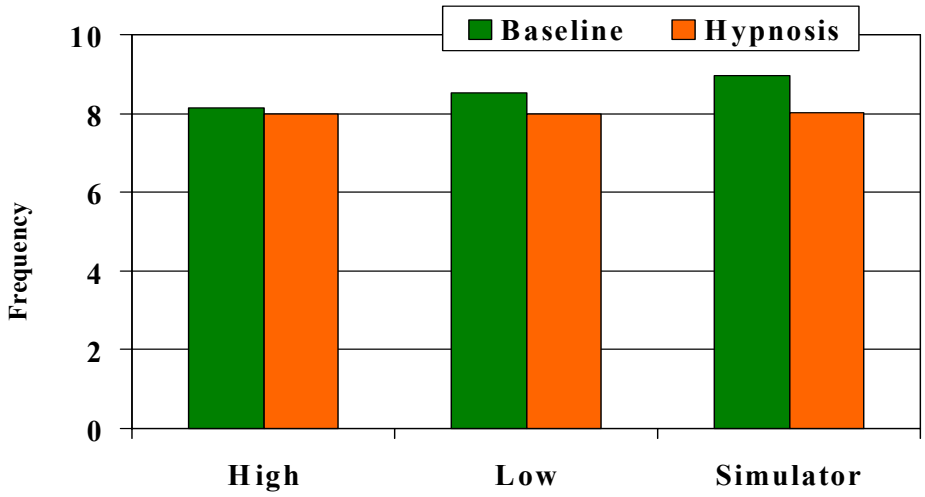
No difference in primary and/or secondary process mentation exists between the waking state and the state of hypnosis.

To test for significant condition differences (baseline and hypnosis) in primary and/or secondary process mentation, I performed a repeated-measures ANOVA for all of the *a priori* selected COUNT-RID variables.

From baseline to hypnosis, I found a significant decrease in SECONDARY PROCESS (p=0.000*; power=0.993) (Figure 8), a significant increase in EMOTION (0.003*; power=0.859) (Figure 9) [Table 4]. No significant condition effect was found for

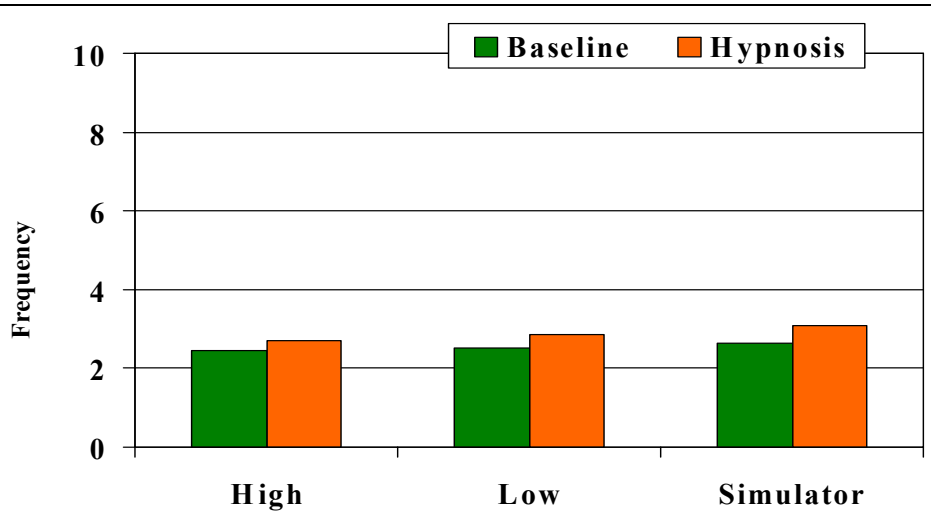
Table 4. COUNT/Regressive Imagery Dictionary

Dependent Variable	Effect	2 by 3 Anova High/Low/Simulator		2 by 2 Anova High/Low		2 by 2 Anova High/Simulator	
		p-value	power	p-value	Power	p-value	Power
Drive	CONDITION	0.125	0.335	**0.008***	0.768	0.348	0.153
	COND*GRP	**0.044***	0.602	0.432	0.122	0.016	0.684
	GRP	0.966	0.055	0.961	0.050	0.799	0.057
Sensation	CONDITION	0.755	0.061	0.457	0.114	0.660	0.072
	COND*GRP	0.479	0.172	0.329	0.126	0.827	0.055
	GRP	0.887	0.068	0.881	0.052	0.635	0.076
DefSymb	CONDITION	0.944	0.051	0.191	0.256	0.607	0.080
	COND*GRP	0.121	0.431	0.925	0.051	0.060	0.470
	GRP	0.207	0.441	0.208	0.241	0.113	0.353
RegrCog	CONDITION	0.056	0.481	0.075	0.429	0.089	0.398
	COND*GRP	0.872	0.071	0.698	0.067	0.613	0.079
	GRP	0.756	0.093	0.653	0.073	0.754	0.061
Icarus	CONDITION	0.143	0.309	0.847	0.054	0.199	0.248
	COND*GRP	0.173	0.365	0.483	0.107	0.080	0.418
	GRP	0.156	0.385	0.165	0.282	0.650	0.073
PrimProc	CONDITION	0.195	0.253	0.988	0.050	0.099	0.378
	COND*GRP	0.201	0.336	0.814	0.056	0.154	0.295
	GRP	0.620	0.126	0.364	0.147	0.819	0.056
SecProcc	CONDITION	**0.000***	0.993	**0.015***	0.693	**0.000***	0.969
	COND*GRP	**0.033***	0.644	0.232	0.221	**0.009***	0.756
	GRP	0.373	0.219	0.685	0.069	0.145	0.306
Emotion	CONDITION	**0.003***	0.859	0.065	0.456	**0.002***	0.889
	COND*GRP	0.358	0.226	0.506	0.101	0.396	0.134
	GRP	0.195	0.342	0.629	0.077	0.073	0.436
Passive	CONDITION	0.649	0.074	0.449	0.116	0.247	0.210
	COND*GRP	0.168	0.371	0.630	0.076	0.156	0.293
	GRP	0.248	0.297	0.575	0.086	0.132	0.324
Timeless	CONDITION	0.121	0.341	0.434	0.121	0.149	0.301
	COND*GRP	0.655	0.117	0.691	0.068	0.312	0.171
	GRP	0.672	0.113	0.771	0.059	0.447	0.117



	p value	power
Condition	**0.000 ***	**0.993**
Cond*Grp	**0.033 ***	**0.644**
Group	0.373	0.219

Figure 8. Group and Condition Effects: COUNT-RID SecProc



	p value	power
Condition	**0.003 ***	**0.859**
Cond*Grp	0.358	0.226
Group	0.195	0.342

Figure 9. Group and Condition Effects: COUNT-RID Emotion

PRIMARY PROCESS, DRIVE, SENSATION, DEFENSIVE SYMBOLIZATION, REGRESSIVE COGNITION, and ICARIAN IMAGERY [Table 4] (Figures 10-15).

Null Hypothesis Two: No Interaction effect

No interaction effect in primary and/or secondary process mentation exists between the group (high hypnotizable, low hypnotizable, simulating subjects) and the condition (baseline and hypnosis).

To detect any possible significant interaction effects between subjects' condition (baseline vs. hypnosis) and subjects' group (high hypnotizable, low hypnotizable and simulating subjects), in primary and/or secondary process mentation, I performed a repeated measures ANOVA for all of the *a priori* selected COUNT-RID variables.

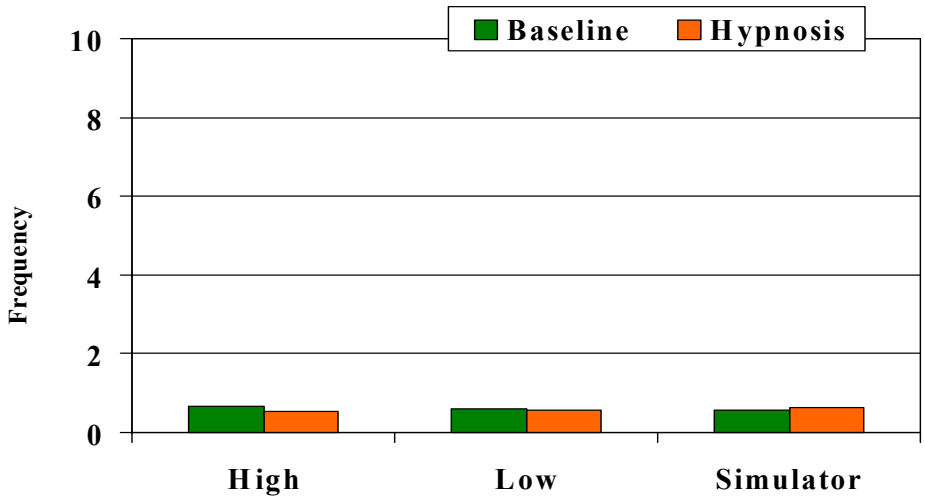
I found a significant interaction effect for: SECONDARY PROCESS (p=0.033*; power=0.644) and for DRIVE (p=0.044; power=0.602). No significant interaction effect was found for EMOTION, PRIMARY PROCESS, ICARIAN IMAGERY, REGRESSIVE COGNITION, DEFENSIVE SYMBOLIZATION, SENSATION, PASSIVE, and TIMELESSNESS. [Table 4].(Fig. 16-17).

Null Hypothesis Three: No group effect

No difference in primary and/or secondary process mentation exists between the groups: high hypnotizable, low hypnotizable, simulating subjects.

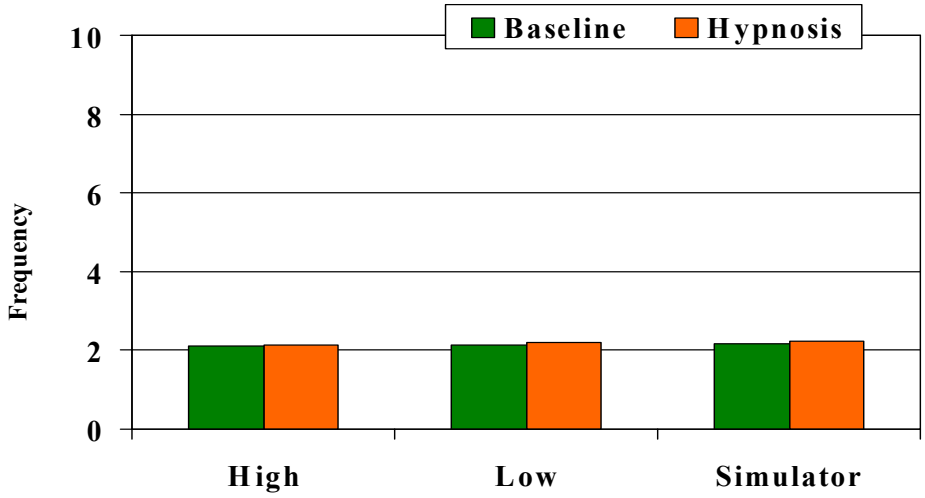
To detect any possible significant relationship between subjects' group (high hypnotizable, low hypnotizable and simulating subjects) and level of primary and/or secondary mentation, I performed a repeated-measures ANOVA for all of the *a priori* selected COUNT-RID variables.

No significant group effect was found in any of the COUNT-RID variables. [Table 4].



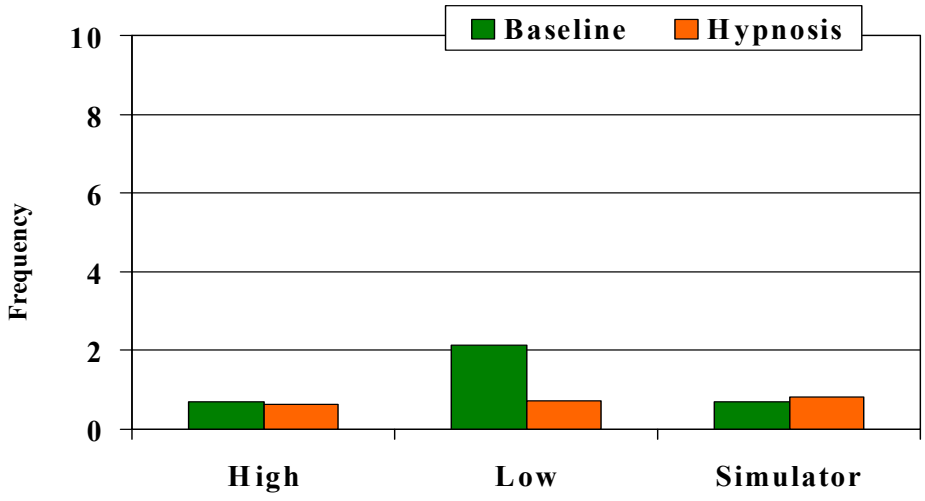
	p value	power
Condition	0.125	0.335
Cond*Grp	**0.044 ***	**0.602**
Group	0.966	0.055

Figure 10. Group and Condition Effects: COUNT-RID Drive



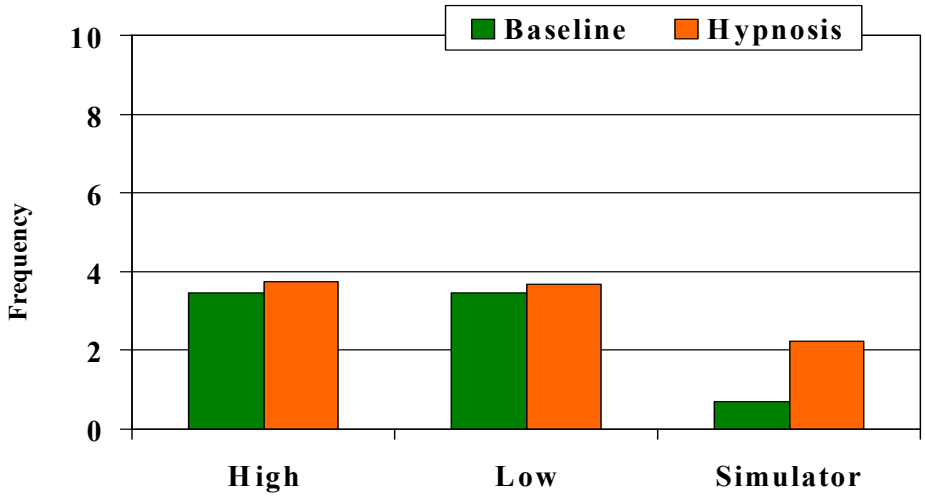
	p value	power
Condition	0.755	0.061
Cond*Grp	0.479	0.172
Group	0.887	0.068

Figure 11. Group and Condition Effects: COUNT-RID Sensation



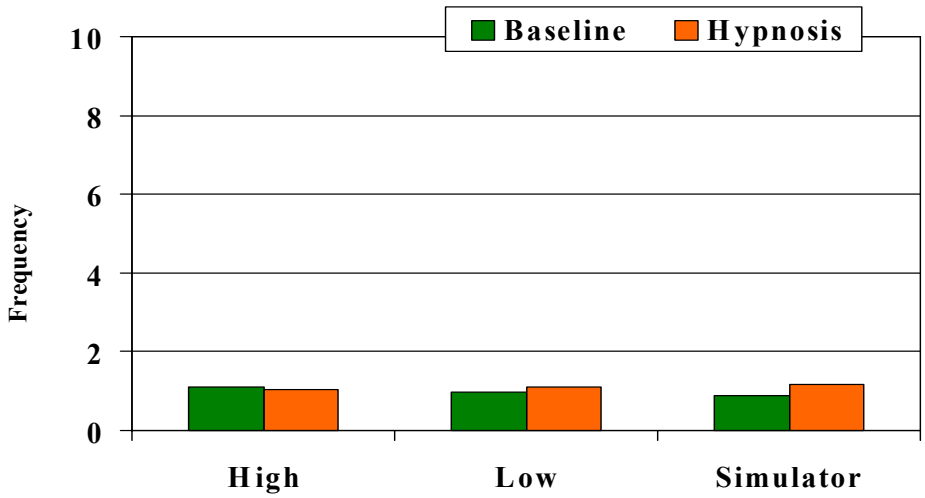
	p value	power
Condition	0.944	0.051
Cond*Grp	0.121	0.431
Group	0.207	0.331

Figure 12. Group and Condition Effects: COUNT-RID DefSymb



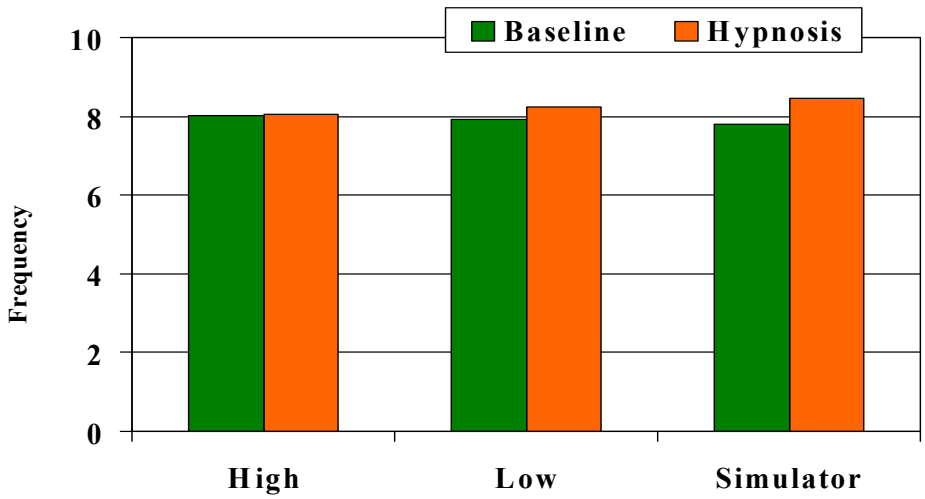
	p value	power
Condition	0.056	0.481
Cond*Grp	0.872	0.071
Group	0.756	0.093

Figure 13. Group and Condition Effects: COUNT-RID RegrCog



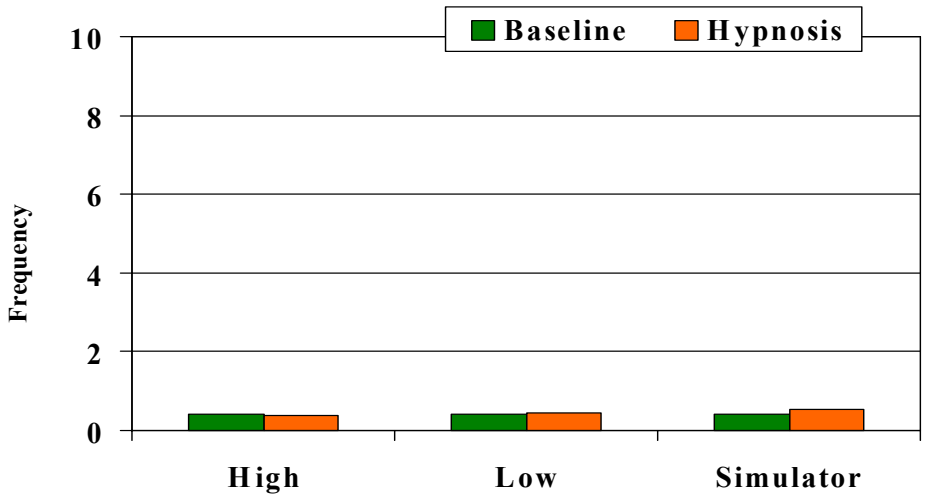
	p value	power
Condition	0.143	0.309
Cond*Grp	0.173	0.365
Group	0.156	0.385

Figure 14. Group and Condition Effects: COUNT-RID Icarus



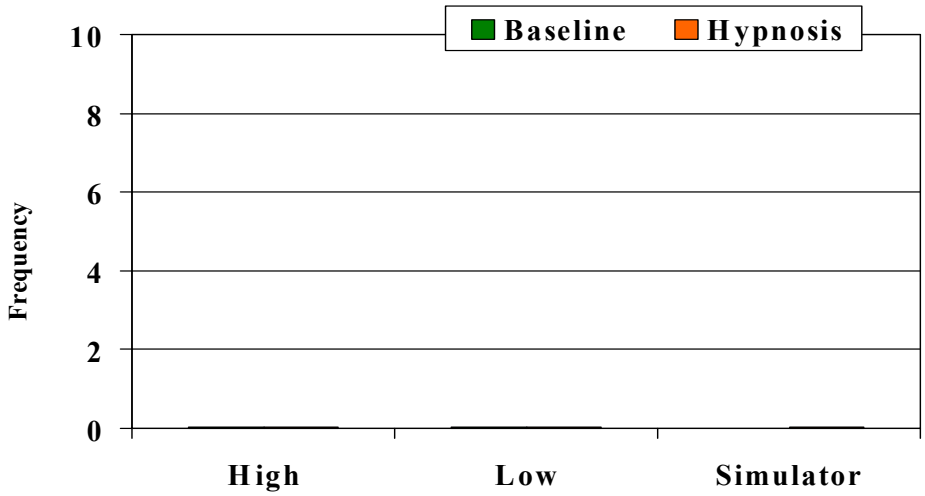
	p value	power
Condition	0.195	0.253
Cond*Grp	0.201	0.336
Group	0.620	0.126

Figure 15. Group and Condition Effects: COUNT-RID PrimProc



	p value	power
Condition	0.640	0.074
Cond*Grp	0.168	0.371
Group	0.248	0.297

Figure 16. Group and Condition Effects: COUNT-RID Passive



	p value	power
Condition	0.121	0.341
Cond*Grp	0.655	0.117
Group	0..627	0.113

Figure 17. Group and Condition Effects: COUNT-RID Timeless

Other Findings

Results of correlation analysis of DAGI-III and COUNT-RID variables:

Inter-correlation analysis for the DAGI-III and COUNT-RID variables:

Significant at alpha = 0.05 I found:

- A positive correlation among PASSIVE and EMOTION (DAGI-III) (r=0.291), EMOTION (DAGI-III) and EMOTION (COUNT-RID) (r=0.280), SENSATION AND THOUGHT (r=0.331), SECONDARY PROCESS AND THOUGHT (r=0.538), SENSATION and EVALUATE (r=0.295), SENSATION and PSYCHOLOGICAL PROCESSES (r=0.383), SECONDARY PROCESS and PSYCHOLOGICAL PROCESSES (r=0.482) (Table 5).
- A negative correlation between SENSATION and SOCIAL (r=-0.422), PRIMARY PROCESS and SOCIAL (r=-0.333), ICARIAN IMAGERY and THOUGHT (r=-0.346), EMOTION and THOUGHT (r=-0.369), DEFENSIVE SYMBOLIZATION and THOUGHT (r=-0.273), ICARIAN IMAGERY and PSYCHOLOGICAL PROCESSES (r=-0.375), EMOTION and PSYCHOLOGICAL PROCESSES (r=-0.278), REGRESSIVE COGNITION and PSYCHOLOGICAL PROCESSES (r=-0.281).

Table 5. Correlations Between DAGI-III and COUNT-RID TAGS (Baseline)

DAGI-III → ---------- COUNT-RID ↓	Social	Emotions	Thought	Evaluate	PsychProc
Passive	**-0.244 ***	**0.291 ****	0.009	-0.076	0.057
Timeless	-0.104	0.037	-0.035	-0.005	-0.020
Drive	0.106	-0.155	-0.183	**-0.232 ***	**-0.259 ***
Sensation	**-0.422 ****	0.100	**0.331 ****	**0.295 ****	**0.383 ****
Icarus	-0.066	**-0.227 ***	**-0.346 ****	-0.130	**-0.375 ****
Emotion	0.009	**0.280 ****	**-0.369 ****	-0.179	**-0.278 ****
SecProc	0.038	-0.098	**0.538 ****	**0.251 ***	**0.482 ****
PriProc	**-0.333 ****	-0.110	-0.179	-0.070	-0.193
DefSymb	-0.197	0.153	**-0.273 ****	-0.189	**-0.238 ***
RegCogn	-0.203	0.159	**-0.244 ***	-0.145	**-0.281 ****

* significant at $p < 0.05$ ** significant at $p < 0.01$

Auto-correlation analysis for the DAGI-III variables:

Significant at alpha = 0.05 I found:

- A positive correlation between PSYCHOLOGICAL PROCESSES and EMOTION (r=0.274), EVALUATE and THOUGHT (r=0.376), PSYCOLOGICAL PROCESSES and THOUGHT (r=0.928), PSYCHOLOGICAL PROCESSES and EVALUATE (r=0.600) (Table 6).

Significant at alpha = 0.1 I found:

- A negative correlation among PSYCHPROCESSES and SOCIAL (r=-0.246), EVALUATE and SOCIAL (r=0.220).

Auto-correlation analysis for the COUNT-RID variables:

Significant at alpha = 0.05 I found:

- A positive correlation among: PRIMARY PROCESS and PASSIVE (r=0.272), DEFENSIVE SYMBOLIZATION and PASSIVE (r=0.791), PRIMARY PROCESS and DRIVE (r=0.450), ICARIAN IMAGERY and DRIVE (r=0.357), PRIMARY PROCESS and SENSATION (r=0.522), PRIMARY PROCESS and ICARIAN IMAGERY (r=0.638), REGRESSIVE COGNITION and ICARIAN IMAGERY (r=0.301) PRIMARY PROCESS and DEFENSIVE SYMBOLIZATION (r=0.480), PRIMARY PROCESS and REGRESSIVE COGNITION (r=0.722) (**Table 7**).
- A negative correlation between SECONDARY PROCESS and ICARIAN IMAGERY (r=-0.436), SECONDARY PROCESS and EMOTION (r=-0.324), PRIMARY PROCESS and SECONDARY PROCESS (r=-0.384), SECONDARY PROCESS and REGRESSIVE COGNITION (r=-0.345).

Table 6. Auto-Correlations Between DAGII-III TAGS (Baseline)

	Social	Emotions	Thought	Evaluate	PsychProc
Social	1.000				
Emotions	-0.071	1.000			
Thought	-0.197	0.052	1.000		
Evaluate	**-0.220 ***	-0.078	**0.376 ****	1.000	
PsychProc	**-0.246 ***	**0.274 ****	**0.928 ****	**0.600 ****	1.000

* significant at $p < 0.05$ ** significant at $p < 0.01$

Table 7. Auto-Correlations Between COUNT-RID TAGS (Baseline)

	Passive	Timeless	Drive	Sensation	Icarus	Emotion	SecProc	PriProc	DefSymb	RegCogn
Passive	1.000									
Timeless	0.101	1.000								
Drive	0.015	-0.137	1.000							
Sensation	0.110	-0.152	-0.015	1.000						
Icarus	0.065	-0.025	**0.357 ****	0.096	1.000					
Emotion	0.094	-0.089	0.169	-0.091	0.103	1.000				
SecProc	-0.038	-0.196	-0.103	-0.014	**-0.436 ****	**-0.324 ****	1.000			
PriProc	**0.272 ****	0.060	**0.450 ****	**0.522****	**0.638 ****	0.090	**-0.384 ****	1.000		
DefSymb	**0.791 ****	0.161	0.180	0.098	**0.270 ***	0.180	**-0.209 ***	**0.480 ****	1.000	
RegCogn	0.079	**0.255 ***	0.186	0.051	**0.301 ****	0.052	**-0.345 ****	**0.722 ****	**0.220 ***	1.000

* significant at $p < 0.05$

** significant at $p < 0.01$

Significant at alpha = 0.1 I found:

- A positive correlation among: REGRESSIVE COGNITION and ICARIAN IMAGERY (r=0.270), REGRESSIVE and DEFENSIVE SYMBOLIZATION (r=0.220).
- A negative correlation among REGRESSIVE COGNITION and DEFENSIVE SYMBOLIZATION (r=0.220).

Significant at alpha = 0.1 I found:

- A positive correlation among SECONDARY PROCESS and EVALUATE (r=0.251).
- A negative correlation among PASSIVE and SOCIAL (r=-0.244) ICARIAN IMAGERY and EMOTIONS (DAGI-III) (r=-0.227), REGRESSIVE COGNITION and THOUGHT r=-0.244), DRIVE and EVALUATE (r=-0.232), DRIVE and PSYCHOLOGICAL PROCESSES (r=-0.259), DEFENSIVE SYMBOLIZATION and PSYCHOLOGICAL PROCESSES (r=-0.283).

PART 4. DISCUSSION

Limitations of the Measures

The experimental design called for subjects that have extremely high or extremely low scores of hypnotic susceptibility. With the Harvard Group Scale of Hypnotic Susceptibility Form: A (HGSHS: A; Shor & Orne, 1962) and the Computer Assisted Hypnosis Scale (CAH; Grant & Nash, 1995) hypnotizability can be measured and a score of hypnotic responsiveness obtained.

To obtain the 89 experimental subjects, about 1500 Students participated in the HGSHS. Students in this pool were assigned an HGSHS: A score ranging between 0 and 10. Only low hypnotizable subjects who had a HGSHS: A score that ranges between 0 and 3 and high hypnotizable subjects who had a HGSHS: A score that ranges between 7 and 10 were asked to participate in the rigorous CAH screening. Only the subjects with confirmed scores of low hypnotizability (0-3) and high hypnotizability (7-12) on the CAH were eligible for the study. A total of 89 subjects were identified: 32 high hypnotizable subjects and 57 low hypnotizable subjects.

Hence since hypnotizability falls along a continuum and most individuals fall into the middle-range of hypnotizability, and since I was only interested in the approximate ten percent extreme outer groups on this continuum, it took an enormous initial pool of subjects to end up with an acceptable sample size.

To obtain approximately thirty subjects in each group I defined the acceptable CAH-score range of high and low hypnotizability to fall between 7-12 and 0–3 respectively. One can question that if I had been able to screen an even larger pool of subjects, to end up with the same sample size, but would have been able to choose even more extreme cut-off scores, would I have found significant group-differences? I might have, however, if the selected groups were that extreme, could I still have generalized?

Hence I decided, it was theoretically necessary to have a range of hypnotizability within both of the extremes.

Discussion of the Hypotheses

Discussion of Lexical choice in verbal productions and primary/secondary process mentation

(For discussion purposes the hypotheses for lexical choice of verbal productions and primary /secondary process mentation are discussed in conjunction):

Null Hypothesis One: No condition effect: DAGI-III.

No difference in lexical choice of verbal productions exists between the waking state and the state of hypnosis.

From baseline to hypnosis, results showed a significant decrease in THOUGHT, a significant increase in EMOTION, a significant decrease for PSYCHOLOGICAL PROCESSES, and a significant increase in SOCIAL. No significant condition effect was found for EVALUATE.

Since PSYCHOLOGICAL PROCESSES is a sum of THOUGHT, EMOTION and EVALUATION, the direction of PSYCHOLOGICAL PROCESSES depends on the relative pull of its three components. Since there was no significant effect for EVALUATION, and THOUGHT decreased more than EMOTION increased, we see the decrease in PSYCHOLOGICAL PROCESSES. This indicates that the subcategory THOUGHT weighs more heavily as an indicator of hypnosis than does EMOTION.

Null Hypothesis One: No condition effect: COUNT-RID.

No difference in primary and/or secondary process mentation exists between the waking state and the state of hypnosis.

From baseline to hypnosis, I found a significant decrease in SECONDARY PROCESS and a significant increase in EMOTION. No significant condition effect was found for PRIMARY PROCESS and its components.

As previously discussed, Freud asserted that hypnosis can facilitate freer access to more primitive unconscious aspects of personality (Freud, 1916-1917/1963). He described primary process ideation as a more primitive form of cognition, which is irrational, autistic, free associative and concrete. Freud proposed that primary process mentation is the principal form of awareness in young children and adults. Primary process, according to Freud takes place in dreams, preoccupation such as daydreams, meditation or states of trance, drug-induced altered states, and psychotic episodes.

Dating back to Freud's theories of hypnosis, researchers have summoned the concepts of psychological regression and primary process to explain the shift in mentation and experience of affect during hypnosis (Gill & Brenman, 1959; Fromm, 1992; Nash, 1991).

Nevertheless the current results did not show a significant increase of primary process between baseline and hypnosis, yet I did find a significant decrease in the COUNT-RID-variable SECONDARY PROCESS as well as a significant decrease in the DAGI-III-variable THOUGHT. Correspondingly, inter-correlation results showed that the COUNT-RID-variable SECONDARY PROCESS and the DAGI-III-variable THOUGHT to be highly positively correlated. Hence SECONDARY PROCESS and THOUGHT do measure in the least a similar dimension.

After all Freud defined primary process mentation and secondary process mentation as distinct modes of cognition, which define the limits of a continuum along

which states of consciousness vary. Freud described secondary process thought as the logical, reality oriented, abstract thought of waking adults. The data serve to support the hypothesis that they measure different dimensions, if not opposites, since PRIMARY PROCESS and SECONDARY PROCESS are highly negatively correlated.

Furthermore the current results did show a significant increase in the COUNT-RID-variable EMOTION and a significant increase in the DAGI-III-variable EMOTION. Conceptually these results are in line with all the aforementioned psychoanalytic theories of hypnosis. In addition the DAGI-III variable EMOTION and the COUNT-RID variable EMOTION were highly positively correlated. Further, the COUNT-RID variable EMOTION was highly negatively correlated with SECONDARY PROCESS. These findings suggest that both of the content analysis programs measure the same dimension with their respective variable called EMOTION. The data also suggest that the COUNT-RID variable EMOTION does not measure the same dimension as SECONDARY PROCESS or the DAGI-III variable THOUGHT.

Contrary to some other researchers, I argue that the main-effect for the condition, regardless of group (which in this case means a significant change of a DAGI-III-dependent variable between baseline and hypnosis, across all three groups), is of much interest. With the current results, one may not be able to say for sure that the changes among dependent variables were due to the hypnotic condition itself or had anything to do with the trait of low or high hypnotizability. It could very well be that the situation provided enough cues for the simulators to mimic the performance of the high hypnotizable subjects. Since all three groups, high hypnotizable subjects, low-hypnotizable subjects and simulators, show the same significant changes among the

dependent variables, it is possible that these changes are due to general relaxation or expectations, role-play, hence demand characteristics. Therefore, in summary one cannot make any statements as to whether these changes were due to the hypnotic condition or if the changes were mainly due the induction itself or to a general state of relaxation regardless of group association.

Null Hypothesis Two: No Interaction effect: DAGI-III.

No interaction effect exists in lexical choice of verbal productions between group (high hypnotizable, low hypnotizable and simulating subjects) and condition (baseline and hypnosis) .

The current results showed no significant interaction effects for any of the DAGI-III variables indicating that the condition effects or non-effects for each category were the same regardless of group.

Null Hypothesis Two: No Interaction effect: COUNT-RID.

No interaction effect in primary and/or secondary process mentation exists between the group (high hypnotizable, low hypnotizable, simulating subjects) and the condition (baseline and hypnosis).

I found a significant interaction effect for: SECONDARY PROCESS and for DRIVE. The associated power though was marginal. However trends seemed to indicate, that, between baseline and hypnosis, the high hypnotizable group showed the least decrease in SECONDARY PROCESS. The low hypnotizable subjects showed a greater decrease in SECONDARY PROCESS and the simulating group showed the greatest decrease in SECONDARY PROCESS. This finding concurs somewhat with previous findings of decompensated and exaggerated performance by simulators. Nevertheless, it

has to be pointed out that results for simulators were more similar to those of the low hypnotizeable group than to those of the high hypnotizable group, a finding that would not be expected. Speculation at this point, however, should be made with caution since all p values and power values of any interaction effects were significant but weak.

The findings for DRIVE were conceptually more explainable, but were not associated with great power as well. Trends indicated that DRIVE for the high hypnotizable subjects decreased more than for the low hypnotizable subjects.

However based on the lack of interaction findings, when comparing the subject groups verbal productions and lexical choices during the two experimental conditions, one cannot determine any significant differences between subjects who are truly hypnotized (due to their prior determined high hypnotizable status), subjects that are not hypnotized (due to their prior determined low hypnotizable status), but are trying their best to be hypnotized and subjects that are not hypnotized (due to their prior determined low hypnotizable status), but are trying to fake being hypnotized. Nevertheless based on my findings, one can determine whether a subject was exposed to a hypnotic induction or not. Hence even though behavioral measures such as the Harvard Group Scale of Hypnotic Responsiveness as well as the Computer Hypnosis Scale, which measure a subjects' hypnotic response ability may be able to differentiate subjects that are hypnotized from subjects that are not hypnotized and highly hypnotizable subjects from low hypnotizable subjects, one cannot make the same differentiating determination by employing verbal production measures. The interaction between the condition (baseline vs. hypnosis) and the group (level of hypnotic susceptibility) would have provided the strongest support for the assertion that hypnosis significantly changes a specific

dimension (e.g. enhances primary process responding or decreases secondary process mentation) in highly hypnotizable subjects.

What I can conclude is that behavioral measures such as the HGSHS or the CAH and measures of verbal productions such as the DAGI-III or the COUNT-RID are not predictive of each other.

Null Hypothesis Three: No group effect: DAGI-III.

No difference in lexical choice of verbal productions exists between the groups: high hypnotizable, low hypnotizable, simulating subjects.

No significant group effects were found for any of the DAGI-III variables. With the lack of findings for significant group differences, one cannot distinguish the three subject groups: high hypnotizable subjects, low hypnotizable subjects and low hypnotizable simulating subjects with measures of their verbal productions. Hence even though behavioral measures such as the Harvard Group Scale of Hypnotic Responsiveness as well as the Computer Hypnosis Scale, which measure a subjects' hypnotic response ability may be able to differentiate subjects that are highly hypnotizable from subjects that are low hypnotizable, one cannot make the same differentiating determination by employing verbal production measures. One can conclude that behavioral measures such as the HGSHS or the CAH and measures of verbal productions such as the DAGI-III or the COUNT-RID are not predictive of each other.

Null Hypothesis Three: No group effect: COUNT-RID.

No difference in primary and/or secondary process mentation exists between the groups: high hypnotizable, low hypnotizable, simulating subjects.

No significant group effects were found for any of the DAGI-III variables. With the lack of findings for significant group differences, one cannot distinguish the three subject groups: high hypnotizable subjects, low hypnotizable subjects and low hypnotizable simulating subjects with measures of their verbal productions. Hence even though behavioral measures such as the Harvard Group Scale of Hypnotic Responsiveness as well as the Computer Hypnosis Scale, which measure a subjects' hypnotic response ability may be able to differentiate subjects that are highly hypnotizable from subjects that are low hypnotizable, one cannot make the same differentiating determination by employing verbal production measures. One can conclude that behavioral measures such as the HGSHS or the CAH and measures of verbal productions such as the DAGI-III or the COUNT-RID are not predictive of each other.

Summary

To summarize, findings suggest that the changes in SECONDARY PROCESS and THOUGHT, as well as the DAGI-III-variable EMOTION and the COUNT-RID-variable EMOTION, may be a result other than hypnotic ability or the hypnotic experience. The possibility has been raised, that subjects who had been instructed to simulate hypnosis were successful in discerning the experimental, implicit demands to respond with decreased SECONDARY PROCESS and THOUGHT as measured by the DAGI-III and COUNT-RID respectively and to present the appearance of a genuinely hypnotized subject. The same was true for the increase in EMOTION as measured by the DAGI-III as well as by the COUNT-RID. The interaction between the condition (baseline vs. hypnosis) and the group (level of hypnotic susceptibility) would have

provided the strongest support for the assertion that hypnosis changes a dimension (e.g. enhances primary process responding or decreases secondary process mentation) in highly hypnotizable subjects.

The likelihood that the hypnotic main-effect can be attributed at least to some extent to demand characteristics has been supported by the current results. The hypnotic "state," even though it can be measured through behavioral measures such as the HGSHS and the CAH, cannot be measured by content measures of verbal productions.

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APPENDICES

APPENDIX A:
APPROVAL: Project Involving Research with Human Subjects

THE UNIVERSITY OF TENNESSEE

Office of Research
404 Andy Holt Tower
Knoxville, Tennessee 37996-0140
PHONE: (865) 974-3466
FAX: (865) 974-2805
URL:http://www.ra.utk.edu/ora

Date: 06/28/2000

To: Nash, Dr. Michael R.
Psychology
307 Austin Peay Bldg.
Campus - 0900

From: Brenda Lawson
Compliances

Subject: Annual Review and Progress Report:
Project Involving Research with Human Subjects

IRB #: 2373 B

IRB-APPROVED RENEWAL

Project: Hypnosis Research

Initial Approval Date: 06/23/1987 Last IRB Approval Date: 06/28/2000

Approval Expires: 06/23/2001

In response to our request regarding annual review and a progress report of the above protocol, you indicated that the study is still active and that there have been no changes with regard to the use of human subjects in this project since the last date of review. Therefore, the Institutional Review Board has approved the protocol until **June, 2001**, which coincides with the anniversary month of your initial approval date.

If there should be any modifications in the project before the date of next annual review, please submit them, utilizing a Form D, to the Compliances Office immediately for review. Requests for your next annual review will be sent to you approximately one month prior to the expiration

APPENDIX B:
INFORMED CONSENT FORM: CAH

Informed consent Form for the CAH-hypnotic ability scale:

INFORMED CONSENT FORM

Title of Research Proposal: HYPNOSIS RESEARCH

Principal Investigator: Michael R. Nash, Ph.D. Department: Psychology

Telephone: 974-2165 Office: Austin Peay 215E

1. Statement of Procedure

The general purpose of this research is to help us understand how the mind works during hypnosis. The purpose of this study is to find out more about the nature of hypnosis. You will be taking part in a standardized hypnotic procedure and answering some paper-and pencil self-report questions. The standard hypnotic procedure will be videotaped, but the videotape and all personal material related to your participation will be kept strictly protected and confidential. The videotapes will be erased after this study has been completed. Our subjects have found our procedures to be both interesting and stimulating. As in many hypnotic procedures, a few subjects might feel some discomfort; we encourage you to express any uncomfortableness to the experimenter. We want you to enjoy and learn from your hypnotic experience.

This is a two part experiment, which will be conducted on two different days. Each part will take you from one hour and thirty minutes to about two hours. You may terminate this experiment any time you wish without any penalty. Just tell the research assistant that you wish to stop. We invite you to ask any questions about the project and will answer them to the best of our ability.

I CERTIFY THAT I HAVE READ AND FULLY UNDERSTAND THE STATEMENT OF PROCEDURE, AND THAT IMAY TERMINATE MY SERVICE AS A SUBJECT AT ANY TIME. I FRTHER CERTIFY THAT I AM AT LEAST EIGHTEEN YEARS OF AGE.

_____ _____ _____

Name of Subject (PRINT) Signature of subject Date

APPENDIX C:
INFORMED CONSENT FORM: Procedure

INFORMED CONSENT FORM

Title of Research Proposal: HYPNOSIS RESEARCH

Supervising Professor: Michael R. Nash, Ph.D.
Department: Psychology

Project Leader: Sabette Elter-Nodvin, Graduate Student
Department: Psychology

Telephone: 974-3325 Office: Austin Peay 215E

The general purpose of this research is to help us understand how the mind works during hypnosis. The purpose of this study is to find out more about the nature of hypnosis. You will be taking part in a standardized hypnotic procedure. All personal material related to your participation will be kept strictly protected and confidential. Our subjects have found our procedures to be both interesting and stimulating. As in many hypnotic procedures, a few subjects might feel some discomfort; we encourage you to express any uncomfortableness to the experimenter. We want you to enjoy and learn from your hypnotic experience.

This is a two part experiment, which will be conducted on two different days. Each part will take you from one hour and thirty minutes to about two hours. You may terminate this experiment any time you wish without any penalty. Just tell the research assistant that you wish to stop. We invite you to ask any questions about the project and will answer them to the best of our ability.

I CERTIFY THAT I HAVE READ AND FULLY UNDERSTAND THE STATEMENT OF PROCEDURE, AND THAT IMAY TERMINATE MY SERVICE AS A SUBJECT AT ANY TIME. I FRTHER CERTIFY THAT I AM AT LEAST EIGHTEEN YEARS OF AGE.

_____ _____ _____
Name of Subject (PRINT) Signature of subject Date

APPENDIX D:
HGSHS: Form A

(Shor and Orne, 1962)

HARVARD GROUP SCALE OF HYPNOTIC SUSCEPTIBILITY

FORM-A AND RESPONSE BOOKLET

(The following instructions are to be presented verbatim.)

1a. HEAD FALLIING (total time 3'30")

To begin with, I want you to Experience how it feels to respond to Suggestions when you are not hypnotized. If you will now please sit up straight in your chair - Close your eyes and relax; continue, however, to Sit up straight that's right. Eyes closed and sit up Straight. Please stay in that position with your eyes closed, while at the same time letting yourself relax. (Allow 30" to pass.) Now just remain in the same position and keep your eyes closed. Sitting up straight in your chair with your eyes closed.

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

Listen carefully to what I say and think of your head falling forward, drooping forward. Think of your head falling forward, falling forward, more and more forward. Your head is falling forward. Falling forward. More and more forward. Your head is falling more and more forward, falling more and more forward. Your head is going forward, drooping down, down, limp and relaxed. Your head is drooping, swaying, falling, swaying, drooping, limp, relaxed, forward, forward, falling, falling, falling - - - Now!

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

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

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

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

As I continue to talk, you will find that you will become more and more drowsy, but not all people respond at the same rate to what I have to say. Some people's eyes will close before others. When the time comes that your eyes

have closed, just let them remain closed. You may find that I shall still give suggestions for your eyes to close. These suggestions will not bother you. They will be for other people. Giving these suggestions to other people will not disturb you but will simply allow you to relax more and more.

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

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

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

Your eyelids are getting heavy, very heavy. You are relaxed, very relaxed. There is a pleasant feeling of warmth and heaviness all through your body. You are tired and drowsy. Tired and sleepy. Sleepy. Sleepy. Sleepy. Listen only to my voice. Pay attention to nothing else but my voice. Your eyes are getting blurred. You are having difficulty seeing. Your eyes are strained. The strain is getting greater and greater, greater and greater. (Time: 50")

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

Your eyes may have closed by now, and if they have not, they would soon close of themselves. But there is no need to strain them more. Even if your eyes have not closed fully as yet, you have concentrated well upon the target, and have become relaxed and drowsy. At this time, you may just let your eyes close. That's it, eyes completely closed. Close your eyes now. (Time: 35")

You are now comfortably relaxed, but you are going to relax even more, much more. Your eyes are now closed. You will keep your eyes closed until I tell you otherwise, or I tell you to awaken…You feel drowsy and sleepy. Just keep listening to my voice. Pay close attention to it. Keep your thoughts on what I am saying---just listen. You are going to get much more drowsy and sleepy. Soon you will be deep asleep but you will continue to hear me. You will not awaken until I tell you to do so. I shall now begin to count. At each count you will feel yourself going down, down, into a deep, comfortable, a deep restful sleep. A sleep in which you will be able to do all sorts of things I ask you to do. One---you are going to go deeply asleep- - - Two---down, down into a deep, sound sleep---Three---four---more and more, more and more asleep--- Five---six---seven---you are sinking, sinking into a deep, deep sleep. Nothing will disturb you. Pay attention only to my voice and only to such things as I may call to your attention. I would like you to keep on paying attention to my voice and the things I tell you - - - Eight---nine---ten---eleven---twelve---deeper and deeper, always deeper asleep---thirteen---fourteen---fifteen---although deep asleep you can clearly hear me. You will always hear me no matter how deeply asleep you may feel yourself to be --- Sixteen---seventeen---eighteen---deep asleep fast asleep. Nothing will disturb you. You are going to experience many things that I will tell you to experience ---. Nineteen---twenty. Deep asleep! You will not awaken until I tell you to do so. You will wish to sleep and will have the experiences I shall presently describe. (Time: 3' 40")

3a. HAND LOWERING (LFFT HAND) (Total time: 5'05")

Introduction: As you become even more drowsy and sleepy, it will not disturb you to make yourself comfortable in your chair and put your head in a comfortable position.

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

Instruction Proper. Please extend your left arm straight out in front of you, up in the air, with the palm of your hand down. Left arm straight out in front of you . . . straight out, up in the air, with the palm of your hand down. That's it. Left arm straight out in front of you --- palm down. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been---you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for your fingers to twitch ever so slightly - - - That's right$_1$ I want you to pay close attention to this hand because something very interesting is about to happen to it.

It is beginning to get heavy - - - heavier and heavier - - - as though a weight were pulling the hand and the arm down - - - you can picture a weight pulling on it - - - and as it feels heavier and heavier it begins to move - - as if something were forcing it down - - - a little bit down - - - more and more down --- down - - - and as I count it gets heavier and heavier and goes down--- more and more --- one, down - - - two, down - - - three, down - - - four, down, more and more down - - - five, down - - - six, down - - - seven - - - eight - - - heavier and heavier --- down more and more (Allow 10")

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

4a. ARM IMMOBIL1ZATICN (RIGHT ARM) (Total time: 2'55")

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

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

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

Now let us try something else. Put your fingers together. Interlock your fingers together. Interlock your fingers and press your hands tightly together. That's it. Put your fingers together. Interlock your fingers and press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together … so tightly interlocked together that you wonder very much if you could take your fingers and hands apart …Your fingers are inter1ocked, tightly interlocked … and I want you to try to take your hands apart …just try … (Allow 10")

That's right. Stop trying and relax. You notice how hard it was to get started to take them apart. Your hands are no longer tightly clasped together . . . You can take them apart. Now return your hands to their resting position and relax. Hands to their resting position and relax … just relax.

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

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

That's good. Now just stop trying to bend your arm and relax. Stop trying to bend your arm and relax. I want you to experience many things. You felt the creeping stiffness --- that you had to exert a good deal of effort to do something that would normally be very easy. But your arm is not stiff any longer. Just place your arm back in resting position - - - back in resting position. Just relax and as your arm relaxes, let your whole body relax. As your arm relaxes, let your whole body relax.

7a. HANDS MOVING (TOGETHER) (Total time: 1'45")

Please hold both hands up in the air, straight out in front of you, palms facing inward--palms facing toward each other. Hold your hands about a foot apart - - - about a foot apart. Both arms straight out in front of you, hands about a foot apart - - - palms facing inward - - - about a foot apart.

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

That's fine. You see again how thinking about a movement causes a tendency to make it. Now place your hands back in their resting position and relax - - - your hands back in their resting position and relax.

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

You are very relaxed now - - - deeply relaxed - - - think how hard it might be to communicate while so deeply relaxed - - - perhaps as hard as when asleep - - - I wonder if you could shake your head to indicate "no." I really

don't think you could - You might try a little later to shake your head "no'[1] when I tell you to … but I think you will find it quite difficult - - - Why don't you try to shake your head "no" now - - - Just try to shake it. (Allow 10")

That's all right - - - Stop trying and relax. You see again how you have to make an effort to do something normally as easy as shaking your head. You can shake it to indicate "no" much more easily now. Shake your head easily now - - - That's right, now relax. Just relax.

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

I am sure that you have paid so close attention to what we have been doing that you have not noticed the fly which has been buzzing about - - - But now that I call your attention to it you become increasingly aware of this fly which is going round and round about your head - - - nearer and nearer to you - - - buzzing annoyingly - - - hear the buzz getting louder as it keeps darting at you - - - You don't care much for this fly - - - You would like to shoo it away - - - get rid of it - - it annoys you. Go ahead and get rid of it if you want to - - - (Allow 10")

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

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

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

All right. Stop trying. Now again allow your eyes to become tightly shut. Your eyes, tightly shut. You[1]ve had a chance to feel your eyes tightly shut. Now relax. Your eyes are normal again, but keep them closed and relaxed - - - relaxed and shut.

11a. POSTHYPNOTIC SUGGESTICN (TOUCHING LEFT ANKLE);

(AMNESIA) (Total time: 3'35")

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

(A distinct tapping noise is now to be made. Then allow 10" before continuing.)

TESTING

Now please take your Response Booklet, break the seal and turn to the second page of the Booklet. Do not turn to the third page until I specifically instruct you to do so later. On the second page please write down briefly in your own words a list of the things that happened since you began looking at the target. You should not go into much detail here on the particular ways in which you responded, but please try to mention all of the different things that you were asked to do. You will now be given three minutes to write out this information. At the end of three minutes you will be asked a number of more specific questions regarding your experiences. (Allow 2') Please complete your list in one more minute. If you have already completed your list, spend the next minute trying to recall if there was anything else which you may have neglected to mention. (Allow 1' more)

All right, now listen carefully to my words. Now you can remember everything. Please turn to page three and write down a list of anything else that you remember now that you did not remember previously. You will be given two minutes more to write out this information (Allow 2')

Now, please turn to page four, and answer questions in the remainder of the booklet. Use own judgment where questions are ambiguous.

(Collect booklets at the end of the session. If necessary, instruct subjects to answer only as much of the last section on subjective experiences as time permits.)

APPENDIX E:
CAH: Scoring Criteria

(After Grant and Nash, 1995)

Description of Computer-Assisted Hypnosis Scale Items and Scoring Criteria

Item	Item description	Scoring criteria
1. Eye Closure	Target on screen during verbal induction. S clicks when eyes have closed.	Computer-scored. Pass if S clicks prior to being told by computer to close eyes.
2. Hand Lowering (left hand)	Eyes closed. Suggestion that left arm feels heavy and will move down.	Self-scored. Computer asks subject to click mouse if arm lowered more than 6 inches. Pass if S clicks mouse within 10 seconds.
3. Magnets	Eyes open. Computer displays pictures of magnets on left side of screen. S instructed to move cursor from a "start" to a "finish" area with suggestion that the magnets are attracting the cursor.	Computer-scored. Pass if, by the end of the suggestion, S has moved cursor a preset amount toward magnets.
4. Heat Hallucination	Eyes closed. S's hand on mouse. Suggestion that mouse is connected to a heater, and that mouse feels warmer as the heater is turned up.	Self-scored. Computer asks S to click mouse if mouse felt warmer. Pass if S clicks within 10 seconds.
5. Taste Hallucination	Eyes closed. Suggestion that S has sweet, then sour taste in mouth.	Self-scored with eyes open. For each taste, S presented with multiple choices about strength of taste and presence/absence of overt movements. S clicks on appropriate response. Pass if both tastes experienced at least weakly and either a) one taste experienced strongly, or b) at least one taste had overt movements.
6. Arm Rigidity (left arm)	Eyes closed. Suggestion that left arm feels stiff. Challenge bend left arm.	Self-scored. Computer asks S to click if arm bent less than 2 inches. Pass if S clicks mouse within 10 seconds.
7. Dream About Hypnosis	Eyes closed. Suggestion that S will have a dream about hypnosis.	Self-scored with eyes open. S presented with multiple choices about nature of dream. S clicks on response. Pass if S indicates selection with vivid imagery or other similar experience.
8. Hand Immobility (right hand)	Eyes closed. S moves right hand off the mouse with palm down on table. Suggestion that hand feels glued to table and that S will be unable to lift hand to click mouse. S challenged to lift hand and click mouse.	Computer-scored. Pass if mouse is not clicked within 5 seconds.
9. Agnosia: Baseball	Eyes open. S told that s/he no longer knows what "baseball" means and will not be able to recognize a picture of one. Pictures of several common objects, including a star and a baseball, displayed on screen. S asked to click on "star," then "baseball."	Computer-scored. Pass if S does not click on baseball within 10 seconds.
10. Voice Hallucination	Eyes closed. S told s/he will hear a voice asking questions. S told to click mouse when s/he has understood the questions. After preset time if S does not click, S is asked to click if s/he did hear the voice but just did not click the mouse.	Self-scored. Pass if S either clicks to answer the questions, or clicks that s/he heard voice but did not respond.
11. Negative Visual Hallucination	Eyes open. S told that 2 circles will appear on screen. 3 circles actually displayed.	Self-scored with eyes open. Computer asks S to click if s/he sees only the 2 circles. Pass if S clicks within 10 seconds.
12. Post-Hypnotic Amnesia	Eyes closed. S told that s/he will not be able to remember or recognize what happened during hypnosis, even when descriptions are displayed on screen. S told amnesia will continue until standard reversibility cue is given.	Self-scored with eyes open. Amnesia testing: Computer displays 20 possible suggestions one at a time, consisting of 10 "real" suggestions and 10 "distractors." For each, S clicks to indicate remembrance or non-remembrance. If all 20 answered correctly, reversibility cue given and session terminated. If at least 1 miss, reversibility cue given and reversibility testing is administered. Reversibility testing: Computer displays the same 20 possible suggestions. For each, S clicks to indicate remembrance or non-remembrance. Pass if five or fewer items recognized on amnesia testing, and two or fewer additional items recognized on subsequent reversibility testing.

APPENDIX F:
SHSS: Form C – Induction

(Weitzenhoffer and Hilgard, 1962)

Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C)

0. INDUCTION BY EYE CLOSURE (Not to be scored)

Note: This induction is optional. If another induction is used, it should end with the eyes closed. Then go to Instruction 1. HAND LOWERING.

A small bright object (button, metal thumbtack) is placed in such a way that a seated subject must turn his eyes upward to look at it. It may be placed on the ceiling, at least six feet from the eyes of the subject. A subject who wears glasses should keep them on. The subject is comfortably seated in an upright upholstered armchair, with the back high enough to support his head.

Do you see that small bright button (tack, etc.) above and in front of you? (If necessary, point to it). Good. That is what I shall mean by the "target.'

(1) Now please seat yourself comfortably **. . .** placing a hand on each arm of the chair. You may just look straight ahead. I am about to help you to relax, and meanwhile I shall give you some instructions that will help you gradually to enter a state of hypnosis. Now turn your eyes upward and look at the target. You may tilt your head a little if you need to so that you won't strain your eyes too much **. . .** (If wearing glasses: Can you see the target all right through your glasses?) Please look steadily at the target and while staring at it keep listening to my words. You can become hypnotized if you are *willing to do* what I tell you to, and if you concentrate on the target and on what I say. You have already shown your willingness by coming here **. . .** and so I am *assuming that your presence here means that you want to experience* all that you can. You can be hypnotized only if you want to be. There would be no point in participating if you were resisting being hypnotized. Just do your best to concentrate on the target, to pay close attention to my words, and let happen whatever you feel is going to take place. Just let yourself go. Pay close attention to what I tell you to think about; if your mind wanders bring your thoughts back to the target and my words, and you can easily experience more of what it is like to be hypnotized. Hypnosis is not something supernatural or frightening. It is perfectly normal and natural, and follows from the conditions of attention and suggestion we are using together. It is chiefly a *matter of focusing sharply* on some particular thing. Sometimes you experience something very much like hypnosis when driving along a straight highway and you are oblivious to landmarks along the road. The relaxation in hypnosis is very much like the first stages of falling asleep, but you will not really be asleep in the ordinary sense because you will continue to hear my voice and will be able to direct your thoughts to the topics I suggest. Hypnosis is a little like sleepwalking, because the person is not quite awake, and can still do many of the things that people do when they are awake. What I want from you is merely your willingness to go along and to let happen whatever is about to happen. Nothing will be done to embarrass you.

If eyes close, go to Instruction 0 (2) and continue through 0 (7).

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

If eyes close, go to 0(V) and continue through 0(7).

(3) Relax more and more. As you think of relaxing, your muscles will relax. Starting with your right foot, relax the muscles of your right leg **. .** . Now the muscles of your left leg just relax all over. Relax your right hand, your forearm, upper arm, and shoulder **. .** . That's it . . . Now your left hand and forearm . . . and upper arm . . . and shoulder **. . .** Relax your neck, and chest **. . .** more and more relaxed **. .** . completely relaxed . **. .** completely relaxed.

If eyes close, go to 0(3') and continue through 0(7').

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

If eyes close, go to 0(4) and continue through 0'(7').

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

If eyes close, go to 0(5) and continue through 0(’P).

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

If eyes close, go to 0 and continue through

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

If eyes have not yet closed:
Soon your eyes would close by themselves, but there is no need to strain them more. You have concentrated well upon the target, and have become very relaxed. Now we have come to the time when you may just let your eyes close. (If no response: That's it, now close them.)

(7) You now feel very relaxed, but you are going to become even more relaxed. It is easier to relax now that your eyes are closed. You will keep them closed until I tell you to open them or until I tell you to wake up . . . . You feel pleasantly drowsy and sleepy as you continue to listen to my voice. Just keep your thoughts on what I am saying. You are going to get much more drowsy and sleepy. Soon you will be deep asleep but you will have no trouble hearing me. You will not wake up until I tell you to.

Soon I shall begin to count from one to twenty. As I count you will feel yourself going down farther and farther into a deep restful sleep, but you will be able to do all sorts of things I ask you to do without waking up **. . . .** One —— you are going to go more deeply asleep **. . . .** Two —— down, down into a deep, sound sleep. Three —— four —— more and more asleep **. . . .** Five —— six ——seven —— you are sinking into a deep, deep sleep. Nothing will disturb you **. . .** I would like you to hold your thoughts on my voice and those things I tell you to think of. You are finding it easy just to listen to the things I tell you **. . . .** Eight —— nine, ten —— half—way there —— always deeper asleep . . . Eleven ——twelve —— thirteen —— fourteen —— fifteen —— although deep asleep you can hear me clearly. You will always hear me distinctly no matter how deeply asleep you feel you are. Sixteen —— seventeen ——eighteen —— deep sleep, fast asleep. Nothing will disturb you. You are going to experience many things that I will tell you to experience **. . .** Nineteen —— twenty. Deep asleep! You will not wake up until I tell you to. You will wish to sleep comfortably and to have the experiences I describe to you.

I want you to realize that you will be able to speak, to move, and even to open your eyes if I ask you to do so, and still remain just as hypnotized as you are now. No matter what you do, you will remain hypnotized until I tell you otherwise **. . . .** All right, then

Go to Instruction 1. HAND LOWERING.

0. INDUCTION BY EYE CLOSURE

For those who close their eyes early

As soon as their eyes close, terminate sentence appropriately, then say:

You are comfortably relaxed, but you are going to relax much more, much more. Your eyes are now closed. Keep your eyes closed until I tell you to open them or to wake up.

Then pick up at the appropriate place and continue with the following suggestions, all of which assume that the eyes are already closed. If the eyes should reopen, instruct subject to close them.

(2) Now take it easy and just let yourself relax. Don't be tense. Just listen carefully to my voice. If your thoughts wander away from it, that is all right, but bring your attention back to it. Sometimes my voice may change a little, or sound as if it were coming from far off. That is all right. If you begin to get sleepier, that will be fine, too. Whatever happens, accept it, and just keep listening to my voice as you become more and more relaxed. More and more relaxed. Just listen and relax. Whatever you feel is happening, just let it happen.

(3) Relax more and more. As you ***think*** of relaxing, your muscles will relax. Starting with your right foot, relax the muscles of your right leg **. . .** Now the muscles of your left leg.

Just relax all over. Relax your right hand, your forearm, upper arm, and shoulder **. . . .** That's it **. . . .** Now your left hand **. . .** and forearm and upper arm **. . .** and shoulder. Relax your neck, and chest **. . .** more and more relaxed **. . .** completely relaxed.

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

(5’) You are relaxed, very relaxed. By letting yourself go you can become even more relaxed. You can reach a state of deeper, more complete relaxation. You are becoming increasingly drowsy and sleepy. There is a pleasant feeling of numbness and heaviness throughout your body. You begin to feel so relaxed, so sleepy. It is easier to bring back your thoughts from other things and to attend only to my voice. Soon you will just listen sleepily to my voice, as you become more and more deeply relaxed.

(6) You are relaxed, very relaxed. Your whole body feels heavy and relaxed. You feel a pleasant warm tingling throughout your body as you get more and more tired and sleepy. Sleepy. Drowsy. Drowsy and sleepy. Keep your thoughts on what I am saying; listen to my voice. Soon there will be nothing to think of but my voice and my words, while you relax more and more.

There are no troubles, no cares to bother you now. Nothing seems important but what my voice is saying, nothing else is important now. You are interested only in what my voice is saying to you. Even my voice may sound a little strange, as though it comes to you in a dream, as you sink deeper into this numbness, this heaviness, of deep relaxation. Relax, relax . . **.** deeply relaxed. Deeper, deeper, deeper.

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

I want you to realize that you will be able to speak, to move, and even to open your eyes if I ask you to do so, and still remain just as hypnotized as you are now. No matter what you do, you will remain hypnotized until I tell you otherwise **. . . .** All right, then **. .**

Stay completely relaxed, but listen carefully to what I tell you next. In a little while I shall begin counting backwards from twenty to one. You will awaken gradually, but you will still be in your present state for most of the count. When I reach “five” you will open your eyes, but you will not be fully awake. When I get to “one” you will be entirely roused up, in your normal state of wakefulness. After you wake up you will feel refreshed, and not have any pain or stiffness or other unpleasant aftereffects. I shall now count backwards from twenty, and at “five,” not sooner, you will open your eyes but not be fully aroused until I reach “one.” At “one” you will be fully awake. Ready, now: 20 — 19 — 18 — 17 — 16 — 15 — 14 — 13 — 12 — 11 — 10 (half—way) 9 — 8 — 7 — 6 — 5 — 4 — 3 — 2 — 1. Now you feel wide-awake’

APPENDIX G:
FREE SPEECH STORY-OPENINGS

1. Imagine that you are going through an opening in the earth and emerging at a different place than when you started. Please describe for me what you would observe in this place.
2. Imagine that you are climbing up a spiral staircase and you meet someone at the top. Please describe what such an encounter would be like.
3. Imagine that you are immersing yourself in a pool of water and that you emerge in a different time and place, with a different identity. Please describe what you would experience in this situation.
4. Imagine that while driving along your car sprouts wings. You find you can fly it swiftly and pleasantly through the sky, and you fly to a beautiful foreign land . Please describe for me what you would experience in this situation.
5. Imagine that you are sitting in a theater audience and are waiting for a play to begin. Imagine that the beautiful curtain rises and you see a one act play unfold before your eyes. Please describe the play for me, what you would see and what would be happening.
6. Imagine that you are walking down a wide path in a beautiful forest and that you come upon something happening which is very interesting. Please describe to me what you would see.
7. Imagine that you are walking by yourself in an art museum and that you come upon a painting that you magically enter. Describe what you would find there in the painting.
8. Imagine that you are sitting on a big white fluffy cloud, that picks you up and around in the blue sky , so that you look down onto the earth. Imagine that you float to some special place where something interesting and important happens. Please describe what you would observe and experience.
9. Imagine that you are lying comfortably in the sunshine on a beautiful beach, with palm trees gently swaying in the breeze, along with pleasant sounds and smells of the beach. Please describe to me what you would observe in this place and what would happen.
10. Imagine that you are in an ancient abandoned castle, which is nonetheless sunlit and pleasant, and that along one of the corridors is a beautifully carved door, which has not been opened for centuries. Please describe what you would find when you open the door.

APPENDIX H:
INSTRUCTIONS BETWEEN TASKS

INSTRUCTIONS BETWEEN TAT-CARDS AND FREE SPEECH STORIES:

FOR BASELINE (After each card and free-speech story):
That was certainly an interesting story. Now I would like you to open your eyes. Good, now just count backwards (different backward counting requests are made).

FOR HYPNOSIS (After each card and each free-speech story):
Method 1:
"Keep your eyes closed. You will remain deeply hypnotized. You will become even more deeply hypnotized. You will enter a deeper and deeper trance. Perhaps you would like to imagine that you are at the top of a beautiful staircase and I am standing right next to you. Can you see this beautiful staircase? You are going to go down this beautiful staircase and you will relax even more and more – more and more. As you go down the stairs, I will go with you, step by step, and I will count the steps. Perhaps you would also like to count the steps with me. As you go farther and farther down, you will be able to go into a deeper and deeper trance, deeper and deeper relaxed, deeper and more deeply relaxed and sleepy and drowsy. Farther and further down, deeper and deeper asleep. Going into this wonderful , relaxed, deep, drowsy and sleepy, sleepy state-----deep deep relaxation, deeper and deeper. You are going around and around as the staircase windes down. At the bottom of the staircase, there is a private room , a private space of your own----a private space of your own, a very deep, very comfortable place. You will go into an even much deeper state of trance than you have ever been before. You are going deeper and deeper, around and down, down and around. Closer and closer to the bottom of the staircase to a very special room, a very private place that is very deeply relaxed and comfortable. You will feel so comfortable there that you will want to continue to remain in this deep state, this deep, deep, deep, deep state. There notice what it is like for you."

Method 2 (after all TAT cards are completed and before moving on to the free speech stories):
"Perhaps you would like to imagine that you are at the top of beautiful staircase and I am standing right next to you. The staircase is covered by a rich, luxurious carpet. Notice what color the carpet is and describe it to me." [subject responds.] "That's right: it is [red or blue..]….You are standing with bare feet on the carpet. As you stand there, you can feel your feet sink into the soft richness of this warm [red] carpet. And as you look down the staircase, which has 20 steps, you can see the color of the carpet getting deeper and deeper, deeper and more vibrant. At the right side there is a solid banister. What is it like?" [subject responds.] "Yes, it is a smooth marble [or solid oak wood} banister. Many hands have glided down it before yours. As you are standing there on the top step, the idea may come up in your mind that you might want just tentatively to move your right bare foot to the part of the staircase close to the banister that has not been covered by a rich, deep velvety carpet. What is it like ?" [subject responds.] "That's right; it's [marble or wooden]. Move your foot over and feel the [coolness of the marble or hardness of the wood] under your toes, and then bring the foot back again to the lovely softness of the velvety carpet. As you go down the stairs , I will go down with you, step

by step, and I will count the steps. Perhaps you would also like to count them with me. Hold on to the banister with your right hand, and step down to the second step. AS you go farther and farther down , you will be able to go deeper and deeper into trance, deeper and deeper relaxed , deeper and more deeply relaxed and sleepy and drowsy. Now let's step down to the third step. Farther and farther down, deeper and deeper asleep. As you continue to the fourth and fifth step, you may notice that the color of the carpet is becoming even deeper , deeper and deeper , a more restful color…..6….7….with every breath you take, you go deeper and deeper , deeper and deeper asleep…..It feels so good to let your feet sink into the thick pile of the carpet….as you go down the stairs. Going into this wonderful , relaxed, deep, drowsy and sleepy and drowsy and sleepy, sleepy and drowsy state ….8…..deep, deep, deep relaxation….9…..deeper and deeper ….You may notice that the staircase begins to spiral down to the left, counterclockwise. And you begin going around as you go down….10….11….down and around deeper and deeper ….12….13….14….very comfortable….very drowsy…. Soon you will reach the bottom of the staircase there is a private room , a private space of your own…..You can already see the threshold at the bottom of the stairs, the threshold that leads into this private space of your own, a very deep, a very comfortable place….At the count of 20, you will have reached the bottom. You will step over the threshold, and at that moment you will go into an even much deeper state of trance than you have ever gone before….15….16….You are going deeper and deeper , deeper and deeper and are looking forward to going into a deeper state than you have ever been before. Deeper and deeper, around and around….17….closer and closer to the bottom of the staircase to a very special room, a very private place that is very deeply relaxed and comfortable. You will feel so comfortable there that you will want to continue to remain in this deep state….18…19….and …..20! Deep, deep, deep, deep." [The final number must be spoken with emphasis.] "There, notice what it is like for you."

APPENDIX I:
DAGII-III TAGS

First Order Tags

01 SELF
02 SELVES
03 OTHER
04 MALE-ROLE
05 FEMALE-ROLE
06 NEUTER-ROLE
07 JOB-ROLE
08 SMALL-GROUP
09 LARGE-GROUP
10 BODYPART
11 FOOD
12 CLOTHING
13 TOOL
14 NATURAL-OBJ
15 NON-SPC-OBJ
16 SENSORY-REF
17 TIME-REF
18 SPACE-REF
19 QUAN-REF
20 SOCIAL-PLACE
21 NATUR-WORLD
22 IDEAL-VALUE
23 DEVIATION
24 ACTION-NORM
25 MESSAGE-FORM
26 THOUGHT-FORM
27 AROUSAL
28 URGE
29 AFFECTION
30 PLEASURE
31 DISTRESS
32 ANGER
33 SENSE
34 THINK
35 IF
36 EQUAL
37 NOT
38 CAUSE
39 DEFENSE-MECH
40 GOOD
41 BAD
42 OUGHT
43 COMMUNICATE
44 APPROACH
45 GUIDE
46 CONTROL
47 FOLLOW
48 ATTACK
49 AVOID
50 ATTEMPT
51 GET
52 POSSESS
53 EXPEL
54 WORK
55 MOVE
56 ACADEMIC
57 ARTISTIC
58 COMMUNITY
59 ECONOMIC
60 FAMILY
61 LEGAL
62 MEDICAL
63 MILITARY
64 POLITICAL
65 RECREATIONAL
66 RELIGIOUS
67 TECHNOLOGICL
68 HIGHER-STAT
69 PEER-STATUS
70 LOWER-STATUS
71 OVERSTATE
72 UNDERSTATE
73 SIGN-STRONG
74 SIGN-WEAK
75 SIGN-ACCEPT
76 SIGN-REJECT
77 MALE-THEME
78 FEMALE-THEME
79 SEX-THEME
80 SIGN-ASCEND
81 SIGN-AUTH
82 DANGER-THEME
83 DEATH-THEME
84 null
85 HOUSEHOLD
86 SADNESS
87 FEAR

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Higher Order Tags

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88 PERSONS=CAT01+CAT02+CAT03.
89 ROLES=CAT04+CAT05+CAT06+CAT07.
90 COLLECTV=CAT08+CAT09.
91 SOCIAL = PERSONS+ROLES+COLLECTV.
92 CULTOBJ = CAT11+CAT12+CAT13.
93 CULTSETT= CAT20.
94 CULTPATT=CAT15+CAT22+CAT23+CAT24+CAT25+CAT26
95 CULTURAL= CULTOBJ+CULTSETT+CULTPATT
96 NATURAL = CAT10+CAT14+CAT21.
97 OBJECTS = SOCIAL+CULTURAL+NATURAL.
98 EMOTIONS= CAT27+CAT28+CAT29+CAT30+CAT31+CAT32
99 THOUGHT = CAT33+CAT34+CAT35+CAT36+CAT37+CAT38
100 EVALUATE= CAT40+CAT41+CAT42
101 PSYPROC = EMOTIONS+THOUGHT+EVALUATE
102 SOCEMOTE= CAT43+CAT44+CAT45+CAT46+CAT47+CAT48+CAT49.
103 INSTRUM = CAT50+CAT51+CAT52+CAT53+CAT54+CAT55.
104 BEHAVIOR= SOCEMOTE+INSTRUM.
105 PROCESS = PSYPROC+BEHAVIOR.

APPENDIX J:
COUNT-RID TAGS

1) ORAL
2) ANAL
3) SEX
4) GEN SENSATION
5) TOUCH
6) TASTE
7) ODOR
8) SOUND
9) VISION
10) COLD
11) HARD
12) SOFT
13) PASSIVITY
14) VOYAGE
15) RANDOM MOVE
16) DIFFUSION
17) CHAOS
18) UNKNOWN
19) TIMELESSNESS
20) CSNESS ALTER
21) BRINK-PASSAGE
22) NARCISSISM
23) CONCRETENESS
24) ASCEND
25) HEIGHT
26) DESCEND
27) DEPTH
28) FIRE
29) WATER
30) ABSTRACTION
31) SOCIAL BEHAV
32) INSTRUM BEHAV
33) RESTRAINT
34) ORDER
35) TEMPORAL REF
36) MORAL IMPERAT
37) POS EMOTION
38) ANXIETY
39) SADNESS
40) AFFECTION
41) AGGRESSION
42) EXPRESS BEHAV
43) GLORY
44) MALE ROLE
45) FEMALE ROLE
46) SELF
47) RELAT OTHERS
48) DIABOLIC
49) ASPIRATION
50) ANGELIC
51) FLOWERS
52) SYNTHESIS
53) STRONG
54) WEAK
55) GOOD
56) BAD
57) ACTIVITY
58) BEING
59) ANALOGY
60) PARATAXIC
61) INTEGRATIVE
62) NOVELTY
63) NEGATION
64) TRIVIAL
65) TRANSMUTATION
66) DRIVE
67) SENSATION
68) DEFENS SYMBOL
69) REGRES COGNIT
70) ICARUS
71) EMOTION
72) SEC PROCESS
73) PRIM PROCESS
74) MALE THEME
75) FEMALE THEME
76) PMT
77) PFT
78) PMR
79) PFR
80) PRM-PMT
81) PMR-PFT
82) PFR-PFT
83) PFR-PMT
84) S STRONG
85) S WEAK
86) S GOOD
87) S BAD
88) S ACTIVE
89) S PASSIVE
90) S APPROACH
91) S ATTACK
92) STRONG-WEAK
93) GOOD-BAD
94) ACTIVE-PASSIV
95) APPROA-ATTACK
96) SYNAESTHESIA
97) PHYSIOG PCPT
98) EMOT THOUGHT
99) BASIC SENSAT

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PRIMARY PROCESS CAT73

According to Martindale

5 Content Categories Contribute to the Primary Process Score
CAT66 Drive
CAT68 DEFENS SYMBOL (Perceptual DisInhibition)
CAT67 Sensations
CAT69 Regressive Cognition
CAT70 Icarian Imagery

VITA

Dr. Edeltraud Elter-Nodvin was born and grew up in Moetzingen, Kreis Boeblingen, Germany. She graduated from The Aufbaugymnsium, a high school in Nagold Germany, in 1985. In 1985 she came to the United States and during the next year explored the country from west to east coast. She was admitted to the University of Maine in the fall of 1986 to study Business Administration. She moved to Knoxville, Tennessee in 1988 and transferred to the University of Tennessee where she graduated in the spring of 1989 with a B.S. in Business Administration. In the 1990s, Dr. Elter-Nodvin, known as Sabette to her friends, pursued graduate studies at the University of Tennessee; started a family with two lovely daughters, Leah and Madelaine; and co-founded and managed several businesses with her husband and partner, Stephen Nodvin. In the summer of 2000 Dr. Elter-Nodvin received her Ph. D. in Psychology from the University of Tennessee.